At the cutting edge: the political economy of wage suppression in the Australian meat industry

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Statement of originality

This is to certify that the content of this thesis is my own work. This thesis has not been submitted for any other degree or purpose.

I certify that the intellectual content of this thesis is the product of my own work, and that all assistance received in preparing this thesis and all sources have been acknowledged.

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Nicholas Avery

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Content warning

This thesis contains descriptions of the slaughter and disassembly of animals for the production of meat. It contains drawings of animal slaughter and images of the processing of animal carcasses in abattoirs.

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Abstract

Once a well remunerated and respected trade, processing animals for meat now attracts low wages and is primarily performed by those on the margins of Australian society. The position of workers in the meat industry sits in stark contrast with its expansion—exports have increased with growing international demand and Australians are amongst the highest consumers globally. This thesis identifies and explains the drivers of the devaluation of factory workers in the red meat and poultry processing industries since the mid-1980s. Employing a socio-economic perspective on labour markets and a classical Marxist theory of competition, I evaluate meat workers' bargaining power in the context of industry development and changing labour processes. I show that wage suppression in the meat industry is the result of four interrelated processes that in turn originate in competition between capitals, between capital and labour, and between workers. First is the concentration of capital, which indicates not reduced competition but rather a change in its articulation. I show that Australian processors charted a unique path to consolidation in the context of rising international competition, involving traditional price wars in the poultry industry and the appropriation of ground rent in the red meat export sector. Second is an increasing employer militancy amidst favourable microeconomic reform. Through a novel analysis of enterprise agreements, I show that below-average wage increases for meat workers were central to their experience of the new industrial settlement from 1991 onwards. Third is the provision of a cheap, vulnerable workforce. Since the late 2000's, migrant workers on temporary visas constitute a state-sponsored subsidy to industry profit margins insofar as they have been used to avoid union-negotiated conditions and have themselves faced systematic wage theft. The fourth factor is increasing employer control over the labour process. I find that multinational meat processors are increasingly integrating their supply chains by standardising livestock inputs and automating their disassembly, a longstanding competitive strategy in the seafood, poultry and pig industries now making its way into the production and processing of larger stock. The result is an intensification of production and employers' near total control over the labour process. Workers face considerable challenges in this new context, prompting necessary reflection on the valuation of labour within capitalist competition.

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Abbreviations

ABS	Australian Bureau of Statistics
ACCC	Australian Competition & Consumer Commission
ACGC	Australian Chicken Growers' Council
ACMF	Australian Chicken Meat Federation
ACTU	Australian Council of Trade Unions
ALP	Australian Labor Party
AMH	Australia Meat Holdings
AMIC	Australian Meat Industry Council
AMIEU	Australasian Meat Industry Employees' Union
AMPC	Australian Meat Processor Corporation
ANZSIC	Australian and New Zealand Standard Industrial Classification
ANZSCO	Australian and New Zealand Standard Classification of Occupations
ATO	Australian Tax Office
BLADE	Business Longitudinal Analysis Data Environment
CPI	Consumer Price Index
DAFF	Department of Agriculture, Fisheries and Forestry
DEWR	Department of Employment and Workplace Relations
DFAT	Department of Foreign Affairs and Trade
FWC	Fair Work Commission
FWO	Fair Work Ombudsman
JBS	José Batista Sobrinho (founded JBS in 1953)
MATFA	Meat and Allied Trades Federation of Australia
MILA	Meat Industry Labour Agreement
MLA	Meat & Livestock Australia
NLIS	National Livestock Identification System
NUW	National Union of Workers
OSCA	Occupation Standard Classification for Australia
PALM	Pacific Island Labour Mobility
UWU	United Workers Union

Glossary

Broiler. A chicken bred for meat production.

Capital. There are many definitions and uses of the term. Here, I generally use three, depending on the context: (1) assets used in production, e.g. 'fixed capital', 'constant capital', 'capital-intensive', (2) an individual firm, e.g. 'the most efficient capital', 'the concentration of capitals', and (3) a description of the capitalist class, e.g. 'conflict between labour and capital'.

Chain. The chain is a version of conveyor technology that moves animal carcasses between workers. It is a key component of the 'disassembly line'.

Extensive production. The reproduction and feeding of livestock by grazing on native vegetation and modified pastures.

Feedlot. Farms where livestock are grain-fed to gain weight.

Intensive production. The reproduction and feeding of livestock in confined, sometimes enclosed, spaces.

Turn-off. Livestock that are sold for processing or export.

Chapter 1 – ‘It controls us’

Perhaps the most consequential moment in the history of the Australian meat processing industry happened nearly a century ago in 1933 when a new process was introduced to Victorian abattoirs that exported sheep meat. The intervention—simply referred to as ‘the chain’—was a mechanical conveyor system that moved carcasses between workers in the plant. The chain profoundly transformed the nature of work in the industry. ‘[I]t controls us’, one worker observed at the time, ‘[a]s soon as we finish our particular job, the next sheep is immediately on us, because the chain never stops’ (in Cutler 1976, 255, see also 250-64 and Jerrard 2001). Prior to its introduction, sheep slaughterers required a comprehensive butchering skillset as they worked solo on an animal. Afterwards, the same workers performed simpler, more specialised tasks on a disassembly line and they found themselves competing for work with people with no industry experience who could be trained in several weeks as opposed to three years.

Developed in Chicago around the turn of the twentieth century, the technology was introduced to New Zealand abattoirs in 1932 and Australian abattoirs the year after. Employers weaponised the chain to break skilled labour’s hold over the production process and cut the wage bill. The new system was a blow to the occupational identity of meat workers who took pride in their craft skills, and it was a blow to their bargaining power. They struck for several weeks, however farmers and the unemployed, of which there was a plentiful supply given it was during the nadir of the Great Depression, were brought in to work the chain under police protection. Those who returned to work accepted a pay cut of up to 40 per cent. In the immediate aftermath, the Victorian branch of the meat workers’ union was crippled. However, in the decades that followed the battle for control over the labour process continued and workers won considerable autonomy under the new arrangement. By the mid-1970s, the meat workers’ union had 56,000 members (Cutler 1976, 398), strikes were common, organised work sites successfully drew concessions from employers, and workers regained some control over the pace of work.

1.1 Australian labour costs in the global meat empire

The great promise of conveyor technology in meat processing was a reduction in labour costs. Since the industrialisation of Australian abattoirs in the late nineteenth century, exports have been central to the growth of the red meat industry.

Necessarily, exporters and state officials have had an enduring preoccupation with the relative costs of production between Australian meatworks and competing plants overseas. The wage bill has been a principal concern. In 1931, the Director of the Queensland Bureau of Economics and Statistics, J.B. Brigden, inquired into the international competitiveness of the Queensland meat industry. Labour historian Terry Cutler (1976, 217) suggested that '[t]he message of Brigden's reports was perfectly clear: overall labour costs were too great for an industry attempting to compete for international markets.' This argument, familiar in the globalised, labour-intensive manufacturing sectors of high-income countries (Botwinick 2018, 312), has been made many times in the long history of the Australian meat industry. It reared its head in 1993, after international demand slumped in the 1980s and processors were left with idle plants. An industry- and government-funded body called the Meat Research Corporation commissioned a report from Booz-Allen and Hamilton (1993), who found that Australia's best-in-class plants had higher processing costs than those in Argentina, Ireland, New Zealand and the United States.

More recently the successor of the Meat Research Corporation, the Australian Meat Processor Corporation (AMPC), has continued the attack on labour costs. The AMPC commissioned a report in 2018 which found that, after excluding livestock purchases, the average processing cost per head of cattle in Australia was 24 per cent higher than costs in the United States, 75 per cent higher than in Argentina and 100 per cent higher than in Brazil (SG Heilbron Economic & Policy Consulting 2018). Whilst government-imposed inspection and certification costs were partly to blame, it appeared that the real issue was labour. Labour costs in Australian abattoirs made up the bulk of total operating costs at 58 per cent, whereas in the comparison countries labour costs were between 42 and 45 per cent (ibid.). Another report commissioned by the AMPC identified labour as the most significant regulatory concern for employers in the meat processing industry, more important than the costs involved in energy use, market access, and animal welfare (ACIL Allen Consulting 2020). The report describes employers as stuck in a bind: unable to source and retain enough workers and not able to raise wages to attract them because '[l]abour costs are unacceptably high' (ibid. 10).

The meat industry remains labour intensive. Around 40,000 people were directly employed in the red meat processing sector in 2024 (National Institute of Economic and Industry Research 2024). Including poultry processing and the cured meat and smallgoods industry, the meat and meat product manufacturing industry employed

a total of 67,432 people in June of 2024. This makes it the largest employer in the manufacturing sector, employing more people than the bakery product, structural metal product, motor vehicle and motor vehicle parts, and other transport and beverage industries (Australian Bureau of Statistics (ABS) 2024c). In addition (and counting those not directly employed in abattoirs) the post-farm gate red meat industry employs around 200,000 people (Australian Meat Industry Council (AMIC) 2022).

With higher wages and on-costs such as superannuation, payroll taxes, and workers' compensation premiums, Australian export abattoirs have retained a dominant position in global meat markets primarily due to access to relatively cheap, high-quality livestock. The balance sheets of processors show that livestock purchases far outweigh all other costs involved in meat processing, including labour, at about three quarters of total costs (Industry Commission 1994; Meat & Livestock Australia 2010). Including livestock and transport costs, processing costs account for between 13 and 23 per cent of total costs, with labour costs accounting for about half that (Industry Commission 1994, 33; Meat & Livestock Australia 2010, 24). This line of thinking was put to the Queensland Industrial Court in 1931 by branch secretary of the Australasian Meat Industry Employees' Union (AMIEU), Pierce Carney, who argued that 'the wages of the meat industry have no bearing on the stimulating of production' (ibid.). But clamping down on wages has been a principal feature of competition in the Australian meat processing industry since and it has only become more prevalent in the last four decades.

By Australian standards, not all meat workers are low paid. As in any industry, there is a spectrum of occupations requiring different skills. Workers employed in higher skilled boning and slaughtering roles (those with the last remnants of craft skills still in use) can achieve wages close to the Australian median, often through informal piece rate arrangements. Those on enterprise agreements also achieve a clear pay premium over award-reliant workers. But many meat workers definitively *are* low paid. Across the entire meat processing workforce, workers in factory processing roles experience low and stagnant median earnings. Amongst these, process workers and meat packers attract wages similar to other low-paid workers such as child carers, café workers and cleaners. Many workers in the industry are paid at or just above the Australian minimum wage.

Over the last two decades migrants on temporary work visas have faced the most pointed forms of exploitation in the meat industry. The list of transgressions is long, but it includes: systematic enterprise agreement avoidance, sham contracting, extremely long shifts, wage theft, the abuse of training wages, unpaid or underpaid overtime, excessive control over bathroom breaks, debt bondage, employment bondage and other forms of control and abuse outside of the workplace. At the centre of the scandals has been the largest Australian poultry processing firm, Baiada, which has faced industrial action and investigation by the Fair Work Ombudsman since 2011. However, the problems run far deeper than just one company; they spread right across both large and small firms in the Australian red meat and poultry processing sector (and beyond this to the agriculture, retail and hospitality industries (Schneiders 2022)).

Temporary migrant workers fill many of the most difficult and physically demanding jobs in the Australian economy, whether that be fruit picking and processing, aged care, or kitchen work. This is particularly the case for the meat industry, where temporary migrants make up one quarter of the workforce and where the average rate of injury is double the manufacturing average and triple the all-industry average (Australian Bureau of Statistics 2021a; McKell and Booth 2018, 5). As a worker interviewed by Norton and Rafferty put it:

> It is a bloody hard way to earn a living … You can tell as many lies as you like until they walk in the front gate, but at the end of the day we are still killing animals and we are still dressing them and we are still putting them in boxes.
>
> (worker interviewed by Norton and Rafferty 2010, 24)

Factory processing work in the meat industry is hard, it is dangerous, and it is often 'ugly'. But there is limited evidence for what the orthodoxy calls a 'compensation wage' due to these undesirable characteristics. For many in the meat industry, work is poorly remunerated.

In contrast, business is booming. In July of 2025, beef exports were at an historical high of more than 150,000 tonnes and current rates of production are expected to set a new annual record this calendar year (Condon 2025a). Part of the current boom is cyclical—Australian processors have capitalised on a long-run downturn in US beef production as farmers rebuild their herds. However, it is also the result of the long-

term positioning of export processors in global meat markets, including the US but also Japan, Korea, China, Indonesia and Canada, the sum of which make up strong and sustained demand for Australian beef and lamb. In 2023-24, beef exports totalled $12.4 billion, which was the fifth highest merchandise export behind iron ore, coal, natural gas and gold (Department of Foreign Affairs and Trade (DFAT) 2024). The meat processing industry class (ANZSIC 1111), which includes all red meat products, was the highest ranking industry class for industry value added (IVA) in the manufacturing sector at $5.9 billion in 2023-24. It generated more value added than industries manufacturing wooden structural components, pharmaceutical products, steel, and medical equipment (Australian Bureau of Statistics 2024c). The chicken meat industry, on the other hand, caters almost exclusively for the domestic market. Here production has grown astronomically and with remarkable stability. Between 1966 and 2023, the total annual weight of chicken meat processed has grown by a factor of 19 from 73 kilotonnes to 1,413 kilotonnes (ABS 2024). That equates to more than 700 million chickens processed, or more than 50 kilograms of chicken consumed on average per person each year.

The trend of expanding production has enabled vast wealth accumulation for owners of the largest meat processing companies, who have entrenched themselves within the Australian capitalist class. On the Australian Financial Review's 2025 top 200 Rich List is Chris Thomas of Thomas Foods International (net worth $2.97 bn), Simon Camilleri and family of Baiada Poultry ($2.69 bn), Roger and Gail Fletcher of Fletcher International Exports ($1.46 bn) (Rich List 2025). Also on the AFR list is Paul Lederer, who sold Primo Foods to JBS in 2015 for $1.45 billion, and Lyn Ingham and family, who sold the family poultry processing business to a private equity firm for $880 million in 2013. On The Australian's top 250 list from 2021 is Joe Catalfamo of Australian Meat Group, who is also the beneficiary of a business sale to JBS in 2008, and the late Colin Mckenna of Midfield Meat Group (Condon 2021). One of the largest beef processors in Queensland is Teys, the Australian part of a joint operation with US company Cargill. The Teys family has previously sought an exemption on the disclosure of their income tax payments (Mather 2015).

This concentration of wealth means that the meat industry lobby is one of the largest and most effective in Australian politics (Sievert et al. 2021; Ahsan 2022; Sievert and Parker 2024; Russell et al. 2023). Employer unions such as the National Farmers' Federation, the Australian Meat Industry Council, the Australian Chicken Meat Federation and the Red Meat Advisory Council have considerable political sway in

Canberra, particularly with the National Party of Australia. However the Australian Labor Party is no enemy of farmers (Albanese 2024), nor of big capital. In February of 2025 the head of the ALP and Prime Minister, Anthony Albanese, overruled his own Environment Minister to protect the presence of multinational-owned salmon farms in Tasmania (Balen 2025b; 2025a). Some of the farms Albanese protected are owned by the global meat processing giant, JBS, which also operates the largest red meat processing plant in the Southern Hemisphere just outside of Brisbane, Queensland. The influence of the meat industry is also institutionalised in various organisations co-funded by business and government, including Meat & Livestock Australia and the Australian Meat Processing Corporation, and other industry-government collaborations such as the Meat Modernisation Working Group (Department of Agriculture, Fisheries and Forestry 2024a). Such organisations are key vehicles for research and development in the meat industry, but they have a further effect on industry policy by providing advice on attaining market access, biosecurity, and reducing the 'burden' of regulatory costs on producers and processors. As I explore in this thesis, they also play a key role in ensuring the supply of a low-cost workforce to the industry.

1.2 Five readings of 'at the cutting edge'

The chain did not eliminate meat workers' bargaining power; however, its introduction marks the beginning of the transformation of the labour process that has persisted in the nine decades since 1933. Arguably, the full effects of this development have only emerged recently. Today, unions in the industry play limited roles in the production process, the majority of meat workers perform repetitive tasks on the disassembly line, and many are low paid. The story of the Australian meat industry is significant not only because it highlights the way in which this particular group of workers' labour is valued—it is significant because it is instructive to understanding the intersection of several important contemporary issues. These include the rise of industrial food production, the concentration of agri-business capital and its changing geographic footprint amidst international competition, the relationship between the state and multinational firms, the orientation of the manufacturing sector towards the primary sector and the consequent embedding of the Australian economy within the natural environment, the development of the Australian guest worker regime, and the deskilling of manual workers amidst technological change.

The aim of this thesis is to identify and explain the drivers of the devaluation of labour in the red meat and poultry processing industries over the previous four decades. The middle of the 1980s is a significant point in time because it marks a transition in the balance of power that has since favoured employers. At the level of concrete wage outcomes, the key determining variables are employer and worker bargaining power, minimum labour standards, and the rules governing industrial negotiation. But the limits of possibility for wage outcomes—and the drivers of more fundamental changes in labour markets—are determined by complex relationships between the demand for labour, its supply, and the deployment of technologies in the production process. It is necessary, then, to account for the flow of capital into and out of the industry, the relationship between industry investment and product demand, and firms' capacities to pay wages, one the one hand, and the availability of suitable workers, the ecosystem of skill formation, and lines of differences including gender, ethnicity and visa status, on the other. An analysis of wage suppression thus requires moving well beyond debates about the price of labour. It requires understanding the development of competition. Of particular interest here is the development of competition in meat processing input and product markets, and the way in which competitive pressures in these markets are reflected in competition between capital and labour and between different groups of labour. Such an analysis allows the identification of different dimensions to wage suppression: the structuring of jobs, the allocation of workers to jobs, institutions for wage setting and work valuation, and control in the workplace.

As a way into the theoretical framework used in this thesis, I propose five ways to read the title 'at the cutting edge'. They are references to a focus on wage cuts, the purpose of critical thinking, to divide or segment the workforce, a frontier of technological innovation and the meat work labour process.

The first reading of the title describes the devaluation of labour in the meat industry over the previous forty years. As the subject of this thesis, a focus on wages necessarily brackets out issues that have plagued the meat industry since its industrialisation in the nineteenth century. Upton Sinclair's (1906) classic *The Jungle* was meant to expose the horrid working conditions at abattoirs in Chicago's meat packing district, but it ended up raising more public concern about the industry's poor food safety standards. Australian abattoirs had similar problems. In nineteenth century Sydney and Melbourne, residents complained of the noxious smells coming from local abattoirs, leading to a Royal Commission and their relocation to the urban

fringe (Fitzgerald 2008). Newer concerns include the carbon footprint of livestock production (methane output) (Department of Agriculture, Fisheries and Forestry and Meat & Livestock Australia 2014), deforestation of the Amazon rainforest for grazing (Rugitsky 2024), and other problems associated with intensive animal production, including the spread of zoonic diseases and excessive antibiotics use (Hayek 2022).

The most glaring contradiction brought about by a focus on labour in the meat industry is clearly with the rights of animals. Since the popularisation of the animal rights movement in the 1970s, animal welfare has been an enduring concern in the industry. Now, all large processors advertise their commitment to animal welfare during livestock production, transport, and slaughter, however scandals continue to occur. Much concern relates to animals' experiences in intensive, enclosed, factory farms, in addition to the transport of unfit, debilitated animals (Baker 2022a). There are certainly some examples when the welfare of animals and meat workers align—most notably in the union's opposition to the live export industry (Jerrard 2020)—however generally favourable conditions for labour are aligned with strong product demand and the expansion of output, which is hardly a positive outcome for animals. Whilst it is ambitious and effectively outside the scope of this project, a foundational premise of this work remains a thinking together of the dual exploitations experienced by humans and (non-human) animals in capitalist systems of food production.

The second reading of 'at the cutting edge' is a reference to the purpose of critical thinking. Philosopher Maya B. Kronic (2013) traced the development of the 'epistemological cut' in the works of Gaston Bachelard, who studied the history and philosophy science. Kronic describes the method of critique:

> According to this point of view, the development of knowledge is not just a steady, progressive unfolding of a domain of truth that is, in principle, entirely deducible via eternal precepts. Reason takes place through truly unforeseeable, unprecedented acts, in which ossified complexes of knowledge, 'epistemological obstacles', are broken up by the cutting edge of thought, forcing entire fields of knowledge to be knitted back together according to different patterns in its wake.
>
> (Kronic 2013)

She also identifies the cut in the works of Louis Althusser, whose concern was the science of historical materialism. For Althusser, Kronic (ibid.) suggests, '[t]hinking always begins in the matrix of ideology, and must cut its way out.' Overcoming epistemological obstacles and stitching back together different streams of knowledge is an important meta-theoretical approach of this thesis. Given the focus on wage determination, such obstacles include claims that:

- There is a functional relationship between wages, the supply of labour and the demand for labour;
- This relationship has causal primacy over other phenomena in determining labour market outcomes;
- Institutions may distort or obstruct the normal operation of markets, but at bottom or in the long run markets are governed by perfect competition;
- The wage reflects an individual worker's productivity; and
- Flexible wage policy is the most efficient method of wage determination, where wages are aligned with employers' capacity to pay.

Whilst there is some contestation of these claims within neoclassical labour economics, they are generally upheld by its practitioners and have permeated throughout the academy with the discipline's 'imperialist' propagation into other areas of social science. Equally, they have permeated policy discussions, regulatory institutions and the halls of government. To make a clear break from this framework, I stitch together insights from three economic traditions on the fringes of and outside the neoclassical tradition: segmented labour market theory, a classical Marxist theory of competition and labour process theory. Each of these can be read as further associations of 'at the cutting edge'.

The third reading of the thesis title is that 'to cut' is to divide or segment. The association here is labour market segmentation, the idea that the labour market is divided into various segments that operate according to different rules. Born out of institutionalist and radical criticisms of neoclassical labour market theory from the 1930s to the 1970s, segmented labour market theories are what Fleetwood (2006; 2011) terms socio-economic theories of the labour market. In opposition to the idea that supply, demand and wages are functionally related, socio-economic approaches identify labour market outcomes as resulting from 'the social structuring of jobs and workers' (Brosnan and Wilkinson 1988, 11)—parallel processes of the structuring of jobs, on the one side, and the uneven assignment of workers to these jobs, on the

other (Galbraith 1998, 54–56; Botwinick 2018; Rubery 1978; Peck 2000). The terms labour supply and labour demand are still useful, but here they are much richer concepts. Supply encompasses the production and reproduction of labour power taking place within and outside the family, including both paid and unpaid labour and the inculcation of gender and class-based norms. Labour supply also extends to education, training and migration pathways. Demand encompasses the environment surrounding firms, including the nature of competition, their geographic scope, the structure of financing, barriers to capital entry and exit, and product demand. The segmented labour market approach pays particular attention to the mechanisms that cordon off women and racial and ethnic minorities into employment in 'secondary sector' jobs such as cleaning, care work, assembly and processing work, and manual labour—work that is low-paid, often precarious and defined as low skill.

Segmented labour market theory is usefully applied to make sense of occupational segregation, a structuring that is increasingly relevant in the Australian meat industry. Norton and Rafferty (2010, 25) describe large meat processing works as 'a kaleidoscope of workers of different ages, genders and backgrounds.' But workers are not randomly distributed between roles. While men make up two thirds of workers in the industry, they account for 80 per cent of production managers, 84 per cent of boners, slicers and slaughterers, 92 per cent of butchers and smallgoods makers, and 98 per cent of forklift drivers (Australian Bureau of Statistics 2021b). As I explore in this thesis, the valuation and assignment of labour to different occupations in the meat industry is heavily conditioned by gendered and racialised constructions of skill. Such divisions are also dependent on migration pathways that guarantee the supply of labour to the industry, and unions' attempts to bridge the visa divide.

While social constructions of skill provide an important explanation for the assignment of workers to jobs and their differential valuation, some of the earliest interventions from segmented labour market theory went in the other direction: they considered the impact of product markets on the types of jobs available. A key intervention is that the unequal structuring of jobs is endogenous to the operation of competition in product and labour markets, what Doeringer and Piore (2020, 39) described as a 'logical development in a competitive market.' Building on the works of post-war institutionalist economists like John Dunlop and Clark Kerr, early labour market segmentation theory described an uneven terrain of possibility for wage outcomes defined primarily by differences in capacities to pay resulting from differences in firm size, industry concentration, and capital-intensity (Doeringer

and Piore 1985; Reich et al. 1973; Gordon et al. 1982; Craig et al. 1982). The explanatory mechanisms differed between firm-specific training requirements and employer strategy to divide workers and control the production process, and they were extended and complicated by the role of organised labour itself in sheltering workers from competition with other workers (Rubery 1978; Milkman 1980). And while the characterisation of labour markets as split between primary and secondary or good and bad was rightly considered overly simplistic and static (Blaug 1976; Rubery 1978; King 1990; Fleetwood 2006; Fine 1998; Botwinick 2018), the idea that labour market inequality is an endogenous process—'the consequence of underlying socioeconomic processes, forces, or tendencies' (Fine 1998, 108; see also Villa 1986 and Botwinick 2018)—has had a lasting influence on more contemporary perspectives including efficiency wage theories, the skills ecosystem approach, and fissured or fragmented workplaces (Akerlof and Yellen 1986; Watson et al. 2003; Vosko et al. 2009; Vosko 2010; Kalleberg 2011; Standing 2011; Weil 2014; Williams 2019).

An enduring problem in many of these analyses of the demand for labour, however, is in the theory of competition used to make sense of firm behaviour—that is, the very principles that underpin labour demand. Most theories of segmented or fissured labour markets simply inherit the orthodox theory of competition, where the amount of competition is directly proportional to the number of firms participating in a market (Weeks 1981, 153). This understanding—used widely by institutions such as the Australian Consumer Competition Commission (ACCC) (2017, 2020) and many heterodox economists—understands the presence of large, monopolistic or oligopolistic firms and other 'imperfections' as limits to and aberrations from perfect competition. Aside from the fact that perfect competition is purported to operate only when the real characteristics of labour markets are removed (Botwinick 2018, 24, 29; Fine 1998, 87, 172), the quantity theory of competition is particularly narrow, pertaining only to the relative sizes of buyers and sellers in a market and blind to competitive dynamics between industries, within the firm, and between workers (Bryan 1985). Recent economic research has explored alternative models of competition, developing arguments from political economists such as Karl Marx and Joseph Schumpeter (Moudud et al. 2012; Shaikh 2016).

One of the key distinctions made between the quantity theory of competition and alternative perspectives is moving on from the idea that competition is a state of affairs, i.e. a description of the nature of a market at a particular point in time, to an

understanding that competition is a process (Weeks 1981; 2012). Here I invoke the fourth reading of 'at the cutting edge', the phrase's principal interpretation as a frontier of technological innovation. Building on Marx's analysis in *Capital Volume 1* (1990), where competition is experienced by firm owners as a compulsion to lower unit costs, cut prices and expand market share, and *Capital Volume 3* (1991), where capital mobility into and out of industries is dependent on production conditions and product demand, Anwar Shaikh (2016) develops an account of competition as a dynamic process constantly generating differential conditions of production and profitability. At the level of inter-industry competition, the newest technologies are highly significant in determining prices and profits. At the level of intra-industry competition, new technologies are central to retaining and expanding market share. And at the level of competition between capital and labour inside the firm, new technologies can transform the labour process, reorient the skill requirements of the job, and dislodge skilled workers' control over production. Within the firm, technology can thus function as a 'key weapon' (Botwinick 2018, 145) in an employer's arsenal. This conflict is a core part of capitalist competition elided by the orthodox, quantity theory.

This approach moves beyond pared back analyses of 'choice of technique' to consider actual changes in the meat worker labour process. This is the last reading of the thesis title, a reference to the knifework central to the production of meat products, and by extension a reference to the physical movements, knowledge about how to do the work and how to manage workers, and workers' use of and enmeshment within fixed capital tools and systems. In *Labor and Monopoly Capital*, Harry Braverman (1974, 57) wrote that when an employer buys labour time 'the outcome is far from being either so certain or so definite' as when they invest in fixed capital. Employers need to convert labour power, the commodity they purchased, into labour, the use value they need. They need to compel labour to work, but in no sense is this guaranteed. So how do they do it? Braverman (ibid. 58) continued: 'It thus becomes essential for the capitalist that control over the labor process pass from the hands of the worker into his own.' The object then becomes the scientific management of the labour process, and the key mechanism, made famous by management theorist Frederick Taylor, is task specialisation. Attention paid to the labour process in the meat industry reveals not only the continued importance of task specialisation, but the continued effects of deskilling and devaluation. As such, the labour process provides an anchor to the analysis of wage suppression.

These strands of thinking—labour market segmentation, a classical Marxist theory of competition, and labour process theory—are weaved together in one place: Howard Botwinick's *Persistent Inequalities: Wage Disparity under Capitalist Competition* (2018), first published in 1993. The value of Botwinick's work to this thesis is that it provides a synthesis of the different dimensions of capitalist competition: between industries, between firms, between capital and labour, and between workers. Such a synthesis is necessary to understanding the terrain of possibilities for wage increases and the structural levers that aid workers in demanding higher pay.

1.3 Relationship to relevant literature

The framework developed here sets this thesis apart from most other research on the Australian meat industry. Due to its long history of industrial conflict and its economic importance, several industry reports have been written. These include reports from the Industry Commission (1994), the Productivity Commission (1998), Meat and Livestock Australia (MLA) (2010), the Australian Competition & Consumer Commission (ACCC) (2017; 2020) and the Australian Meat Processor Corporation (AMPC) (Heilbron 2019). These are all detailed accounts of the dynamics of competition in the Australian meat industry from a strictly orthodox perspective. Throughout this thesis I frequently draw upon these works, both as sources of rich empirical analysis and as examples of institutional support for the industry.

In contrast, there is a small but significant literature on the history of industrial relations in the meat industry that engages deeply with the conflictual nature of work. This corpus comprises the PhD theses of Terrance Cutler (1976), Marjorie Jerrard (2005) and Patrick O'Leary (2008) and the articles and books they subsequently published. While Cutler and Jerrard both analyse the formation and strategy of the AMIEU, O'Leary's focus is the strategy of employers. My understanding of the Australian meat industry is deeply indebted to these works, however this project goes beyond their remit in two ways. First, I explicitly engage in labour market and competition theory in contrast to the theoretical bases of much industrial relations scholarship, i.e. the study of work, organisations and management. Second, I take up the project of labour history to the more recent phenomenon of temporary migrant worker exploitation, a phenomenon only emerging in the mid-2000s. This latter point also distinguishes the present work from other examples from the discipline of political economy, which are not very common (Underhill and Kelly 1993; Dixon and Burgess 1998; Dixon 1999; 2002; 2003;

Norton and Rafferty 2010). The exploitation of temporary migrant workers has been thoroughly analysed by sociologists and legal theorists (Petrou and Connell 2023); however, with rare exceptions (Withers 2024), these have tended to avoid discussion of competition and the labour process altogether (MacWilliam 2024).

Food systems literature explores the entanglement of social, environmental and economic problems in food production (Sievert et al. 2021; ETC Group 2022). Rarely such approaches focus on food labourers (Böhm et al. 2020). In a similar vein, two unique contributions to the study of food in social reproduction are Dinesh Wadiwel's *Animals and Capital* (2023) and Alex Blanchette's *Porkopolis: American Animality, Standardized Life, and the Factory Farm* (2020). Wadiwel's contribution is a meticulous application of value theory to the position of animals in food production, including among other things their metabolic labour (the work of their bodies growing muscle and other products that are commodified). Blanchette's contribution has a wider remit and is the result of a long, embedded anthropological study of a rural, meat packing town in the United States. With a unique capacity to tease out the historical significance and scale of changes in the production of pig meat, Blanchette unpacks the ecosystem of knowledge, technology and labour that connect the exploitation of meat workers and factory farm animals. Despite key differences in methodology and scope, several concepts developed by Wadiwel and Blanchette—including the creation of industrial animals, the vertical integration of meat processors, the standardisation of animal life, the interface between workers' bodies and the production process, and the fundamental antagonism between animals and fixed capital—are usefully applied in this thesis.

1.4 On methodology

The theoretical framework developed here problematises some ways of answering the research question and opens the door to others. I reject the idea that the purpose of economic theory is prediction and favour, instead, the idea that theory should explain things. Empirical analysis should seek to uncover the generative mechanisms underlying social phenomena (Howard and King 1985, 27; Callinicos 1995, 129; Fine 1998, 108; Callinicos and Bhaskar 2015; Fleetwood 2008). Such an inquiry must move beyond the simple collection of facts, which in any case will have an unacknowledged reliance on theory, at the same time as it must avoid an overreliance on theory, which risks effacing historical singularities with sweeping claims (Callinicos 1995, 95–97). Theoretically informed empirical inquiry can be both critical and scientific when it

identifies social phenomena as the product of historical processes, not as outcomes determined with 'the fixity of a chemical reaction' but as the result of 'the thread-by-thread weaving of the fabric of history' (Braverman 1974, 21).

The approach taken here is informed by the above accounts of historical materialism and critical realism, however it is fundamentally applied research. I draw direct inspiration from labour market and industry studies by applied political economists and economists working in the 1970s and 80s. These include Harry Braverman's (1974) interrogation of the changing class structure in the United States and outputs from the Labour Studies Group of Cambridge University's since disbanded Department of Applied Economics. The latter include the institutionalist analysis of low-wage industries titled Labour Market Structure, Industrial Organisation and Low Pay by Christine Craig, Jill Rubery, Roger Tarling and Frank Wilkinson (1982), Paola Villa's application of labour process and segmentation theories to analysing the Italian steel and construction industries in The Structuring of Labour Markets (1986), and the systems of production account proposed by Frank Wilkinson in 1983 (see also Brosnan and Wilkinson 1988) and developed by the group in an edited book in 2002 (Burchell et al. 2002).

Common to these interventions is a commitment to empirically-based class analysis through the detailed study of production techniques, corporate structures and power relations. The studies are not ethnographic in nature. While the direct experience of workers is critical to understanding the subjective conditioning and resistance of labour in production, these works tend towards a higher level of abstraction, considering structural changes in industry, technology and employment. As such, they rely more often on official statistics and industry reports in their argumentation. In this thesis, I do the same. To answer the research question and to anchor my account of changes to competition, the industry structure, bargaining power and wages over the period of concern, the core development of my argument depends on original analysis of (1) Australian government statistical surveys and administrative data on labour market outcomes, industry characteristics and performance, and trade (Australian Bureau of Statistics (ABS), the Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES), the Department of Agriculture, Fisheries and Forestry (DAFF), the Department of Foreign Affairs and Trade (DFAT), and the Australian Tax Office (ATO), and (2) industry- and firm-level wage data from enterprise agreements collated in the Workplace Agreement Database held by the Department of Employment and Workplace Relations (DEWR). I flesh out my

argument by analysis of various inquiries and reports from government committees and commissions, union and employer submissions to inquiries, industrial court decisions, industry reports, industry journals and company websites.

I consulted industry experts for background to the study, including a union official, a meat processor executive, and an accountant who formerly worked in the industry. Personal communication with these experts is cited when referred to.

1.5 Outline of chapters

In Chapter 2 I examine the evidence for low pay in the manufacturing sector and in the meat industry using wage data from multiple surveys run by the Australian Bureau of Statistics. First, I seek to place the relative pay of workers in the manufacturing sector within the Australian labour market, and I review extant literature that has identified pockets of low pay within manufacturing. I then turn to the meat industry. I analyse the median wages of factory process workers, wage growth over the previous ten years, and how meat worker wages compare to the Australian all-occupation median. I seek to identify the proportion of meat workers who are low paid and determine whether the risk of low pay differs with respect to method of pay setting, industry, occupation and visa status.

Chapter 3 moves to the development of an explanatory framework for understanding the wage differentials explored in Chapter 2. Guided by the need to understand the forces that generate wage suppression and labour market segmentation, I consider first the key concepts associated with neoclassical economists' 'basic model' of the labour market and its extension in human capital theory. The focus of the chapter is how the broad church of segmented labour market theories extended and broke from the orthodoxy's basic model. I finish the chapter with a consideration of the applicability of labour market theory to understanding wage relations in the meat industry, with a particular focus on how skills are valued and how worker effort is derived.

In Chapter 4 I deal with an important problem that arose from Chapter 3—the reliance of segmented labour market theory on a neoclassical understanding of competition and the pressing need for alternative foundations. I turn to the alternative understanding of competition developed by Anwar Shaikh and its extension to making sense of labour market inequalities in the work of Howard

Botwinick. In the latter, I find a dynamic framework that makes determinate connections between competition in capital and product markets, competition between capital and labour, and competition between different groups of workers. Given Shaikh and Botwinick revive a classical Marxist theory of competition, I consider its usefulness amidst increasing financialisation, deindustrialisation and service sector employment.

Building on the work of Shaikh (2016), Botwinick (2018) and Villa (1986), in Chapter 5 I consider how inter-industry competition for capital investment creates a shifting terrain of possibility for wage growth. As such, I explore the development of the Australian meat industry within the context of the development of the manufacturing sector and focus foremost on how meat workers gained strong wages, conditions and considerable control over the pace of work in the post-war period. I analyse how two important institutions regulated wages and work during this time: the award system managed by the industrial courts, and the piece rate tally system. I then consider the breakdown of this arrangement from the 1980s onwards, principally the divergent pattern between capital investment in the meat industry and the compensation of meat workers.

While Chapter 5 provides necessary background to the research question, Chapters 6, 7 and 8 seek to answer it. In these latter chapters, I explore the key drivers of wage suppression over the last forty-year period. Starting with Chapter 6, I analyse changes in competition in input and product markets in the meat and poultry processing industries. My chief interest is in the role of large firms that are most likely to have the highest capacities to pay wages. I consider the contexts in which the red meat and poultry industries rationalised and the competitive strategies adopted by large firms to consolidate costs and retain market power in the supply chain. In order to understand how susceptible meat exporters really are to low-price competition from overseas competitors, I consider their ability to appropriate differential rents from landowners and the durability of the Australian competitive advantage in livestock production.

Conveyor technology transformed the labour process in the meat industry, reducing unit labour costs but also rendering the work increasingly monotonous, requiring task specific but not general skills, and making it less attractive. Employers' attempts to solve the labour cost problem thus resulted in a labour supply problem. But, in response, employers were reticent to increase wages. In Chapter 7 I explore how

employers solved this problem. First, I review the literature that describes rising employer militancy in wage negotiations from the mid-1980s and into the 1990s. Through an analysis of the Workplace Agreement Dataset, I aim to establish whether wage suppression was realised in union-negotiated enterprise agreements from 1991 onwards. I analyse how employers were supported by favourable microeconomic reform to the industrial relations system and, from the mid-2000s onward, the burgeoning system of temporary working visas for migrants. I consider how these developments aided new forms of low wage competition in the twenty-first century.

Last, in chapter 8, I explore the adoption of new technologies in meat processing, an industry that is historically resistant to automation. Through an examination of how line speed is regulated and the changing toll of production on workers' bodies, I examine how employers seek to gain efficiencies in the absence of automated processing methods. Further, I consider the extent to which the new industrial settlement, described in Chapter 7, subsidises inefficient production systems and hinders productivity growth. I then move to analyse evidence for increasing efficiency in the meat industry, particularly with respect to the industry's wage to turnover ratio and the changing composition of occupations. I finish with an analysis of research and development reports to establish the meat industry's capacity to adopt intelligent automation systems and explore the plausible impact of these technologies on the labour process.

In this thesis I identify and explain the drivers of wage suppression in the meat and poultry processing industries over the previous four decades. Through an analysis of different dimensions of competition, I find that the Australian meat processing industry is a dynamic, growing sector where large employers have consolidated control over the supply chain and the labour process. In this period, wage suppression has proceeded through continued deskilling, employer militancy, systemic labour standards avoidance and division of the workforce. Positive trends in productivity growth suggest increasing employer capacity to pay, however automation, semi-offshoring and climate change constitute major challenges for labour in the medium term.

Chapter 2 – Evidence of low pay in manufacturing and the meat industry

In this chapter I examine the evidence for low pay in the manufacturing sector and in particular in the meat industry. First, I consider the manufacturing sector as a whole. In comparisons of average industry earnings and hourly wages, manufacturing sits squarely in the middle of the Australian income spectrum. Despite this position, labour market outcomes are unequal in the sector, and several studies of labour market segmentation have identified pockets of low-paid manufacturing workers. These studies provide a useful model for analysing low pay in the meat industry. Second, I explore five dimensions to wage suppression in the meat industry: across workers as a whole, across methods of pay setting, across occupations and industries, and in the engagement of temporary migrant workers. The meat industry is labour intensive. Factory process workers make up the bulk of employment in the industry. The data I analyse in this chapter shows that there is a high chance that the real earnings of factory process workers in the meat industry are stagnant, entailing an increasing gap between relatively low-paid workers in the industry and the rest of Australia. The remainder of my findings show that the risk of low wages is unevenly distributed throughout the industry. Workers on the award, workers in occupations that require the least training, and workers engaged by labour hire contractors are more likely to be at the lower end of the pay spectrum in the industry. Women and migrants are particularly at risk, especially in meat-packer roles in the red meat processing industry. To finish, I review the evidence for the exploitation of migrants on temporary work visas, which is substantial and terrible. I argue that a political economy approach is necessary to provide historical, structural and explanatory context to these findings.

2.1 Pockets of low pay in manufacturing

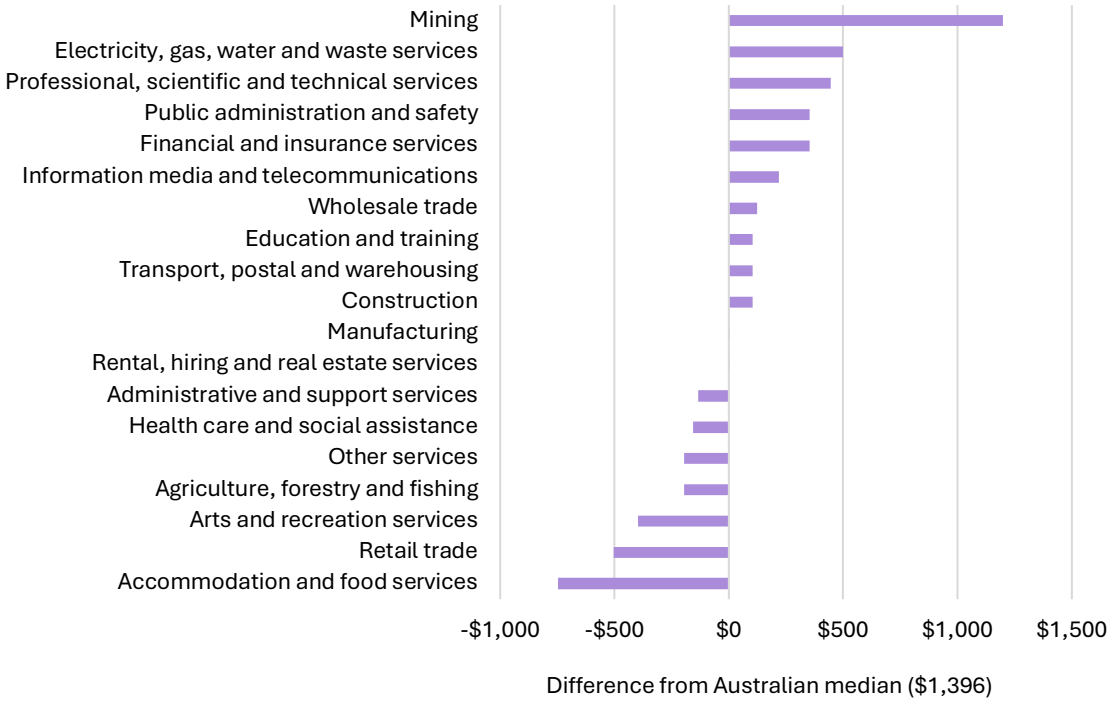
The manufacturing sector is generally not associated with low-paid work. The latter is usually associated with feminised and casualised workforces in retail, hospitality and care industries. The manufacturing sector is more often associated with secure, blue-collar jobs that are dominated by males. Earnings may not be as high as those found in mining or finance, but manufacturing workers are still purported to be relatively well paid or at least securely in the middle. Prior to the current era of enterprise bargaining, for instance, wages in the metal industry award were the

standard against which wages in other awards were set (Australian Centre for Industrial Relations Research and Training (ACIRRT) 1999, 64).

Such perspectives fit with historical analyses of average earnings between industries at the broadest level (ANZSIC 1-digit) (Drago 1995). For example, Borland and Suen (1990) found that earnings in manufacturing in 1986 were 3 per cent above average for the economy as a whole, whereas in agriculture they were 29 per cent below average and in mining they were 44 per cent above. Figure 2.1 shows that the industry wage structure has remained relatively stable four decades on.

Figure 2.1 Median weekly employment earnings by industry, August 2024

All employment regardless of hours worked.



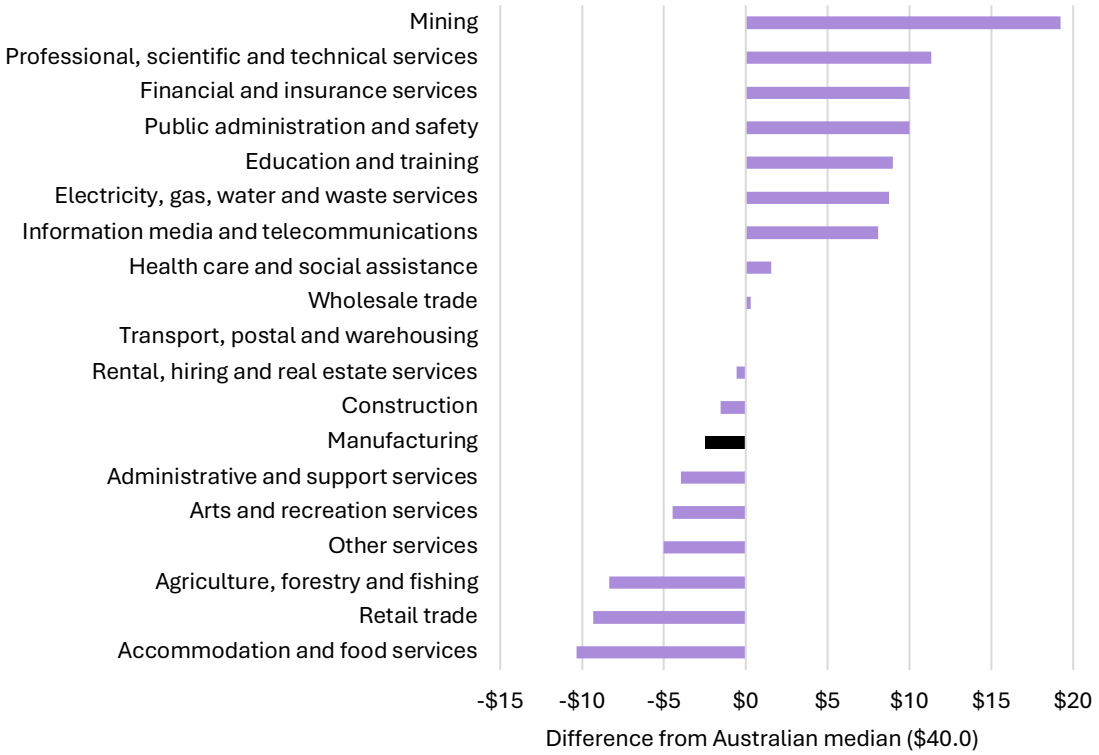
Data: ABS 6337.0 Employee Earnings, August 2024 (Australian Bureau of Statistics 2024e).

In 2024, median weekly employment earnings for Australians was $1,396. Workers in mining earned on average well above the median at $2,594 and workers in accommodation and food services earned well below the median at $650 per week. The average manufacturing worker is almost exactly in the middle of the spectrum of Australian employment incomes. Median employee earnings in manufacturing was $1,400, just $4 more than the Australian median.

Weekly earnings are the product of hourly wages and hours worked. Both vary significantly between industries. In 2024, median hours worked for miners was 43.8,

whereas for workers in hospitality median hours worked was 21.9 (Australian Bureau of Statistics 2024e). Again, workers in the manufacturing sector were average at 37.3 hours per week. Given the variation in hours worked, median industry hourly wages are less dispersed than median industry weekly earnings (see Figure 2.2).

Figure 2.2 Median hourly employment earnings by industry, August 2024



Data: ABS 6337.0 Employee Earnings, August 2024 (Australian Bureau of Statistics 2024e).

In 2024, median hourly employment earnings was $40.00. Miners earned well above the median at $59.20 per hour and workers in accommodation and food services earned well below the median at $29.70 per hour. Figure 2.2 shows that manufacturing workers are at a slight disadvantage in terms of hourly wages: the sector median is $37.50 per hour. Figure 2.2 also shows that manufacturing workers are at a distinct disadvantage compared to several industries aside from mining. There is a $10 or more jump from the manufacturing median to the median of information media and telecommunications, electricity, gas, water and waste services, education and training, public administration and safety, financial and insurance services, and professional, scientific and technical services, all of which have a median hourly wage of more than $48. When just full-time workers are considered—removing the large pool of part-time, low-paid workers in retail and

hospitality—the disadvantage of manufacturing worker earnings with respect to the median is even more apparent (Australian Bureau of Statistics 2023b).

Like in all industries, the wage structure in manufacturing has a scale of lesser and higher paid jobs according to industry, occupation, firm and worker characteristics. To identify pockets of low-paid work in Australia, it is necessary to go below the ANZSIC 1-digit industry level and make use of multiple industry and worker variables.

Australian studies of segmented labour markets have consistently found these pockets in manufacturing. Brown et al. (1984) found that women doing manual work in packing, processing and cleaning jobs were often among the ranks of the low paid. Similarly, Flatau and Lewis (1993) located trades assistants and factory hands amongst a cluster of occupations in the 'secondary' labour market with relatively poorer wages, benefits, job security, training opportunities, and a disproportionate number of women and migrants. Buchanan and Watson (1997a) also identified trades assistants and factory hands in the manufacturing sector as a low-paid group in 1993. They found non-unionised workers in small and medium-sized firms comprised '[o]ne of the worst black spots in the low end of the labour market' (ibid. 9). The bottom quartile of this group, an estimated 10,000 people, were predominantly women born in Southern Europe and Asian countries working in the food, clothing and footwear industries earning less than $9 per hour.

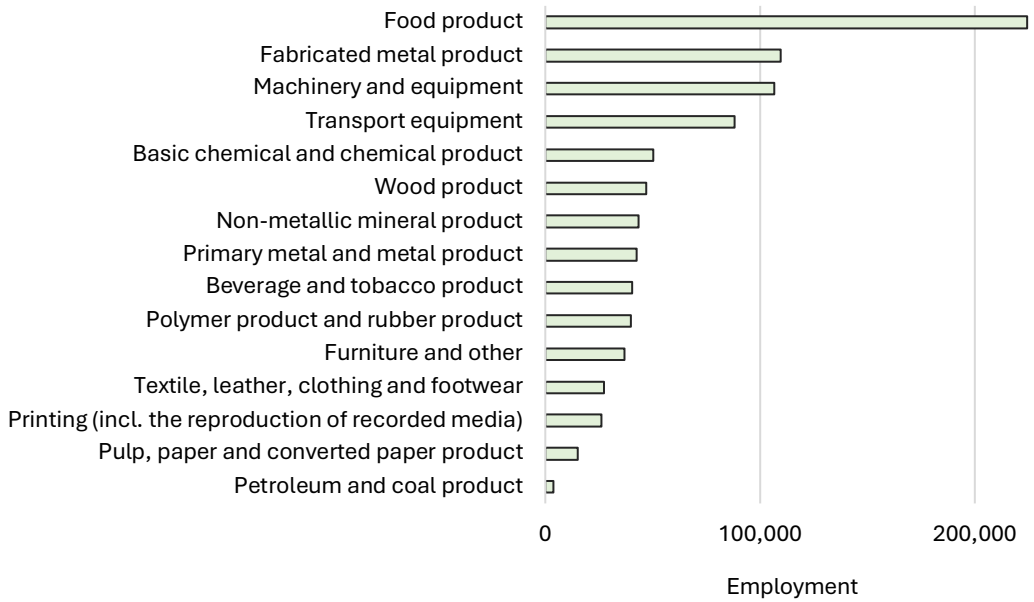
In *Australia at Work* (ACIRRT 1999), Buchanan, Watson and their colleagues identified labourers in the machine and equipment, metals and textiles, and clothing and footwear industries as amongst the most common jobs in the lowest paid quintile of Australian workers in 1995 alongside cleaners and other labourers in the retail, hospitality and health industries. These low-paid manufacturing workers were typically full time, unionised, from non-English speaking backgrounds, had low qualifications and earned between $430 and $485 per week at a time when average weekly earnings for jobs in the top quintile were between $850 and $1210. McGuiness, Webster and Mavromaras (2012) found that, in 2004, manufacturing employers were overrepresented amongst firms that paid low wages (defined as the majority of staff on an hourly rate of $12 or less).

Pay continues to be a problem for the sector. When the Senate (2022) recently conducted an inquiry into manufacturing, they recommended a review of award wages and an increase in particular to apprentice wages.

2.2 Classifying process workers in the meat industry

The Australian Bureau of Statistics (ABS) disaggregates the manufacturing sector into 15 subdivisions (see Figure 2.3).

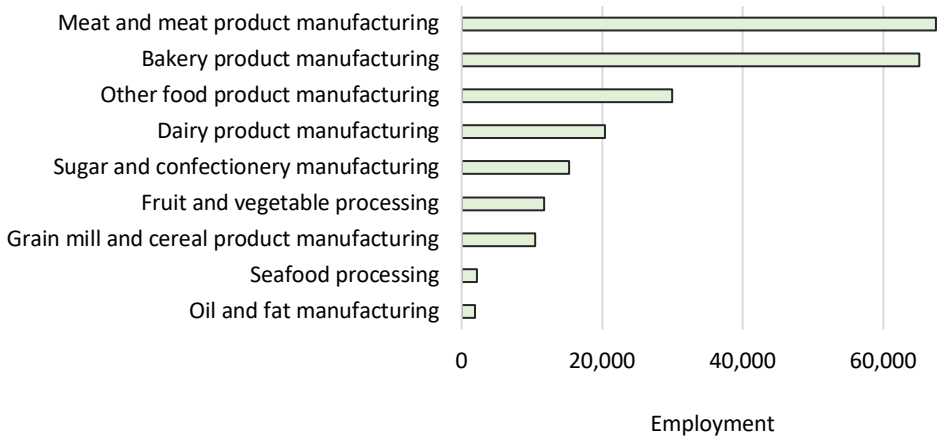
Figure 2.3 Employment by manufacturing subdivisions, June 2024



Data: Australian Industry (Australian Bureau of Statistics 2024).

The food product subdivision is by far the largest employer in manufacturing, accounting for nearly a quarter of employment in the sector. Figure 2.4 shows that the large food processing work force is concentrated in two industry groups—meat products and bakery products—each of which employs more than 65,000 people.

Figure 2.4 Employment in the food product manufacturing subdivision, June 2024



Data: Australian Industry (Australian Bureau of Statistics 2024).

Throughout this thesis I refer to the meat and meat product industry group (ANZSIC 111) as 'the meat industry' and include its three component industry classes in that description (Table 2.1). The class is the lowest level of industry aggregation used by the ABS.

Table 2.1 Industry classes in the meat industry

ANZSIC code	Name	Employment, June 2024
1111	Meat processing	38,518
1112	Poultry processing	19,289
1113	Cured meat and smallgoods manufacturing	9,626
111	**Meat and meat product manufacturing**	**67,432**

ANZSIC = Australian and New Zealand Standard Industrial Classification.
Data: Australian Industry (Australian Bureau of Statistics 2024).

The meat industry sits between livestock production on one side (farms, feedlots, chicken sheds) and sales on the other side (export, supermarkets, wholesalers, restaurants, butchers). There are three industry classes in the meat industry. Meat processing (code 1111) is the largest employer and involves the processing of red meats from cattle, sheep, pigs and a few other animals, primarily but not exclusively for export. Poultry processing (code 1112) is also a significant employer and primarily involves processing chickens for the domestic market. Other birds such as turkey are included in poultry processing but at a much smaller scale. Cured meat and smallgoods (code 1113) is a smaller employer and takes inputs from the other two classes for further processing by salting, drying, pickling and smoking to produce bacon, canned meats and pâtés, among other products.

Most people who work in the meat industry are classed as labourers according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO) and the new Occupation Standard Classification for Australia (OSCA).[1] More specifically they are classed as factory process workers (code 83). For almost a century, the labour process in the meat industry has been built around the disassembly of animals in a production line. The 'disassembly line' involves slaughtering animals, hooking them to an overhead rail, and moving the carcass between workers, who are stationary, to progressively remove the hide and internal organs ('dress' the carcass), remove meat from the bones and process it further. Broadly, there are three unique occupations on the disassembly line, represented below by the 4-digit unit groups in the OSCA schedule (see Table 2.2).

Table 2.2 Factory process workers in the meat industry

All employed in the meat industry (ANZSIC 111).

ANZSCO 4-digit unit group	ANZSCO 6-digit occupation	Description	ANZSCO skill level
8312 Meat boners and slicers, and slaughterers	831212 Slaughterer	Slaughters livestock and prepares carcasses for further processing by removing internal organs and hides for consumption.	4
	831211 Meat boner and slicer	Trims and cuts meat from bones, sides and carcasses.	4
8313 Meat, poultry and seafood process workers	831311 Meat process worker	Prepares meat and meat products by processing trimmed and boned carcasses and meat products by hand or with machinery.	5
	831312 Poultry process worker	Stuns and kills, dresses, trims, cuts into portions, bones, fillets, weighs, grades and packages poultry.	5
8321 Packers	832114 Meat packer	Weighs, wraps, seals and labels meat and meat products.	5

ANZSCO = Australian and New Zealand Standard Classification of Occupations.
Data: ABS (2022).

There are some idiosyncrasies in the classification. The first occupation unit group is really two (or even three) occupations: meat boners and slicers, and slaughterers. The slaughterer occupation refers only to people working in the red meat industry. Poultry slaughterers are classified as poultry process workers. And process workers are separated into occupations specific to the industry class in which they work: red meat and poultry. I have excluded seafood process workers and seafood packers as these are employed in the seafood processing industry (ANZSIC 112) and not the meat industry (ANZSIC 111). Also apparent is a delineation of boners and slicers and

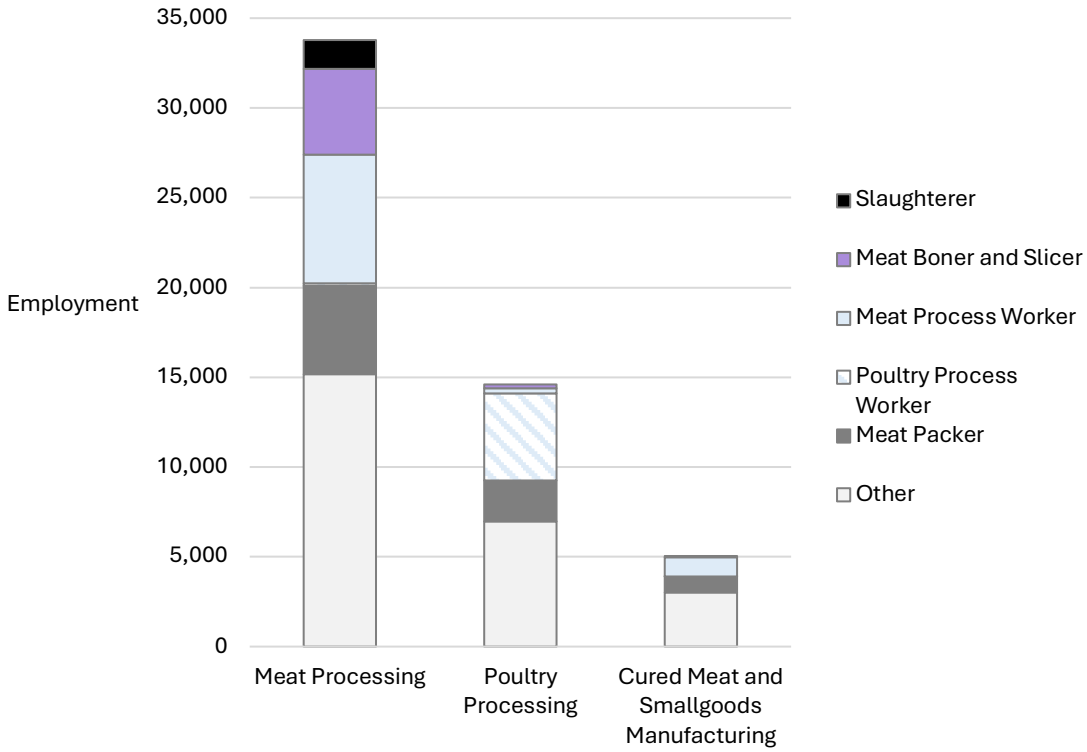
[1] OSCA was released in December 2024. There are no changes to the occupations I consider in this thesis between the ANZSCO and OSCA. Since the data I use is predominately published prior to December 2024, I almost exclusively refer to ANZSCO.

slaughterers as more skilled, and process workers and packers as less skilled according to the five levels defined in the ANZSCO.

To observe employment numbers, the Australian Census of Population and Housing 2021 provides the best available recent data at the lowest level of industry and occupation aggregation (see Figure 2.5).

Figure 2.5 Employment in the meat industry, 2021

Occupations at the ANZSCO 6-digit level.



Data: Census of Population and Housing (Australian Bureau of Statistics 2021b).

Factory process workers make up the bulk of employment in the meat industry. Slaughterers (n = 1600) and meat boners and slicers (n = 5060) are concentrated solely in the red meat industry. Process workers are employed in significant numbers in each industry (and are differentiated into their separate meat and poultry process worker occupations, n = 8510 and n = 5040 respectively). Packers make up a large portion of the remaining workers in the meat industry (n = 8070). The remainder of employment in the meat industry includes butchers and smallgoods makers (n = 1580), forklift drivers (n = 1450), storepersons (n = 1220), production managers (n = 1210), commercial cleaners (n = 1140), poultry farm workers (n = 800), quality assurance managers (n = 750), fitters (n = 590), electricians (n = 580), truck drivers

(n = 470), poultry farmers (n = 440), and dozens of other occupations with much smaller employment numbers.

2.3 Five dimensions of wage suppression

Stagnation of median wages

Wage levels are important however it is more helpful to consider wages in relative terms. One approach is to compare shares of total income (the national product) going to labour as wages and salaries and to capital in profits, rent and interest. This approach is particularly helpful for understanding the nature of class relations and the sectoral drivers of surplus (i.e. through landed property, mining rents, intellectual property rights, etc.). However, to understand the conditions of reproduction of the working class it is necessary to refer to living standards, which are better indicated by median earnings. As such, Mark Blaug wrote:

> [T]he great mystery of the modern theory of distribution is why anyone regards the share of wages and profits in total income as an interesting problem. It has, after all, little practical relevance. The standard of living of workers is reflected in the real wage rate and the relative position of workers is better measured by the ratio of the real product wage per worker to the average income per head of the population than by labour's relative share.
>
> (Blaug 1997, 511; cited in Bertram and Rosenberg 2021, 4)

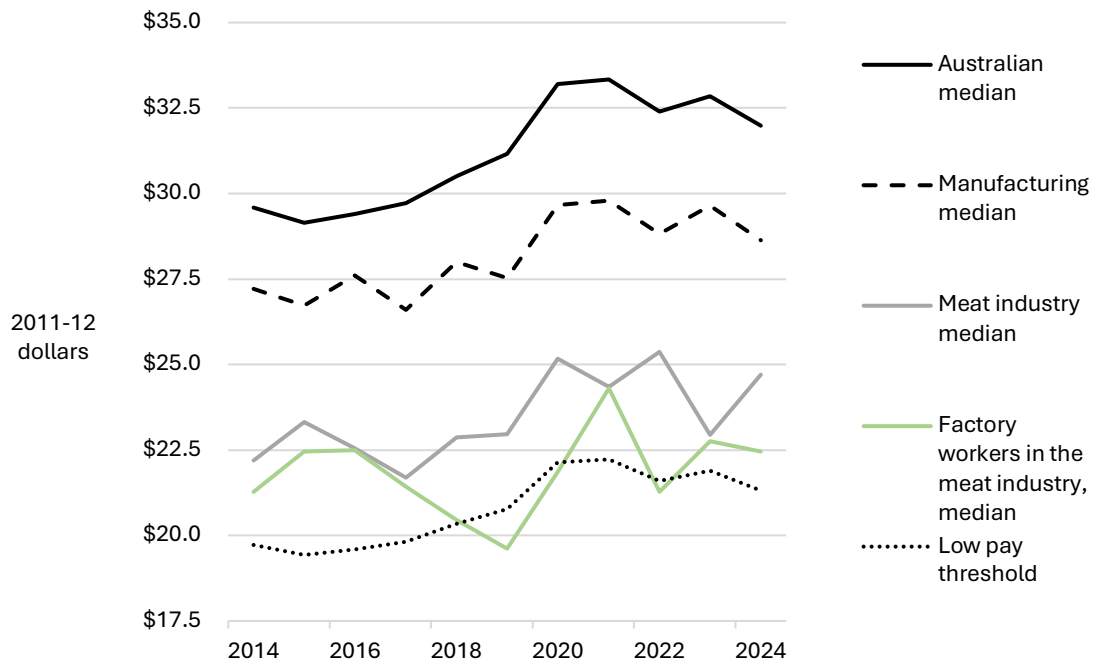
Bertram and Rosenberg (2021, 5) thus measure what they call the 'product-wage ratio' as compensation per employee divided by national income per adult. There are a couple of fine details that require articulating when using such a measure. The first is the decision to use a median or a mean. The median is generally preferred because it is a better reflection of typical outcomes than the mean, which is strongly impacted by skewed data and outliers (a perennial issue with income data). The second detail is whether to use employee earnings or total income. Total income becomes more relevant as we move up the pay scale. However, when isolating the differences in employment relationships, it is more useful to compare wages. Thus, where possible, in this thesis I compare median employment income of particular groups to median employment income for all workers in Australia. Where possible the comparison is between full-time workers.

In 1998 the Productivity Commission reported on changing work arrangements in the meat industry and identified wage suppression in the industry (see also Norton and Rafferty 2010, 34). The Commission used the mean in their analysis:

> Average employee earnings in meat processing are not high by all industries standards. Over the decade 1986 to 1996, several features stand out. In real terms, average earnings trended up in the manufacturing sector and for all industries. In the meat industry, no clear trend is evident, and earnings were lower in real terms in 1996 than in 1986. Having declined significantly between 1992 and 1996, the gap between earnings in meat processing compared with manufacturing and all industries was greater than at any time in that decade.
>
> (Productivity Commission 1998, 92–93)

Recent evidence shows that wages have not caught up to their higher relative position in 1986. Low real wage growth has been a significant issue for many Australians throughout the 2010s (Stewart et al. 2018) and since 2020, wage growth has not kept up with the rising cost of living. Real wage decline is observed in Figure 2.6 for the Australian median hourly wage for full-time employees.

Figure 2.6 Median hourly earnings of full-time employees, 2014 to 2024



Data: Characteristics of Employment, 2014-2024, TableBuilder (Australian Bureau of Statistics 2024d); Consumer Price Index (Australian Bureau of Statistics 2025b).

Also plotted on Figure 2.6 is a low pay threshold, set at two-thirds of median hourly earnings for full-time employees (a standard often used in the literature (ILOSTAT 2025; Organisation for Economic Co-operation and Development 2024)). The green line is as estimate of median hourly earnings for full-time factory process workers in the meat industry. The median wage for this group is considerably below the Australian median. While the average Australian worker experienced real wage decline from 2021 onwards, over the entire ten-year period wages increased by about $3 (in 2011-12 dollars). For meat workers, however, the increase between 2014 and 2024 is just $1. This suggests an increasing gap between the earnings of meat workers and the rest of the Australian workforce. Moreover, median hourly earnings for meat workers tend to track the low pay threshold, indicating that many workers in the industry are subsisting on low wages.

After 30 years of relatively stable inflation predominately between 2 and 3 per cent, inflation exceeded 7 per cent in 2022. Annual national minimum wages decisions by the Fair Work Commission have been used to somewhat address the cost-of-living bite experienced by low-waged workers. Between 2022 and 2025, the minimum wage was increased by 5.16, 5.75, 3.75 and then 3.5 per cent (Fair Work Commission 2022; 2023; 2024; 2025a). These changes flowed on to minimum wages in the Meat Industry Award and the Poultry Processing Award. However, the AMPC has reported that wages have increased less than CPI over the previous three years (AMPC Industry Insights 2024, 8). The high inflationary period has certainly been difficult for processors, who have reportedly faced energy and utility costs increasing at a faster rate than the consumer price index. However, it appears that labour costs are not the source of pressure.

Recent data shows that the wages and weekly earnings for factory process workers in the meat industry are comparable to other low-paid occupations in Australia. Data from May 2023 show that median hourly wages for child carers, café workers, and commercial cleaners were at the same level as meat, poultry and seafood process workers, and packers—$30 per hour (Australian Bureau of Statistics 2024e). This dataset measured wages at the 4-digit ANZSCO level, so it was not possible to differentiate between packers in the meat industry and packers in other food industries like vegetable processing. Meat boners and slicers, and slaughterers, could be differentiated, with a small advantage of median hourly earnings of $31. However, each of these occupations earned well below the all-occupation median of $43.

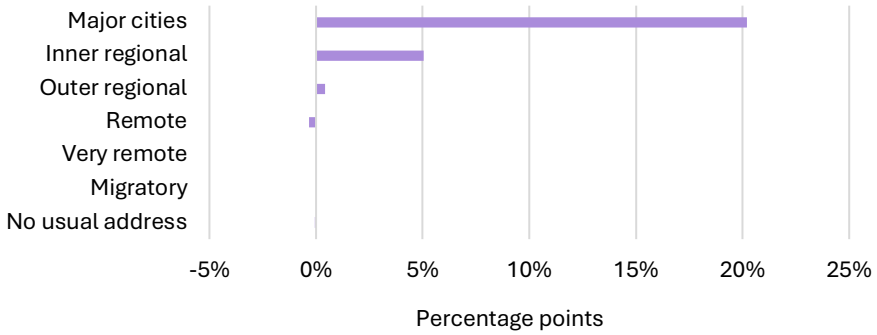
Boners and slicers, and slaughterers earned 72.1 per cent of the all-occupation median, while packers and process workers earned 69.8 per cent.[2]

To put this number in perspective, it is useful to think about the most significant cost workers face—housing. Housing costs vary depending on location. The meat industry is intimately connected to the primary production of livestock animals. This production takes place on grazing farms, feedlots and chicken growing farms in rural and regional areas and sometimes on the urban fringe. A significant proportion of workers in the meat industry live in regional areas. Given this, it could be argued that 70 per cent of the median wage is enough to cover housing costs in these areas.

The data tells a different story. Between 2006 and 2021, employment in the meat industry grew by 25.3 per cent from 43,000 to 54,000. As Figure 2.7 shows, the bulk of this employment growth was in major cities.

Figure 2.7 Contributions to employment growth in the meat industry by remoteness area, 2006 to 2021

Over this period employment in the meat industry grew by 25.3 per cent.



Data Census of Population and Housing, 2006 and 2021, TableBuilder (Australian Bureau of Statistics 2006a; 2021b).

Now more than half of those employed in the meat industry live in major cities (52.4 per cent). As I will show in chapters to follow, the urbanisation of the meat industry reflects the changing composition of meats produced (particularly the rise of chicken) and the increasing role of meat processors in the supply chain (the trend towards more processed meats). The urbanisation trend is important for a discussion

[2] Appendix Table 2.1 shows that the ratio of the wages of factory process workers in the meat industry to the Australian average is relatively stable across datasets. The median estimates between 2015 and 2023 find meat workers' wages are between 69.5 and 72.1 per cent of the Australian median. And the mean estimates between 2018 and 2023 find meat workers' wages are between 70.4 and 74.1 per cent of the Australian mean.

of the relative position of meatworkers because housing costs are increasingly unaffordable in capital cities to even those on the median wage (Kwan 2024; Dean and Hewitt 2023). Given meat worker wages are well below the Australian median, almost all employed in the meat industry would be locked out of urban property markets.

Award-reliant meat workers

The Australian industrial relations system is built on a series of awards that stipulate the minimum wages and conditions for workers in different industries. By individual and collective negotiation, workers can attain pay and conditions that surpass awards. Wilkins and Zilio (2020) found that low-paid workers who award-reliant are concentrated in the retail trade, accommodation and food services and manufacturing industries. Interestingly, they found that manufacturing has a relatively high proportion of both low-paid and high-paid award-reliant employees. In the food product subdivision (ANZSIC 11), roughly 33 per cent of workers are award-reliant, 37 per cent are covered by collective agreements, 29 per cent are on individual arrangements and 1 per cent are owner-managers (Australian Bureau of Statistics 2023a). Table 2.3 shows that there is a clear wage structure defined by the method of pay setting.

Table 2.3 Average weekly total cash earnings by method of pay setting, May 2023

Factory process workers in the meat industry	Award only	Collective agreement	Individual arrangement
8312 Meat boners and slicers, and slaughterers	$1,042.80	$1,327.40	$1,432.10
8313 Meat, poultry and seafood process workers	$924.30	$1,242.10	$915.40
8321 Packers	$747.10	$1,098.30	$1,039.10

Data 6306.0 Employee Earnings and Hours (Australian Bureau of Statistics 2023a).
Note: most packers are employed outside of the meat industry.

In the meat industry, factory process workers on collective agreements earn a sizeable pay premium of around $300 per week over the incomes of award-reliant workers. The data on individual arrangements are mixed. Meat boners and slicers, and slaughterers on individual contracts earn more than $100 more than those on collective agreements (and nearly $400 more than those on the award). For process workers and packers, however, those on individual contracts achieve worse pay outcomes than those on collective agreements. In the case of process workers, individual contracts are associated with earnings *less* than the award, and can

encompass many arrangements with considerable variation in the amount of bargaining power and control over duties.

The final section of this chapter discusses the use of labour hire contracts in the meat industry, an area where there have been multiple reports of below-award payment. Now, I address the pay of award-reliant workers.

The Meat Industry Award and the Poultry Processing Award have minimum wages based on the National Minimum Wage, which on 1 July 2024 was $24.10 per hour or $915.90 per week (see Tables 2.4 and 2.5). Penalty rates for weekends, public holidays and overtime offer substantial increases over these hourly rates. However, as the median hourly earnings from 2023 show, these are not always achieved. Various training and junior rates are taken as a proportion of full-time rates.

Table 2.4 Meat Industry Award [MA000059], 1 July 2024

	Full-time and part-time workers		Casual	Daily hire and part-time daily hire	
Classification	*Weekly pay rate*	*Hourly pay rate*	*Hourly pay rate*	*Daily pay rate*	*Hourly pay rate*
Level 1	$891.50	$23.46	$29.33	$196.13	$25.81
Level 2	$921.40	$24.25	$30.31	$202.71	$26.68
Level 3	$932.50	$24.54	$30.68	$205.15	$26.99
Level 4	$954.30	$25.11	$31.39	$209.95	$27.62
Level 5	$971.20	$25.56	$31.95	$213.66	$28.12
Level 6	$991.10	$26.08	$32.60	$218.04	$28.69
Level 7	$1,032.30	$27.17	$33.96	$227.11	$29.89

Data: Fair Work Ombudsman (2024a).
Note: Pay guide for meat processing establishments, excluding meat manufacturing and meat retail establishments. Table does not include Saturday, Sunday, public holiday or overtime penalty rates.

Table 2.5 Poultry Processing Award [MA000074], 1 July 2024

	Full-time and part-time workers		Casual
Classification	*Weekly pay rate*	*Hourly pay rate*	*Hourly pay rate*
Level 1	$920.00	$24.21	$30.26
Level 2	$944.60	$24.86	$31.08
Level 3	$957.10	$25.19	$31.49
Level 4	$969.60	$25.52	$31.90
Level 5	$981.60	$25.83	$32.29
Level 6	$1,007.00	$26.50	$33.13

Data: Fair Work Ombudsman (2024b).
Note: Table does not include Saturday, Sunday, public holiday or overtime penalty rates.

The most striking thing from the pay guides is how compressed they are; there is very little room for progression. Moreover, pay at the bottom end is low. The Meat Industry Award actually stipulates a wage and weekly pay rate less than the National

Minimum Wage for entry-level workers. For full-time and part-time entry-level workers on the Meat Industry Award, the hourly pay rate is $23.46—or 58.7 per cent of the Australian median ($40.00 in August, 2024) (Australian Bureau of Statistics 2024d). In the poultry industry entry-level workers earn 60.5 per cent of the median wage at $24.21 per hour. Entry-level wages are paid to workers with no prior experience performing simple tasks like cleaning, packing and moving meat into freezers. This level is designed to be temporary and to last for a maximum of three months before the worker is moved to level 3. However, the meat workers' union has pointed out that training in these roles usually takes a few days or less before proficiency is attained, suggesting that employers are misclassifying and underpaying trained workers for the remainder of the three-month period (Australasian Meat Industry Employees Union 2023a). Labour supply and turnover is a major issue for the industry—not least because of the low entry-level wages and low pay ceiling. Many workers are churned through the industry at the bottom of the award schedule.

Occupation and industry segmentation

The risk of poverty wages is distributed unevenly across occupations in the meat industry. Census data on income is categorised and reported as the number of people who earn within a certain income category, otherwise known as a 'bin' (e.g. between $800 and $999 per week). One way to identify the relative position of meat workers using Census data is to use the bin limits to identify cumulative frequencies. The median weekly earnings for full-time Australians in August 2021 was $1,499 (Australian Bureau of Statistics 2024d). Incidentally, two-thirds of the Australian median in 2021 is $999, which means that the Census data can neatly be used to indicate the proportion of workers who earn under the low-pay threshold. The bin limit below $999 is $800 or 53.4 per cent of the median. This figure can be used to identify the proportion of workers who are clearly in working poverty. (A common definition of working poverty is earning below 60 per cent of the median (Spicker 2012).) Table 2.6 shows how these risks are distributed across occupations, industries and the representation of women and migrants in the industry.

Table 2.6 Risk of low pay and segmentation in the meat industry, 2021

Population: full-time factory process workers in the meat industry

4-digit industry class	4-digit level occupation	n	% earning less than $800 per week	% earning less than $1,000 per week	% female	% born overseas
Meat Processing	Meat Boners and Slicers, and Slaughterers	4,929	9.6%	37.7%	14.4%	61.0%
	Meat, Poultry and Seafood Process Workers	5,478	18.4%	57.7%	21.9%	55.7%
	Packers	3,566	24.6%	72.5%	64.8%	72.4%
	Total	13,980	16.9%	54.3%	30.2%	61.8%
Poultry Processing	Meat Boners and Slicers, and Slaughterers	153	9.8%	49.0%	48.7%	93.3%
	Meat, Poultry and Seafood Process Workers	3,916	10.3%	47.5%	38.8%	74.9%
	Packers	1,798	14.1%	59.1%	59.5%	82.6%
	Total	5,875	11.5%	51.1%	45.5%	77.8%
Cured Meat and Smallgoods Manufacturing	Meat Boners and Slicers, and Slaughterers	61	13.1%	57.4%	8.2%	57.4%
	Meat, Poultry and Seafood Process Workers	816	24.6%	66.8%	30.4%	61.0%
	Packers	696	29.3%	75.9%	66.5%	82.6%
	Total	1,577	27.1%	70.9%	46.0%	70.3%
Total	Meat Boners and Slicers, and Slaughterers	5,145	9.7%	38.3%	15.4%	61.9%
	Meat, Poultry and Seafood Process Workers	10,216	15.6%	54.4%	29.1%	63.5%
	Packers	6,060	22.0%	68.7%	63.5%	76.6%
	Total	21,421	16.1%	54.6%	35.6%	66.8%

Data: Census of Population and Housing, 2021, TableBuilder (Australian Bureau of Statistics 2021b).

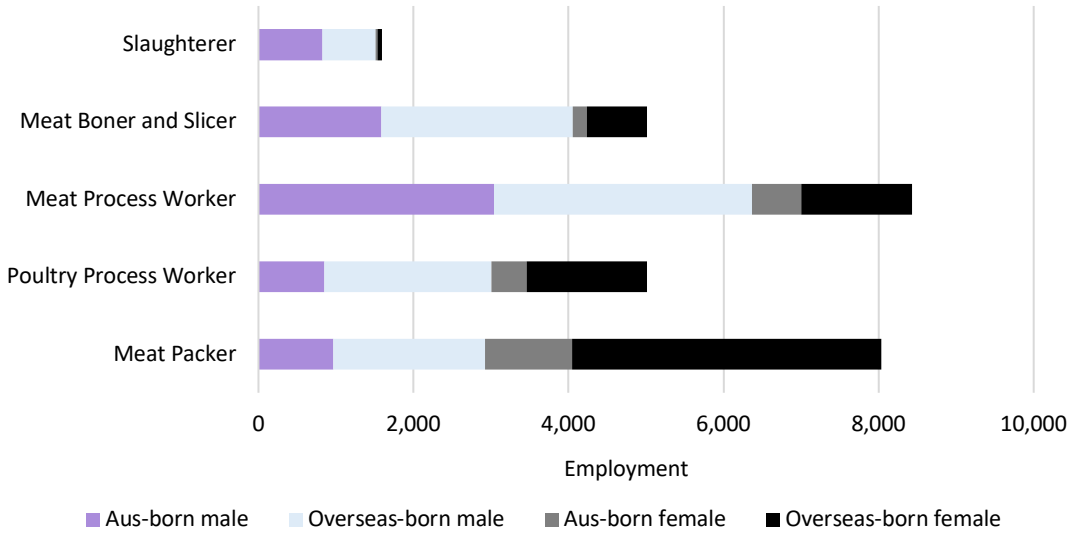
Notes: the meat boners and slicers and slaughterers in the poultry process and cured meat and smallgoods industries may be misclassified.

There is a lot in this table that requires unpacking. First, this is a subset of subsets. It includes only full-time workers, who are the typical case in the sector. Second, it includes cases where there is data on each variable in the Census. Third, this group includes only factory process workers in three 4-digit occupation groups: meat boners and slicers and slaughterers, process workers and packers. It excludes other workers such as butchers, managers, forklift operators and truck drivers. Looking at the whole group, two thirds (66.8 per cent) are migrants and about one third are

women (35.6 per cent). More than half (54.6 per cent) are low-paid and 16.1 per cent are definitively earning poverty wages (less than $800 per week).

The uneven distribution of the risk for poverty wages is clear at the occupational level, where more than two thirds of packers are at risk of poverty wages and more than one fifth are earning poverty wages. Process workers fare better than meat packers, and meat boners and slicers, and slaughterers are the least likely to be at risk for low earnings. The proportion of women and migrants employed in the different occupations tracks directly with the risk of poverty wages. Three quarters of meat packers are migrants. More astonishing, however, is the nearly two thirds of packers who are women (in an industry where women are underrepresented overall). It is unsurprising to see that women and migrants are overrepresented amongst the lowest paid occupation in the group, meat packers. Table 2.6 shows that workers who are the further down the processing line are more at risk of poverty wages and are more likely to be women and migrants. It is worth visualising this.

Figure 2.8 Occupational segmentation by sex and place of birth in the meat industry, 2021



Data: Census of Population and Housing, 2021, TableBuilder (Australian Bureau of Statistics 2021b).

Occupations in the meat and meat product industry group (111) show a microcosm of extreme segregation on the basis of gender and migration status. At one end of the spectrum are slaughterers, where about half are male non-migrants. At the other end of the spectrum are meat packers, where about half are female migrants. As you move down the disassembly line from slaughtering to meatpacking, more women and more migrants are progressively employed. Slaughtering, meat boning and slicing and

meat processing are all the domain of men. This is particularly so for slaughtering where 95 per cent of workers are men. Migrant workers are the majority in all occupations except for slaughtering. Migrants are particularly dominant in poultry processing and meat packing where they make up around 75 per cent of workers. Women are the minority in all occupations except for meat packing where they make up more than 60 per cent of the workforce. The vast majority of these are migrant women, who make up 50 per cent of meat packers.

Going back to Table 2.6, at the industry class level, the risk of poverty wages is highest amongst workers in cured meat and smallgoods manufacturing, where 70.9 per cent earn below $1,000 and 27.1 per cent earn below $800 per week. Outcomes are distinctly better in poultry and meat processing, with poultry workers having slightly more income security. The better outcomes for poultry workers is significant given that there are more women and more migrants employed in the industry than in meat processing.

Comparing the data on occupations across industries reveals more. It shows meat boners and slicers, and slaughterers basically only work in the meat processing industry. Isolating the comparison to process workers and packers is more useful, because they work in every industry class. It is unsurprising that the worst outcomes for both occupations are in the cured meat and smallgoods industry, where the risk of poverty wages is high (one example: 75.9 per cent of packers earn below $1,000 per week). But outcomes for these workers vary more when comparing larger groups in meat and poultry. Outcomes for packers and process workers is worse in the meat processing industry than in the poultry process industry. In this group, the worst case is packers in the red meat industry, 24.6 per cent of whom earn poverty wages and 72.5 per cent of whom are at risk of poverty wages. A high proportion of packers in the red meat industry are women (64.8 per cent) and migrants (72.4 per cent).

The large number of low-paid packers in the meat industry contrasts with the large number of better paid boners and slicers, and slaughterers. Because this higher-paid occupation does not exist in the other industry classes, the meat industry displays more income inequality amongst factory process workers than the poultry and smallgoods industries. Outcomes are better in the poultry industry, and more equal between occupations, however the ceiling is lower as there are very few higher paid boning and slaughtering roles. Employment in the smallgoods industry is much smaller, and here the payment of low wages is most common. Whilst the industry

differences are significant, more striking is the occupation differences. Workers that are further down the disassembly line are more at risk of earning poverty wages.

Temporary visas

The last axis of wage suppression concerns the engagement of migrants on temporary working visas and primarily via labour hire contracts. Since 2004, the meat industry has increasingly taken up workers on temporary visas (AMIEU 2022). In 2021, one quarter of workers in the meat industry (and more than one third of factory process workers) were employed on temporary working visas (Australian Bureau of Statistics 2021a). Temporary visa types include bridging visas, New Zealand citizen working visas, working holiday makers (backpackers), skilled visas, student visas and others—all of which are used in the meat industry. An extensive discussion of temporary migrant worker scheme, its extension to the meat industry and its re-evaluation over the years is out of place in this introductory chapter. This will be covered in chapter 8. For now, I make some brief comments.

John Howard introduced temporary visas for skilled workers shortly after becoming Prime Minister in 1996. From around 2004 the meat industry employed temporary migrants, but their initial engagement was problematic. Whilst temporary visas were supposed to be for skilled workers with industry experience and English language proficiency, the use of unskilled labour with no meat industry experience and poor English was common (Morris 2006). In 2006, the Minister for Immigration suspended the meat industry's access to foreign labour until new standards were negotiated (Morris 2007). The product of these negotiations was the Meat Industry Labour Agreement put in place in 2007. MILA set pay floors (equal pay) for temporary migrants and improved their capacity to attain permanent residency. Since then, temporary migrants have provided a cornerstone of labour in the meat industry.

During the COVID pandemic in 2020, a large segment of workers on temporary visas returned home as they lost work and had no access to welfare payments (AMIEU 2022). In response, in 2022 the Pacific Labour Scheme was revamped as the Pacific Australia Labour Mobility (PALM) scheme, with changes including the extension of employment to any industry in regional areas and also to metropolitan meat processors. Between 2019 and 2024, the total number of PALM workers in Australia increased from 7,000 to more than 30,000 (Howes 2024). In the meat industry, it is

estimated that PALM workers increased from 1,000 in 2019 to around 9,000 at February 2023 (Wong 2023).

As I show in Chapter 7, workers holding temporary visas are particularly vulnerable to exploitation. The most notorious case occurred at Australia's largest chicken processor, Baiada. In 2015, the Fair Work Ombudsman (FWO) published a report investigating underpayment and other forms of exploitation at three Baiada plants in New South Wales (Fair Work Ombudsman 2015). Many workers at the plants were 417 working holiday visa-holders from Taiwan and Hong Kong. The Ombudsman found several instances of underpayment up to 30 per cent below the minimum wage, workers doing extremely long hours, paying high rents for poor quality, overcrowded accommodation, and employers engaging workers through a series of labour hire companies in a complex, informal hierarchy of subcontracting arrangements. Upon learning of the investigation, many of the companies 'phoenixed', i.e. liquidated, to avoid the inquiry. The Ombudsman ordered backpay and significant governance reforms from Baiada. The investigation led to a national inquiry of working arrangements for 417 visa-holders (Ombudsman 2016).

The Baiada story is not unique. Rather, the employment of migrants on temporary visas has systemically undermined wage growth in the meat industry through the exploitation of a vulnerable workforce, the avoidance of union-negotiated enterprise agreements, and the cultivation of divisions that hamper solidarity between workers.

2.4 Conclusion

The evidence considered above shows that the meat industry comprises a contemporary pocket of low-paid employment in the manufacturing sector. I identified five dimensions of meat worker wage suppression: across workers as a whole, across method of setting pay (i.e. awards, enterprise agreements), across industry and occupation distinctions, and across visa status.

Recent earnings data shows that there is a high chance that the real earnings of factory process workers in the meat industry are stagnant, entailing an increasing gap between these workers and the rest of the Australian work force. Median earnings for workers in the meat industry are at about 70 per cent of the median wage—which is similar to other low-paid occupations—but there are considerable differences in earnings between workers in different methods of pay setting and occupations.

Workers on the award in the meat industry earn on average $300 less than workers on collective agreements. Entry-level meat workers earn effectively the Australian minimum wage, which is 60 per cent of the median wage, and some may earn even less than this.

The majority of full-time factory process workers in the meat industry earned below $1,000 per week in 2021, just two-thirds of median employment income. One in six full-time meat workers were earning less than $800 per week, which is less than 60 per cent of the median. One in five packers who work full-time are earning poverty wages. One in four packers in meat processing and almost 1 in 3 packers in cured meats and smallgoods manufacturing earned less than $800 per week. The proportion of women and migrants employed in the different occupations tracks directly with the risk of low pay (the segmentation between industry classes is more paradoxical and requires further analysis). In an industry where women are underrepresented, two thirds of packers are women—those most at risk of low pay. This is in stark contrast to the start of the disassembly line, where the predominately male slaughterers are considerably better remunerated.

Migrant workers on temporary visas have come to be a cornerstone supply of labour in the meat industry. They continue to experience severe exploitation through underpayment below award-rates, very long hours, and the unwarranted control of their employers over many other parts of their lives. The investigative journalism and academic literature on the exploitation of temporary migrant workers is extensive and compelling. It is worth noting some criticism, however, not to suggest the work should be put aside, but that it should be bolstered. In his review of Petrou and Connell's 2023 book *Pacific Islands Guestworkers in Australia: The New Blackbirds*, Scott MacWilliam wrote:

> There are some missing pieces in the analysis. *There is nothing here, or in the plethora of studies about labour mobility, which examines the capitalists, their enterprises, relations between politicians and public servants or the competition between industries and firms driven by comparative rates of profit.* Nor is there anything on how labour is produced in PICs [Pacific Island Countries], apart from references to 'youth bulges.' As pointed out by MacWilliam (2022), not only is the expectation that the supply will be permanent, beyond any one generation of young people. The supply is itself produced by the continuing, constant process of nondevelopment which has been characteristic since the

> 1980s of PICs. It is not a lack of formal evaluations or academic analysis of labour mobility programmes and guest workers' existence that is missing (376). *It is the refusal to place capitalism and capitals, the process of accumulation, at the centre of understanding both the earlier 'blackbirding' and the recent revival, termed 'labour mobility,' which is constant. Capital's mobility, the chase across the globe, would be a better starting point for understanding what is occurring.*
>
> (MacWilliam 2024, 180 emphasis added)

It is in the spirit—and the method—of this critique that this thesis progresses. To understand wage suppression, it is necessary to understand the demand for labour. The next two chapters develop a theoretical framework for this purpose.

Chapter 3 – Labour market theory and the problem of segmentation

> It's a crap job, everyone know[s] it [...] We haven't come to steal jobs from anyone, we just come to do jobs that no one else wants to do, and the thing is for us it's not the job that we want to do as well.

(Polish meat worker in Wales, UK, interviewed by Lever and Milbourne 2017, 317)

The previous chapter uncovered various wage inequalities in the meat industry. These phenomena are associated with particular labour market structures, including the industry structure, the occupation structure and methods of pay setting. Explanations of labour market structures usually refer to notions such as skill premiums afforded based on the individual productivity of workers or institutions that obstruct the normal operation of supply and demand. This approach has achieved hegemonic acceptance in universities, in the minds of policy makers, and in the social imaginary.

This chapter articulates the foundational principles of what is referred to as the 'basic model' of neoclassical labour market theory and debates that generated major theoretical advances on this model. From the core tenets of marginalism, equilibrium and perfect competition, the first advance I consider is human capital theory, however the bulk of chapter is concerned with economic developments springing from the work of institutionalists in the 1930s, 40s and 50s. I chart the rise of segmented labour market theory—in its various iterations—which threatens to culminate into a rival research program broadly referred to as the socio-economic theory of the labour market. The socio-economic approach provides a more realistic understanding of labour markets than the neoclassical basic model, one where workers and employers interact in a rich context of social and economic structures. With the development of efficiency wages theories in the 1980s and 90s, I show there is a fruitful discourse of labour market segmentation across the divide of economic disciplines and that this problematises the extent to which labour market segmentation theory constitutes a definitive break with neoclassical economics.

The meat industry is an interesting case study because an enduring feature of the labour process—the production line—revolutionised industrial capital throughout

all manufacturing industries in the twentieth century. Any application of labour market segmentation theory to the meat industry must come to terms with the disassembly line. In the final section of this chapter, I show that an analysis of the introduction of the mechanised chain system in Australia has an important bearing on the use of labour market theory. I refer to the work of Marjorie Jerrard (1999; 2005), who identified that the new divisions of labour brought about after the introduction of the chain were developed using mainstream gendered ideas of skill. The result was gendered occupational segregation and pay inequality. I also show that the introduction of the chain deskilled the workforce and led to the creation of a new labouring subject—the meat process worker—a line worker whose skill set is constrained to repetitive knife work and whose movements are subject to the timing of the machine. I find that a critical understanding of skills and a consideration of control in the labour process are necessary to understand segmentation and low pay in the meat industry.

3.1 The basic model of the labour market

In 1990 Jeff Borland and Anthony Suen studied industry wage differences in Australia where they suggested at the outset:

> [I]t does not seem inappropriate to adopt an approach which takes as a null hypothesis that wage settlements are the outcome of interaction between the forces of supply and demand.
>
> (Borland and Suen 1990, 34)

From the development of marginalism in the 1870s, economists were able to pare back the richer models developed by classical political economists (Bowles and Gintis 1993). The result is the articulation of a functional relationship between supply, demand, and the wage level. In this section I trace the development of the foundational principles of neoclassical labour economics and its most influential offspring, human capital theory.

Living standards and exploitation

During the eighteenth and nineteenth centuries, political economists in Western Europe were concerned with the distribution of profits, interest, rents and wages between fractions of the capitalist class and workers (Dunlop 1957). The

determination of wages was central to this problem. Labour was considered more important than other factors of production—land and capital—in the determination of product prices. As such, the leading model was a labour theory of value where the amount paid to labour largely determined the size of the national product and its distribution. The level of wages was of considerable dispute in factories, in the streets and in the halls of government.

Some attempts were made to provide scientific grounding to the wage level. Thomas Malthus, for instance, identified a homeostatic relationship between wages and the population such that the level of wages should settle around an amount that enabled the reproduction of the working class (Dunlop 1957). John Dunlop (ibid.), however, identified that classical political economists had not in fact employed an economic theory of wages—where wages were determined from within the economic system—but rather they had suggested wages were determined in the long run by social conventions or expectations of living standards. And it wasn't just the bourgeois economists who employed this approach. Karl Marx's own account of wage determination also fits in Dunlop's evaluation.

In the first volume of *Capital*, Marx (1990, 275) wrote that for people to return to work day after day, they must be able to reproduce themselves; and since the requirements for this reproduction 'are themselves products of history [...] the determination of the value of labour-power contains an historical and moral element.' During the industrial revolution most workers subsisted in conditions of immiseration. But these conditions were not a given. The norms, expectations and institutions that regulated workers' standard of living were all subject to negotiation and conflict between classes. In the latter half of the nineteenth century, these conflicts came to a head as the union movement gained prominence and workers gained the confidence to demand more.

In his critique of bourgeois political economy, Marx took on the problem of the distribution of the social product. He proposed that workers were only partially compensated for the product of their labour, because it took workers only part of the day to produce value equivalent to their own reproductive requirements, and in the remainder, they produced a surplus expropriated by the capitalist class (Marx 1990, 300–301). Marx thus crystalised the question of whether workers received a fair share of the fruits of their labour—is labour exploited? This question, and the groundswell of struggles in which it was asked, proved to be considerable theoretical and concrete

problems for the stability of the social order (Dunlop 1957, 8). In response, from the 1870s onwards marginalist economic thinking came to the defence of extant class relations.

Marginalism, equilibrium and perfect competition

Fleetwood (2006) shows that the foundational principle of mainstream labour market theory is that wages, the demand for and supply of labour are functionally related. He writes that these relations take place on the special plane of existence called 'the labour market':

> Labour markets are conceived of as sites in which these relations operate, and are theorised *as if* the 'economic' forces of wages, supply and demand for labour overrode 'non-economic' phenomena such as social structures. The latter are treated as problematic residuals.
>
> (Fleetwood 2006, 61–62)

In Fleetwood's (2006, 71) terms, the functional relations of the labour market are a 'closed system' where events are 'constantly conjoined' such that each event *entails* a series of other events—there is no openness or contingency.

The characteristic feature of the functional relationship between demand, supply and wages in the labour market is equilibrium between demand and supply curves (Dunlop 1957, 9; Ross and Whitfield 2009, 16; Fine 2016, 3; Botwinick 2018, 22; Ehrenberg et al. 2023, 44). Each curve is considered as an aggregate of the behaviour of individual firms and workers. For firms, the overriding goal is profit maximisation and the way to achieve this is by efficiently employing the appropriate amounts of land, labour and capital. The theory of marginal productivity indicates that profits are maximised when each factor is employed up until the marginal revenue gained from an extra unit is equal to its price. Each firm will thus have a demand for labour determined by its production function. In this model, the price for each factor is given by the market. As such, a firm will employ labour to the point where the marginal revenue obtained from one more worker is equal to the wage rate. Taken together, the individual demand schedules of firms make up the aggregate demand for labour. The supply of labour, on the other hand, is the summation of individual workers' willingness to work at a particular wage rate. The latter is quantified by the work-

leisure choice curve, which models an individual's decision whether and how many hours to work based on the optimisation of their preferences for consumption and leisure with respect to a budget constraint (the going wage).

In this basic version, each party sees the going wage as given by the market—determined by equilibrium between the supply and demand curves. Inefficiencies arise when deviating from the market wage. Too low and not enough workers will want to work; too high and firms will be forced to reduce employment. But at the market-clearing wage, 'there is no surplus and no shortage [...] [a]ll parties are satisfied' (Ehrenberg et al. 2023, 45). Equilibrium is therefore thought of as Pareto-optimal, or the best possible compromise, and in fact it is even suggested that most workers receive an economic rent insofar as they would be willing to work at a lower wage than they currently get (ibid.). To this day, the supposedly tight negative relationship between wages and the demand for labour continues to rear its head in arguments against increasing wages and for increasing labour market flexibility.

Assumptions of this pared back model of the labour market include:

- Workers and employers are utility- and profit-maximising rational actors with perfect information;
- Firms are wage takers with no market power;
- Firms are infinitesimally small and in fact do not view other firms as competitors (who also have no market power);
- Labour and jobs are both homogenous;
- The mobility of capital and labour between firms and industries is costless and instantaneous; and
- Workers (and employers) have a choice whether to enter the labour (or product) market, and when they do, they have the prerogative to change jobs (or industries) freely.

These premises boil down to the idea that when worldly contingencies and imperfections are removed the labour market functions according to the laws of perfect competition (Botwinick 2018, 21–26). The real world, of course, cuts against many if not all of the above premises (see, for instance, Hicks 1963). Yet the basic model is surprisingly resilient to amendment. For instance, the popular and recent labour economics textbook *Modern Labor Economics* (now in its fourteenth edition)

states that '[e]very piece of analysis in this text is an extension or modification of the basic model' (Ehrenberg et al. 2023, 38).

Explaining wage differentials under perfect competition: human capital theory

An important result of the mainstream's basic model of the labour market is that wage and profit differentials, where they arise, resolve instantly (Ross and Whitfield 2009, 25–28). Labour and capital move between firms and industries following higher wage and profit rates (that they know about and act upon instantly according to the assumptions of perfect information and mobility). For example, excess supply of labour or capital dampens the higher wage and profit rates and lead to their equalisation across the economy. But wage differentials between individuals do not resolve themselves in this manner. They persist because workers are not homogenous, and as the level of output produced by individual workers varies across the labour force, so too does their wages.

The linking of individual productivity differences to wage differences is a key insight in the development of neoclassical labour market theory as it provided an explanation for wage differentials 'even in the context of a perfectly functioning market' (Fine 1998, 61). The idea is that wages reflect the individual amount of value workers create in the labour process. This amount varies naturally given differences in the innate abilities of workers, but it is also developed in upbringing, education, work experience and training (ibid). An early proponent of this account was Adam Smith (1937, X part 1) who likened the education of a worker to that of the capital laid out to construct an expensive machine—both result in increased output and warrant increased profit and wages. The idea was incorporated into the mainstream's model of labour markets in the 1960s and 70s after Gary Becker and Jacob Mincer's articulation of the concept of human capital and its quantification in the earnings function. In Becker's (1962; 1975) terms, education is a productive investment which embeds and accumulates human capital in workers and secures them a future income stream. If the labour-leisure choice framework models the short-term supply of labour, in the long term workers choose between present and future income, with human capital theory explaining why workers and firms sacrifice present pay to invest in education or training (Ross and Whitfield 2009: 14).

The ongoing influence of human capital theory is vast and extends well beyond the remit of labour economics. The idea that workers attract a wage premium according to their skills is ubiquitous. It explains why employers pay more for workers with particular characteristics (i.e. highly educated) and it informs the normative argument that these workers are deserving of higher pay. A surgeon who has undertaken years of training as such rightly earns more than a labourer assigned to clean construction sites who was trained briefly on the job.

Since Becker and Mincer's intervention, hundreds of studies have estimated the return on investment and the earnings premium achieved through additional years of education. A recent systematic review of 1120 studies found the private average global 'return on investment' in each year of schooling to be 9 per cent (Psacharopoulos and Patrinos 2018). (For Australian studies, see Leigh (2008), Daly et al. (2015) and Deloitte Access Economics (2016)). Debate has ensued over whether the increased return is a result of productivity increases produced by education, or whether education simply provides a signal to prospective employers, a way of sorting people with pre-existing abilities, as according to the screening hypothesis (see Blaug 1976; Watson 2011). For the most part, the two theories produce identical predictions. Earnings equations have also been used extensively to estimate the 'unjustified' components of wage differences. These components are the residuals that are not the result of skill differences, indicating the presence of discrimination such as sexism, racism or ableism in the hiring or promotion process (or indicating the presence of other unmeasured variables) (Fine 1998, 69).

Problems with human capital theory

With the concept of human capital linking individual productivity to skill-based wage premiums, and earnings equations identifying discriminatory hiring and promotion, the orthodox labour economics is able to explain certain wage differentials and the persistence of low-paid work. The theory has considerable traction in public policy circles and centres reforms that improve access to education and training to increase the accrued human capital of individuals at the bottom of the labour market. At best, such reforms include proposals to increase funding to public schools and tertiary vocational education. At worst, the commitment to methodological individualism lays the blame for low pay on the workers themselves.

In Schooling in Capitalist America, Bowles and Gintis (1976) question human capital theory's apolitical perspective on education, arguing instead that schools are institutions that instil docility and uniformity in the working class and hence reproduce pre-existing inequalities. Fine (1998, 161–62), on the other hand, questions the universal applicability of the wage equation, arguing that labour markets are qualitatively distinct from one another and as such each segment will have its own unique equation and return to education. Fine (ibid. 58) also makes the important point that human capital theory undertakes a 'double reification' by treating capital as an asset, as opposed to a social relation, and treating labour as capital, as opposed to a human activity and unique quasi-commodity. Several others have found studies informed by the human capital approach to be unreliable in explaining persistent wage differentials between industries, between sexes, and between race and ethnic groups (King 1990, 69, 71, 143; Watson 2011; Botwinick 2018, 35–36). One reason is that skill differences may be less important in explaining wage differentials than other variables like plant size or capital intensity (Botwinick 2018, 35–36). Another is that, even if skill premiums are important, it is unclear that qualifications are a good proxy for skill level. There are many anomalies to consider: Australian vocational education certificates have been associated with a pay discount, not a premium; several occupations such as nursing and hairdressing require years of training but attract modest incomes; occupations may require significant skills but these might be attained informally on the job and are not recognised; and even when workers' skills are recognised through the provision of qualifications, a pay increase is not guaranteed (Brosnan and Wilkinson 1988, 9–10; Watson 2011).

For the number of problems identified with human capital theory, there are just as many solutions. Mark Blaug found exactly this:

> Worse still, is the persistent resort to ad hoc auxiliary assumptions to account for every perverse result, culminating in a certain tendency to mindlessly grind out the same calculation with a new set of data, which are typical signs of degeneration in a scientific research program.
>
> (Blaug 1976, 849)

As such, the approach has proven stubborn (Watson 2011, 22). A different criticism of the early neoclassical basic model is that real labour markets are full of

'imperfections' that obstruct their normal operation. Section 3.2 explores this idea and how it blossomed into a rival research program: the socio-economics of labour markets.

3.2 The socio-economics of labour markets

In Dunlop's (1957, 6) assessment, the classical political economists had 'little or no concern' for the structural nature of inequalities between labour market outcomes. But there are exceptions in the literature. In *The Wealth of Nations*, Adam Smith (1937, 99–100 in Fine 1998, 117–18) wrote that small compensating wage differentials arise when work is more disagreeable, the skills needed are more difficult to acquire, the work is inconsistent, it requires significant trust from the employer, and when success is not guaranteed. Smith's account suggests meat workers would be paid higher wages given their work slaughtering and processing animals is foul smelling, dangerous and, in some industries like beef, inconsistent. By contrast, John Stuart Mill wrote that:

> The really exhausting and the really repulsive labours, instead of being better paid than others, are almost invariably paid the worst of all, because performed by those who have no choice.
>
> (Mill 1929, 389 in Fine 1998, 118)

In the works of Mill and the economist John Elliott Cairnes are several ideas that prefigure contemporary segmented labour market theory. These include the exclusion of women from certain jobs, the undervaluation of women's labour, and the segregation of workers into classes of labour that are not in competition (Fine 1998, 118–19). Since these classical interventions, the idea that labour markets are structured, fissured, divided, stratified or fragmented into segments with differential pay and conditions has become commonplace (Akerlof and Yellen 1986; Watson et al. 2003; Vosko et al. 2009; Vosko 2010; Kalleberg 2011; Standing 2011; Weil 2014; Williams 2019). The explanation, however, is contested. This section elaborates on the development of the socio-economic account of labour markets and the idea of segmentation. Before starting the survey, it is useful to return to Fleetwood to help with framing the socio-economic approach.

The socio-economics of supply and demand

Fleetwood (2011, 19–20) finds a typical mainstream definition of the labour market in Bosworth et al. (1996, 3) who define it as 'the "place" where labour supply and labour demand come together, to determine the prices and quantities of labour services exchanged.' As articulated above, this place exists on the ontological plane of 'the labour market' alongside other markets, including for capital, land, and so on. In addition to this plane are social phenomena such as institutions which may play a role in modulating the effects of supply and demand. Unions, for instance, may artificially raise wages above the market-clearing level, but such phenomena are causally and ontologically secondary to the market. Many socio-economic theorists of the labour market question the hierarchy of planes described here. They see labour markets as 'embedded' in institutions which hold a more significant bearing on wage determination than the forces of supply and demand (ibid. 18). The Australian minimum wage, for instance, is an institution that sets a floor to wages (and which is for the most part followed) regardless of the particularities of supply and demand in an industry. Counter to this idea of embeddedness, and in radical opposition to the orthodoxy's ontology of the market, Fleetwood offers a more consistent approach:

> There are not labour markets *and* socio-economic phenomena with the former embedded in the latter. There is only *one* entity. Labour markets *are* socio-economic phenomena. Labour markets just are, are made out of, or are constituted by, socio-economic phenomena.
>
> (Fleetwood 2011, 18)

According to Fleetwood (2011, 17 n. 2) then, labour markets *are* institutions, and neither are ontologically separate from the forces of supply and demand, which also exist but 'are merely one set of forces alongside scores of others.'[3] In this model, supply and demand do not constitute aggregate curves. Fleetwood (2011, 26) eschews the terminology of supply and demand, preferring instead to consider workers and employers as agents who interact in the social mechanism of the labour market. I think the terms remain useful as shorthand for a series of complex structures (socio-

[3] Fleetwood's (2011, 19) own critical realist socio-economic definition of the labour market is a little cumbersome: 'Labour markets, as social mechanisms that coordinate the labouring activity of society, are sets of socio-economic phenomena that are reproduced or transformed by labour market agents who draw upon these phenomena in order to engage in actions they think (consciously or unconsciously) will meet their employment-related needs.'

economic phenomena) that require unpacking in the same way Fleetwood (2011, 29–34) unpacks the positioning of agents.

Supply encompasses the production and reproduction of labour power, which predominately takes place within a family setting involving both paid and unpaid labour and the inculcation of norms such as gender roles and one's class position in society. It extends to education, training and migration pathways. Demand encompasses the environment surrounding firms, including the nature of competition, their geographic scope, and the structure of financing.

Socio-economic theories of the labour market conceptualise the parallel processes of the structuring of jobs, on the one side, and the uneven assignment of workers to these jobs, on the other (Galbraith 1998, 54–56; Botwinick 2018, 8-9). The interaction of the two processes is endogenous. Low pay is not the result of factors considered exogenous to the labour market such as differences in ability, employer preferences, or the flow-on effects of trade union activity. (And hence, undesirable outcomes such as low pay are not resolved by the *removal* of social structures.) Put simply by Brosnan and Wilkinson (1988, 11), low pay is better explained as a result of 'the social structuring of jobs and workers.'

In the socio-economic approach, low pay is found in jobs that are socially downgraded and where the workers employed are classed as having lower status in the labour market. As such, work that historically was and presently is performed by women and racial or ethnic minorities is often designated as lower skill, including occupations associated with domestic labour such as cleaning, cooking, and care work, alongside other downgraded jobs such as assembly and processing work in manufacturing and manual labour in construction and agriculture (Milkman 1980; Craig et al. 1982; Vosko et al. 2009; Rubery 2017; Lass and Wooden 2017; Peetz and Murray 2017; Charlesworth and Isherwood 2021). Research on the assignment of workers to downgraded jobs is rich and insightful. In Australia, Margaret Power (1975) was influential in unpacking the basis of occupational segregation in sexist norms about the 'natural' roles of women. More recently, Colic-Peisker and Tilbury (2006) found that refugees were relegated to undesirable jobs via several mechanisms including the non-recognition of qualifications, employer discrimination and the economic necessity to find employment.

From the post-war institutionalists to labour market segmentation theory

The orthodoxy's basic model of the labour market had difficulties coming to terms with developments from the turn of the twentieth century on. These included the monopolisation of capital in the Great Merger of 1895 onwards, the parallel rise of large and militant trade unions, persistent unemployment during the Great Depression. Key advances on the basic model were made in Hicks' (1963) *The Theory of Wages* originally published in 1932 and Keynes' (1936) *General Theory of Employment, Interest and Money* (Botwinick 2018, 27; Ross and Whitfield 2009, 18). In this context the idea of market imperfections was developed, but it wasn't until the 1940s and 50s when economists such as John Dunlop, Joseph Garbarino and Sumner Slichter systematised the idea to explain persistent wage differentials between industries (Meyers and Bowlby 1953; Botwinick 2018, 27).

The post-war institutionalists developed an account which is now generally referred to as 'rent sharing', where the determinants of average industry earnings are derived from interaction between an industry's capacity to pay higher wages and workers' capacity to command this pay. Here, the key variables of concern in wage determination are industry concentration, the ratio of labour to fixed capital, and unionisation. These factors determined whether it was possible for firms to pass on gains made from productivity increases to workers. In concentrated markets, large firms have greater flexibility in setting prices and as such productivity increases can translate to increased profit margins at the same market price (which they choose not to lower in line with decreasing unit costs). Employer pricing prerogative is also found in industries with higher investments in fixed capital—such as manufacturing—where the significant time and capital required to initiate production as a new competitor effectively functions as a barrier to entry. Unionised workforces in these industries can appropriate some of the spoils of increased productivity, where the 'rent' is shared between employers and workers. In more competitive industries, however, where there are many small firms and more labour-intensive processes, productivity increases are quickly reflected in decreased prices, thereby eliminating the possibility of rent sharing. The orthodoxy largely accepted the institutionalists' criticisms but relegated their explanatory power to the short run. In the long run, the law of perfect competition would hold as all factors of production are considered variable (see Cartter 1959 in Botwinick 2018, 32).

But the institutionalists' criticism blossomed. First came the idea of the 'dual economy' and the corresponding 'dual labour markets', but quickly this was framed in more general terms as segmented labour market theory where the number of segments is not delimited to just two (King 1990, 148; Fine 1998, 117, 143). A key early thinker of segmented labour markets was Clark Kerr, who made a distinction between 'institutional' and 'competitive' labour markets. In the former, 'internal' labour markets could form as structures that internally organised workers (via formal and informal rules) into hierarchies that designated progression into higher wage positions and, further, set the conditions upon which workers may move into a firm or industry (the latter is termed a 'port of entry') (Kerr 1977). In Kerr's (ibid.) terms, labour markets were 'balkanised', with some workers sheltered from competition and others competing in the external market. From the early 1970s onwards, three distinct hypotheses emerged to explain segmented labour markets. The approaches have been summarised effectively in multiple places (Villa 1986; Rubery 1978; Fine 1998; Botwinick 2018), however it is worth stepping through them at least briefly.

The first hypothesis came from Peter Doeringer and Michael Piore (1985), who identified that the large, capital-intensive firms in manufacturing and elsewhere often employed complex technologies that were unique to the company. In such firms, management requires labour with firm-specific skills and have a clear interest in retaining them to avoid wasting resources training new workers. Such workers achieved higher wages and conditions through internal promotions and experienced job security even during down turns, which was thought to be aided by relatively stable product demand in these 'core' industries. Doeringer and Piore found that throughout the twentieth century in the United States African Americans were predominately excluded from these 'primary labour markets', and were instead relegated to low-paid, insecure work in peripheral sectors where firms responded to more volatile product demand—the 'secondary labour market'.

The second hypothesis is similar to but more radical than the first. David Gordon, Richard Edwards and Michael Reich (1982) also anchor their account in the technological requirements of large, capital-intensive firms, but they framed these firms in the explicitly Marxist terminology of the monopoly capital school (following Lenin (1934) as an early example and Baran and Sweezy (1966) as a more recent one). Another key influence was labour process theory and especially Braverman's (1974) thesis that monopoly capital employs new technologies to deskill, disempower and homogenise the labour of the working class. Gordon, Edwards and Reich thus moved

beyond the earlier focus on job-specific skill requirements to suggest that internal labour markets arise as 'systems of control' designed to discipline the working class. Motivated by more than just the need to retain skilled workers, '[e]mployers actively and consciously fostered labour market segmentation to "divide and conquer" the labour force' (Reich, Gordon, and Edwards 1973, 361 in Botwinick 2018, 42). Hierarchies within firms, differential conditions of job security according to permanent and temporary employment contracts, and competition between workers employed and unemployed become sites of division exploited by employers to stem solidarity between workers and ultimately control the labour process.

Whilst the first two hypotheses came from economists working in the United States, the third came from economists working in the United Kingdom at the University of Cambridge. Among them is Jill Rubery, whose chief criticism of the American theories of labour market segmentation is their neglect of the role played by workers themselves in structuring labour markets. For Rubery (1978), workers are not passive recipients of training and discipline but are active agents in the development of internal labour markets and control of the labour supply. Since they first existed, unions have developed seniority principles and craft societies as a necessary defense against their members' replacement by reserve labour forces. Such defenses are not always to the benefit of all workers. Regressive union strategies to reduce competition for jobs can lock out workers on dubious grounds, as is exemplified by the Australian union movement's championing of racist border policies to restrict immigration to British and Northern European countries in the early twentieth century (ACIRRT 1999, 12), or when male-dominated workforces promote stereotypical distinctions between 'men's work' and 'women's work' (Milkman 1980; Jerrard 1999; Botwinick 2018).

Segmented labour market theory in its various forms has faced much criticism from within and without the socio-economic paradigm (Blaug 1976; Rubery 1978; King 1990; Fleetwood 2006; Fine 1998; Botwinick 2018). The earlier models were considered excessively static, with no account of structural change, and all the models were charged with being excessively descriptive, unsystematic and as such theoretically weak.

Efficiency wage theories

Theoretical developments in the mid-1980s generated what Joseph Stiglitz (2000, 1441) came to call 'perhaps the most important break with the past[.]' He was talking about the new economics of information of which he himself was a pioneer. The previous understanding of information was Walrasian, wherein production and exchange relationships were stripped of their human content and information about products, the market and its participants is gained freely (Stiglitz 1993; Bowles and Gintis 1993, 84–85). Prices, for instance, would transparently convey the relative scarcity of a commodity. But in reality, information is not gained freely and there are all sorts of imperfections and 'asymmetries' to agents' knowledge. Lenders in capital markets are unaware of firms' propensities for risk (Greenwald and Stiglitz 1990). Consumers cannot easily verify the quality of a product they are purchasing (Stiglitz 1989). Labour markets are riddled with information lacunae such as the uncertainty workers face in knowing whether the grass really is greener in a different job. But the most important insight from the economics of information on the labour market is the notion that workers face a moral hazard in whether to apply themselves or whether to shirk. Since there is a cost involved in employers getting information on worker effort, surveillance is never total (Shapiro and Stiglitz 1984).

The turn to information economics improved the neoclassical understanding of the endogenous generation of labour market structures (Stiglitz 1985; 1989). John King (1990, 84) considered 'the strongest element of the orthodox argument' for segmentation is the family of efficiency wage theories. The latter all suggest that labour productivity (or worker effort) varies proportionally to wages and as such profits are maximised when an individual firm pays above the market-clearing level (Akerlof and Yellen 1986, 2). Early examples of efficiency wage theory are found in Rowe (1928) and Hicks (1963), published in 1928 and 1932 respectively. But the theories proliferated in the immediate wake of the information intervention. Efficiency wages came to explain persistent involuntary unemployment, the stickiness of wages during business cycle fluctuations, and wage differentials between identically-skilled workers (Shapiro and Stiglitz 1984). Lawrence Katz (1986) identified at least five models of efficiency wages, including: the shirking model, attempts to reduce the costs of labour turnover, attempts to attract higher-quality labour, attempts to boost worker morale, and to mollify unionised workers or prevent unionisation.

Efficiency wages were also used to explain industry wage differentials and 'primary labour market' wages and conditions in large manufacturing firms in the middle of the twentieth century—the very same phenomenon that the post-war institutionalists and segmented labour market theorists sought to explain (Dickens and Lang 1985; Krueger and Summers 1988). According to one model, the cost of shirking for employers varies between industries according to the particular characteristics of technologies used in the labour process. Those with machinery that are expensive to leave idle or where an important stage of a complex production process might be missed require constant worker attention and effort. By paying above-market wages, the cost of job loss is increased for workers and as such they are more inclined to apply themselves, ultimately reducing the employer's production costs. Not all industries operate this way, however. For some the cost of shirking or the cost of supervision is less than the cost of paying efficiency wages. From a Marxist perspective, Bowles and Gintis' (1990; 1993) concept of 'contested exchange' is a very close analogy to efficiency wage models.

There are several continuations of the insights of the institutionalists and segmented labour market theorists in efficiency wage theories. In the first instance, discrimination and segregation remain. Hiring on the basis of adverse selection to seek out more productive individuals is not an objective process but is instead characterised by statistical discrimination—women and workers from non-English speaking backgrounds are routinely passed over for primary sector roles due to assumptions made about the lesser average productivity of the groups they belong to (Dickens and Lang 1985; Akerlof and Yellen 1986, 7). In this context, segregation by sex and race will not be eroded by market forces as Becker had reasoned (Bulow and Summers 1986). Second, the idea of rent sharing persists. Krueger and Summers (1988, 280) stated that '[r]ent sharing explanations are intimately related to efficiency wage theories' and as such should be regarded 'as a species of efficiency wage theory rather than as an alternative explanation for wage differentials.' And third, some efficiency wage theories suggest that norms can play an important role in explaining the wage structure. The most recognised is Akerlof's (1982) account of the wage relation as a gift relationship, whereby worker effort is determined by group norms or morale and the 'gift' of higher wages is repaid in loyalty to the firm.

Efficiency wage theories greatly improved the orthodoxy's ability to describe the landscape of labour market imperfections. Optimising behaviour by individual workers and firms still had an important role to play, but it was in a new context (Fine

2013: 171). The segmentation of labour markets was now considered endogenous to their operation. Human capital equations were employed to identify segments and the variables used in these equations were often identical to those employed by the institutionalists and radicals—for instance levels of education, unionisation, capital-labour ratios and firm size. An important difference, however, was that orthodox economists employed more sophisticated econometric modelling (Fine 2013: 158–61). Previously wage equations were built using pre-specified variables, but this changed when economists started using factor, cluster and principal components analyses. Using factor analysis, labour market segments could be identified by the covariation of several observed variables reflecting the variation of unobserved, compound, underlying variables (for examples see Flatau and Lewis (1993) and Bill et al. (2007)). Economists could now be relatively agnostic as to the causal mechanisms at play in producing a labour market structure, throwing in all data to hand in an exploratory analysis and seeing what sticks.

3.3 Theorising work on the disassembly line

Explaining the higher wages and more secure jobs of unionised workers in the steel, auto and rubber industries in the United States in the 1950s and 60s was a necessary feature of segmented labour market theories—both for the institutionalist-inspired socio-economists and later also for the mainstream economists. Interestingly, heterodox economist Howard Botwinick (2018, 245) also places the US meat-packing industry in this camp, where workers were highly organised, worked in large firms in concentrated industries, but where the dexterity of human hands remained a requirement for production. As Chapter 2 considered, there is evidence to suggest workers in the Australian meat industry also achieved 'primary labour market' conditions in the 1960s and 70s, including decent wages and short working days (Productivity Commission 1998).

The efficiency wage theory connection between the wage and workers' effort has some relevance to the meat industry. For most of the twentieth century, workers were paid on piece rates referred to as the 'tally'. I show in Chapter 5 that tallies are a unique form of piece rate, where workers' effort is rewarded not by increased pay but by shorter working hours. In considering labour market segmentation and wage suppression in the Australian meat industry, a better anchor to the discussion is labour process theory. A brief analysis of the introduction and development of the disassembly line shows the importance of a critical reading of skill differences,

deskilling and motivating effort through control. While there is clearly a fruitful exchange of ideas between the different labour market approaches considered in this chapter, wage relations in the meat industry are illuminated foremost by ideas rooted in the socio-economic programme.

Valuing work on the disassembly line

The skill-based wage premium is a ubiquitous feature of labour market theory. But what exactly is meant by the term skill? The Oxford Dictionary of Economics defines skills as:

> The ability to perform various tasks satisfactorily. Skills may involve physical dexterity, mental ability, or both. They can be learned either through formal instruction or through the apprenticeship system, working under the supervision of somebody who already has them. Individuals appear to differ in their ability to acquire skills. Workers with scarce skills can generally obtain better paid and more secure jobs than those without them.
>
> (Black, Hashimzade, and Myles 2013)

This definition is starkly uncritical. There is perhaps some concordance with contemporary literature on 'skill ecosystems' insofar as both formal and informal training is considered in the definition (Cooney et al. 2010). But there is no discussion of the social context in which skills are valued. Marjorie Jerrard takes a better definition from Beechey (1988, 49), who defines skills as 'technical competencies overlain by social and ideological constructions' (Jerrard 1999, 141). Skills are socially constructed insofar as they are associated with formal qualifications, reflect the effect of trade union fights over grading, and they change depending on the characteristics workers being described (Fine 2013, 112). Social constructions themselves are neither bad nor good, but they are unavoidable and have an important bearing on how work is valued at the individual, workplace and societal level. As articulated in the previous section, the categorisation of work as requiring a certain level of skill is largely the result of assumptions about the value of labour of the people doing the work.

The socially determined nature of skills has been integral to the division of labour within the meat industry and it came to the fore in the twentieth century when

technologies were introduced that re-oriented that division. Jerrard's (1999) study on the employment of women in the industry is illuminating. Legally sanctioned pay inequality based on sex was a formal part of Australian work arrangements up until the equal pay case of 1969. Because women were paid a proportion of men's wages, they were an attractive source of cheap labour during downturns such as the Great Depression. Bookending this period were two world wars that resulted in local labour shortages and the introduction of more women to the meat industry. But female employment tended to cluster in the poultry industry, where workers performed similar jobs to those in the red meat industry but at lower rates of pay (even comparing the full 'male' rates). Poultry work was considered 'women's work', requiring speed and dexterity but not necessarily skill. Aside from industry segmentation, the occupational segmentation of workers on the disassembly line changed with the transformation brought about by the chain.

While the chain system had existed in the US meat industry since the turn of the twentieth century, it became mechanised in Chicago around 1916 and was only introduced to the Australian mutton and lamb industries in the 1930s (Jerrard 1999; Cutler 1976, 250). Prior to the chain system, smaller animals such as sheep could be dressed, boned and processed by a single worker and larger animals such as cattle were processed by gangs of skilled butchers and their assistants (O'Leary 2008, 11). In the chain system, animal carcasses would move between the workers who performed one specialised task in a repetitive fashion. As such, the effect of the technology was to deskill and thereby devalue labour in the industry. At the time, one worker lamented the devaluation of their craft skills:

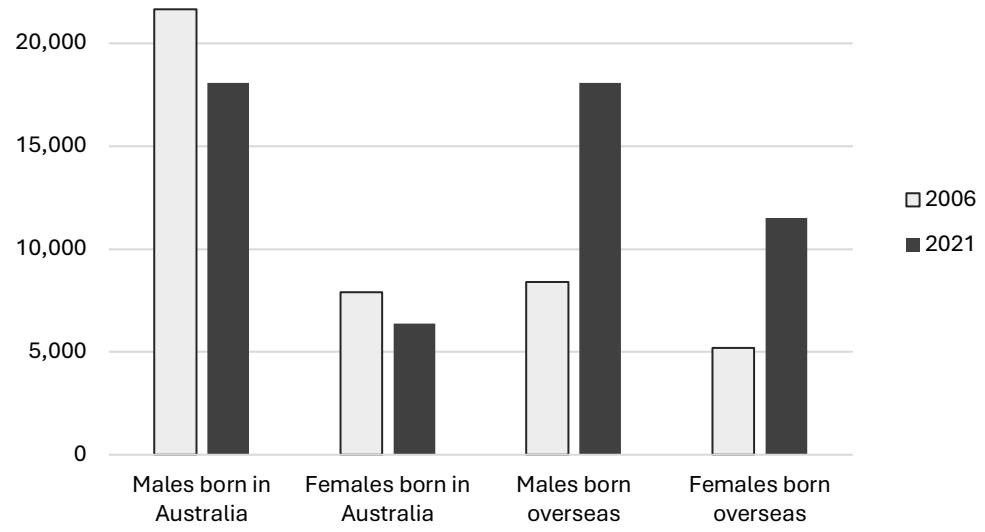
> The chain system practically eliminates skill in the skinning and dressing of mutton. To become a proficient solo slaughterman it required two or three years of practice. A chain ganger is trained in as many days.
>
> (McBryde 1935, 22 in Cutler 1976, 250)

The general effect of technology on workers is ambiguous. Rubery (1978, 28) identified that when workers roles are transformed from manual labour to machine operating they command a greater mass of output and as such gain increased power over the production process. The effect of the chain system, however, was not empowering for workers in the meat industry.

The transformation from individual, craft skills to team-based, processor skills constituted a transfer of knowledge in the labour process from workers to management, a movement is described by Braverman (1974, 113-14) as a 'dehumanization of the labor process' and the 'separation of conception and execution' (see also Burawoy 1978, 272). The result is not only dehumanising but also devaluing. As Chapter 2 articulated, factory process work in the meat industry is today remunerated at similar rates to other devalued occupations in child care, café work and commercial cleaning. Jerrard (1999), however, identified that the devaluation of labour resulting from the introduction of the chain was uneven. The chain system required a new division of labour with new occupation titles and descriptions that were established according to the existing framework of sexist conventions. Slaughtering and boning were considered 'men's work' and drew a higher wage justified by the idea that the strength required was associated with more skill. Slicing, trimming and packing, on the other hand, were considered 'women's work' and were remunerated at lower rates (in addition to the fraction of the basic wage women received at the time). Despite multiple waves of feminist criticism and the formal adoption of equal pay, the gender pay gap stubbornly persists and a key aspect of this is occupational segregation.

Whilst Jerrard's study concerns the division of labour in the middle of the twentieth century, the gendered and racialised division of labour in the meat industry has only intensified since then. Chapter 2 showed that packers are currently the most exposed to low, poverty-level wages and 50 per cent of packers are migrant women. In contrast, boners and slicers, and slaughterers earned better wages and almost all are men. Figure 3.1 shows the changes in employment between 2006 and 2021. Over 2006 to 2021, employment in the meat industry grew by 25 per cent from 43,000 to 54,000. Figure 3.1 indicates that the demographic composition of the industry changed considerably.

Figure 3.1 Employment change in the meat industry, 2006 to 2021



Data: Census of Population and Housing, 2006 and 2021, TableBuilder (ABS 2006, 2021)

Between 2006 and 2021, the number of migrants grew by around 16,000 and the number of workers who were born in Australia declined by around 5,000. As Chapter 2 considered, migrants are overrepresented in lower-skill positions on the disassembly line. These employment changes suggest a new division of labour in the meat industry. The ideological division between 'men's work' and 'women's work' has some resonance in the patterns of occupational segmentation in the industry today—especially in explaining the large number of women who work as meat packers. It is necessary, however, to add the ideological division between 'Australian jobs' and 'migrant jobs' as this is clearly in operation in the meat industry and has been for the bulk of the twenty-first century.

Moolchand and Marshall, for instance, find that migrant workers a 'relegated' to more arduous tasks, indicating that 'workers' roles and opportunities are influenced by racial and ethnic biases' (2025, 25). Moreover, echoing the insights of Gordon, Edwards and Reich, Moolchand and Marshall (ibid. 25-6) write that '[m]any workers perceived the differential treatment as a deliberate management strategy aimed at fostering division.' The valuation of skills in the meat industry thus has a new axis that requires unpacking.

Motivating effort on the disassembly line

Prior to the revolution of information economics and the idea that employers cannot freely know workers' effort, Harry Braverman published *Labor and Monopoly Capital* in 1974, in which he considered the very same problem. In this book, Braverman (1974, 57) identified that when an employer 'buys labor time, the outcome is far from being either so certain or so definite that it can be reckoned in this way, with precision and in advance.' Output will vary and it is the quintessential problem of management to maximise this quantum—to draw actual labour from the commodity labour power (see also Bowles and Gintis 1990; 1993). As such, motivating effort is a primary concern. But the concern differs between employers and between industries.

Efficiency wage theories have traction explaining motivating the effort workers in certain settings, such as workers paid by piece rates and white-collar professionals who work in relative isolation and employ niche skills (Botwinick 2018, 63, 67 n. 172). But efficiency wages are just one way to solve the labour effort problem. Another is to deploy new technologies to restructure the labour process. In 2021, the two largest occupations in the meat industry were process workers and meat packers. These occupations also contributed more than half of employment growth in the industry between 2006 and 2021 (ABS 2006; 2021b). As the previous chapter showed, these workers are low paid. The effort of these workers is not solicited by higher wages.

Botwinick (2018, 62) found that the 'the EW analysis of the capitalist labour process in general and of the mechanisms for soliciting work effort within manufacturing in particular simply does not ring true.' In manufacturing, productivity growth is not primarily driven by worker effort but rather it is driven by the introduction of new technologies and Taylorised divisions of labour. Braverman showed that the scientific management of labour is a knowledge-making practice: knowledge about when to roster workers, how much time allocate to breaks, and most of all the nature and scope of roles in the new division of labour. Thus, Botwinick suggests that whether workers applied themselves was not the primary concern, but *how* they applied themselves:

> [T]he main information problem for management was not the inability to measure worker output, but the overwhelming fact that highly skilled workers knew far more about their jobs than did management.

(Botwinick 2018, 65)

As such, new divisions of labour have the effect of breaking down workers' knowledge over labour process and putting them to work in newly deskilled ways. In manufacturing, the quintessential form of production is the production line—a labour process in which work effort is dictated by the pace of machines.

Work in the meat industry is the archetypal example of machine pacing (Wright 2012). Line speed remains a major issue in the industry, particularly for workers' safety. The nature of the work and the speed at which it is undertaken mean that meat workers experience some of the worst rates of injury in Australia (Sharif 1997; McKell and Booth 2018). Fatalities are rare but they do occur (Barlow 2010). Lacerations were much more common previously but now the most common injuries are due to the job's relentless repetition. Consider the following descriptions from two recent reports on work in the US poultry industry:

> By far the most commonly reported injuries result from the repetitive strain of doing the same task over and over, quickly, hour after hour. A line worker in a poultry plant repeats the same strenuous trimming, cutting, or hanging motion tens of thousands of times per shift. As poultry plants impose rapid and relentless line speeds, workers report having to perform their task at least every two seconds to keep up.

(Sokol 2016, 7; see also Fritzche 2013, 4)

Unsurprisingly, fast lines are a condition of meat work in Australia as well (Dao et al. 2021).

Where efficiency wage theories have a limited ability to explain capital-labour relations in the manufacturing sector and the meat industry, they are particularly useful in eliding the conflictual nature of the labour process (Botwinick 2018, 64). The temptation for individual workers to slack off when no one is watching is presented as the central problem of production, not the fact that workers and employers have opposed interests and are in constant conflict over knowledge, control and time. The collective project of organising in a union is undermined by this individual focus on bargaining. But the history of the meat industry in Australia is a history of antagonistic labour relations. The industry is much less strike prone now

that it was in the twentieth century, but this is not a reflection that conflict or class no longer have a bearing on management of production and control over the labour process. Rather, it is a reflection that this conflict is so skewed in one direction that it is difficult to properly envisage alternatives.

3.4 Conclusion

This chapter started by considering the neoclassical basic model of the labour market and its foundational ideas: marginalism, equilibrium and perfect competition. The basic model is an ideal type that was improved upon by human capital theory, which was better able to explain wage differentials. But human capital theory proved to be as problematic as it was influential, leading Blaug to suggest it constituted a degenerating research programme. I showed that the meta-theoretical interventions of Steve Fleetwood are helpful to making sense of labour supply and labour demand in real, non-ideal terms. The socio-economic understanding of labour markets is particularly helpful to understanding the creation and persistence of low-paid work—in the broadest terms it is the result of 'the social structuring of jobs and workers' (Brosnan and Wilkinson 1988, 11). But the advance of socio-economic labour market theory over the neoclassical approach is problematised by development of efficiency wage theories. In the 1990s and 2000s, debates around labour market segmentation and the derivation of worker effort seem to usefully cut across the divide of different schools of economic thought.

In seeking to explain labour market segmentation and wage suppression in the Australian meat industry, the labour process provides an important anchor. Three key insights are derived by considering the organisation of work around the chain system in the twentieth century. One is that sexist constructions of skill differences informed the valuation of the new roles created on the line. The second is that the disassembly line has effectively deskilled meat workers. The effect was to transfer control of the production process to employers and lay the foundations for the devaluation of the work in the short and long term. The last point is that the disassembly line created a new labouring subject—the meat process worker—a line worker whose skill set is constrained to repetitive knife work and whose movements are subject to the timing of the mechanised chain. These insights about the industry in the twentieth century are relevant today, when the division of labour is segmented by new groupings and the machine has only grown faster and more complex.

Thus far, the discussion of the demand for labour has been schematic. To control the labour process and devalue labour, employers introduced technology that required a new division of labour. But there has been no discussion of the forces driving employers to revolutionise the labour process. There has been no discussion of capitalist competition. As I explore in the next chapter, most socio-economic accounts of the labour do not depart from the orthodoxy's dichotomy between perfect and imperfect competition. To understand labour markets, I argue it is necessary to dispense with the neoclassical theory of competition.

Chapter 4 – Firming up the demand side of the socio-economic approach

> Capital is a particular social form of wealth driven by the profit motive. With this incentive comes a corresponding drive for expansion, for the conversion of capital into more capital, of profit into more profit. Each individual capital operates under this imperative, colliding with others trying to do the same, sometimes succeeding, sometimes just surviving, and sometimes failing altogether. This is *real competition*, antagonistic by nature and turbulent in operation. It is as different from so-called perfect competition as war is from ballet.
>
> (Shaikh 2016, 259)

The dichotomy of perfect and imperfect competition remains an implicit cornerstone of most theories of the labour market, including most variants of segmented labour market theory and several Marxist approaches. The social benefits of perfect competition are invoked in calls across the political spectrum to limit the market power of oligopolies—such as Australian supermarkets involved in price gouging (Barrett 2023a; 2023b; Australian Competition & Consumer Commission 2025). John Weeks (1981, 153) has aptly called this a quantity theory of competition, where the amount of competition is directly proportional to the number of firms participating in a market. For instance, in the supermarket sector competition is considered very low because the three largest companies account for more than three quarters of industry sales (ACCC 2025, 1). But it is an image that is easily reversed. If we consider the massive advertising budgets of firms like Coles and Woolworths and their persistent attempts to wrest market share from one another, competition looks more like a knock-out tennis tournament or the final kilometres of a mountain stage of the Tour de France. Now, the fewer contestants remaining, the more intense the competition. This reverse image is closer to the way classical political economists understood competition; however, it would be better to say that their accounts included both images and more. Analogous paths have been taken by British economists involved in the Oxford Economists' Research Group who analysed actual business practices in the 1930s and more contemporary heterodox economists who have furthered the classical approach (Shaikh 2016, 259–326; Moudud et al. 2012; Bryan 1985). Neither have achieved widespread acceptance. Nevertheless, the

classical approach to competition is a realist salve to the idealisations of neoclassical economics.

Section 4.2 of this chapter unpacks Shaikh's intervention, where competition between firms and industries is a dynamic process that constantly generates differential conditions of production and profitability. These differences may persist for some time, providing the conditions for persistent low-paid work. I show that this is particularly the case when there are pools of un- and under-employed workers in and on the fringes of an industry who compete with the better paid and more securely employed. In section 4.3, I show how Howard Botwinick (2018) extends Shaikh's account to a deeper consideration of labour markets. In Botwinick's work I find a useful guide to examining the terrain of possibility for wage increases in different circumstances: from employment in the most efficient firm in a booming industry to the least profitable firms in dying industries. In section 4.4, I defend the use of Botwinick's approach in response to two charges: (1) that the approach is unworkable for an empirically focused case study, and (2) that the approach is inappropriate to the contemporary, deindustrialised and financialised mode of accumulation.

Before moving to these questions, section 4.1 of this chapter directly addresses how socio-economic theories of the labour market remain wedded to the dichotomy of perfect and imperfect competition.

4.1 Problems in the socio-economic paradigm

At the core of socio-economic theories of the labour market is a recognition of the critical importance of institutions in how wages are actually determined (Rubery 1997, 341). Institutions such as gendered norms, minimum wage policy, wage-setting methods and the concepts of need or fairness clearly play a significant role in wage determination. But in privileging these factors does the socio-economic approach unmoor itself from any determinate footing? Does an emphasis on the 'socio' come at the expense of the 'economic' in the socio-economic approach?

In an early foray into his meta-theoretical development of socio-economic labour market theory, Fleetwood lamented this problem, and its inverse, amongst the extant individual perspectives:

> It is common to come across comments suggesting that 'economic' forces dominate, but do not entirely negate, the effect of social structures. Other comments imply the opposite—namely that social structures dominate but do not entirely negate 'economic' forces.
>
> (Fleetwood 2006, 66)

The two positions tend to propose a relationship between the forces of supply and demand and social structures where, alternatively, one of these sides sets the boundaries to movements in the wage level and the other side regulates the actual rate (ibid. 69). When privileging the 'economic', it is supply and demand that sets the boundaries and social structures that regulate the actual wage rate. When privileging the 'social', it is the reverse.

The three hypotheses regarding the development of segmented labour markets explored in Chapter 3 (Doeringer and Piore, the Monopoly Capital School, and the Cambridge School) all tend towards an 'economy-first' approach that have strong similarities with the post-war institutionalists who identified the industry and firm characteristics associated with higher wages. In adopting this approach, segmented labour market theory is at risk of presenting itself as a 'watered down' version of the orthodox approach to labour markets (Fleetwood 2006, 67), where the functional relationships of wages, supply and demand predominate and the skill-requirements of the firm, managerial attempts to control the labour process, and the development of worker shelters are all secondary considerations.

In the case of Deoringer and Piore, the concern is straightforward: they did not see their intervention on internal labour markets as groundbreaking, but rather a description of short-run phenomena:

> The contrast between the internal labor market and competitive, neoclassical economic theory suggested by the previous discussion, however, should not be over emphasized. Many of the rigidities which impede market forces in the short run are eventually overcome, and there is probably a tendency for the economy to adjust, in time, in a direction consistent with the predictions of competitive theory.
>
> (Doeringer and Piore 1985, 7; see also King 1990, 75)

But it is not obvious that the radical strand of labour market segmentation theory is any different.

The Monopoly Capital School

A foundational premise of the Monopoly Capital School's approach is the idea put forward by Baran and Sweezy that capitalism moved from the 'competitive stage' that Marx was writing about to its 'monopoly stage' where competition is reduced and large firms dominate markets throughout the economy. The radical economists Michael Reich, Richard Edwards and David Gordon (1973; 1982) extended this idea to the development of segmented labour markets, suggesting that higher wages were possible in monopolised 'core' sectors and there were limited opportunities in the competitive periphery. In Australia, Marxist economist Jock Collins (1978) was particularly inspired by the radical segmentation theorists and sought to apply their work in this new context (see also Drago 1995).

A rigid description of a primary sector associated with a primary labour market and a secondary sector associated with a secondary labour market proved untenable. It remains untenable when a third 'primary subordinate' sector is added to account for well-paid blue-collar jobs in distinction from white-collar jobs in the primary sector. Counter-examples were easy to find. Both of low-paid workers in concentrated industries and working in oligopolistic firms such as Amazon and Walmart in the US (or Coles and Woolworths in Australia); and of better-paid workers in supposedly competitive industries like trucking, construction and dock work (Moody 2019, 26; Gindin 2021). Jones (1983) found that the interaction between the industry structure and the wage structure was complex, with fractal-like sub-hierarchies of better and worse conditions within both primary and secondary industries (see also Tracey 1981). The approach was also considered overly static, portraying a fixed hierarchy of segments that failed to account for the deindustrialisation of supposedly core industries in response to rising competition from Asian manufacturers from the 1970s on (Botwinick 2018, 48). Similarly, the idea that capitalist development has a clear trajectory from competitive to monopolistic is contested (Clifton 1977).

Gordon, Edwards and Reich sought to address several of these issues in their later work *Segmented Work, Divided Workers* (1982), wherein the authors adopted a more dynamic social structures of accumulation approach to the 'long swings' of capitalist

development. But it is not clear that the new approach lent them significantly more sophistication than the previous. At root of the problem is attachment to the division between monopolised and competitive industries insofar as it does not break from the orthodoxy's quantity theory of competition (Botwinick 2018: 52; see also Fine 1998: 120). In this model, labour market structures such as inter-industry wage differentials result from imperfections such as asymmetric information or indeed concentrated (monopolised) markets. Imperfections are considered as obstructions to, aberrations or deviations from perfect competition, which always remains the frame of reference:

> [T]he theory of imperfect competition retains the concept of perfect competition as its logical and historical base and then analyses real phenomena in terms of their 'distance' from this base.
>
> (Botwinick 2018: 29)

But perfect competition is not a concept with any relevance to the social world (see Fine 2018, 87, 172, 195 and Botwinick 2018, 24). The previous chapter showed the reverse: perfect competition is a foundational premise of the functional (and ideal) relationship between wages, supply and demand. It is a fiction with deductive coherence that is considered to operate only when the real characteristics of labour markets are removed. As such, perfect competition and its inverse imperfect competition are idealisations (not abstractions as Marx used the term) and their employment in labour market theory is as Weeks (2012, 17) suggests: 'hoping that nature will imitate art.'

The Cambridge School

Ben Fine (1998, 124) considers the Cambridge School—among them Jill Rubery, Frank Wilkinson, Peter Brosnan and Paola Villa—has come closest to breaking from the orthodoxy's account of segmentation. A useful example comes from Paola Villa's *The Structuring of Labour Markets*, which was published in 1986 after the completion of her PhD at Cambridge. In this text, the central theoretical framework Villa develops is an attempt to integrate the three hypotheses of segmented labour markets articulated in Chapter 3. It is worth quoting her at length:

> The idea underlying my empirical work is that the structure of jobs, employment conditions, and the rules determining recruitment, training, career, and mobility can be understood only in terms of product market conditions, industrial structure, and technology in use. But economic and technological factors alone are not sufficient to explain the structuring of labour markets: they define the economic and technological framework—i.e. what I define as the 'realm of possibilities'—within which employers, workers, and unions interact. This is to say that the economic and technological factors do not determine the content and structure of labour markets: rather they define the realm of possibilities within which the division of labour and the labour market structure can result from labour/management interaction. Differences in economic and technological conditions are crucial in defining the problems that employers face in organizing the labour process, and that unions face in organizing workers and representing their interests. But the motivations of management, labour, and union organization also affect the structuring of the labour market, so that an understanding of this process requires a consideration of the dynamics of labour/management relations. It is the ways in which employers, workers, and unions can through their social relations resolve (or try to resolve by strategy) the problems created within a changing economic and technological environment which makes segmentation a continuous process.
>
> (Villa 1986, 2–3)

In this passage Villa clearly gives primary weight to demand conditions. She considers that economic and technological factors provide a framework or a 'realm of possibilities' within which workers, employers and other actors interact through negotiation and out-and-out conflict. As such, in order to explain the emergence of labour market structures—or in particular the persistence of low-paid work—it is necessary to unpack product markets, the industrial structure and technologies in use, on the one hand, and the institutions that shape the realm of possibility, on the other.

Institutions play an important role in protecting against excessive exploitation, structuring individual and collective decisions, and funnelling particular workers into particular jobs. Fine himself proposes an analogous approach:

> [S]egmentation of the labour market is the consequence of underlying socioeconomic processes, forces or tendencies that give rise to, and reproduce, specific and historically contingent labour market structures.
>
> (Fine 1998, 108)

Both articulations are compelling. They make a distinction between contingent interactions that define particular labour market outcomes and underlying socioeconomic processes that play a more generative and boundary-setting role. Such boundaries are sometimes experienced as 'hard limits'—as when an auto manufacturer relocates production and suddenly the realm of possibilities is reduced to zero—but they are not totalising. There is always the possibility, however small, that conflict can extend beyond the factory or office walls and into the streets, where other forms of production, technology, markets and society may surface.

Fine (ibid. 172) does argue that the socioeconomic processes, forces and tendencies that give rise to segmented labour markets are best explained by an analysis of real capitalist competition, however he does not flesh this out.

4.2 Real capitalist competition

In *Capitalism: Conflict, Competition, Crisis,* Anwar Shaikh (2016) proposed the idea of 'real capitalist competition' as a development on the classical Marxist account of competition between firms and industries and in contradistinction to the later developments in neoclassical theory. The approach is an abstraction from the actual practices of firms in their battles for expansion. As articulated in the quote in the beginning of the chapter, real competition 'is as different from so-called perfect competition as war is from ballet' (Shaikh 2016, 259). In recent years there has been a surge of new research on alternative models of competition, in part on the back of Shaikh's analysis. A collection of these are found in Moudud et al.'s *Alternative Theories of Competition: Challenges to the Orthodoxy* published in 2012. This section works through Shaikh's account before moving on to its extension in the work of Howard Botwinick.

Competition between firms within an industry

In capitalist social relations, firms compete to accumulate capital. This occurs by amassing and reinvesting profits, with the amount accumulated by a particular

capitalist depending on the rate of return on their investment in production (determined by the firm's efficiency) and the demand for their product (the quantity of output they can sell). Securing market share is therefore crucial for the success of each firm. Various factors affect our decisions to purchase commodities—for instance our preferences or taste, trends, our specific requirements, the quality of the product, or how well it has been reviewed by others—however price is an overriding concern. The orthodox theory of prices suggests that in the absence of imperfections each product market will generate one price as a result of equilibrium between supply and demand. Firms then accept this price and produce the level of output required to maximise profits in the short run.

Shaikh (2016, 273) reviewed the works of economists from the Oxford Economists Research Group who examined firm behaviour in the 1930s. The group found that the leading firms within an industry in fact set prices based on their costs of production and an intended medium- to long-run rate of profit. Because a firm's market share is constantly under threat from rival firms and new capitals seeking to enter the industry, firms engage in active price cutting to defend or expand their position. Costs of production are the limit to cutting prices, and as such their reduction is a central firm tactic and feature of competition within an industry. Writing well before the Oxford economists, Karl Marx was lucid on the multiple ways in which capitalists reduce costs. They do so by suppressing wages, by maintaining wages but increasing the length or intensity of the working day, by acquiring smaller firms or merging with competitors to reduce fixed costs, and by introducing more efficient divisions of labour and production methods (Marx 1990, 582, 645, 777; 1991, 299; Shaikh 2016, 259).

Shaikh (ibid. 262) argued that new entrants will used the best technologies of production available to them, whereas older firms must make use of their existing technologies before upgrading. As such there is always a spectrum of costs within an industry. This is a dynamic process that does not result in long-run equilibrium but rather a process of constant differentiation, a 'perpetual leapfrogging' of newer technologies over older ones (Botwinick 2018, 146). The idea is not unique to the Marxist tradition. It is found in the works of some mainstream economists, for instance Wilfred Salter (1966, 26) who wrote 'the past is always with us so that actual labour productivity always trails behind best-practice labour productivity.' Robert Gregory and Denis James later described the insight as vintage capital models, whereby:

> The distinguishing feature of these models of economic growth is that capital is not treated as one homogeneous stock, but as a series of layers of past investment, each layer having its own unique characteristics and representing a more efficient technology than its predecessors.
>
> (Gregory and James 1973, 1133)

Shaikh's contribution at this stage is to identify the connection between differential conditions of production and differential profit margins and profit rates. Whilst there is an equalisation of prices around the price leader, there is differentiation of production conditions and as such a differentiation of profit margins and rates within an industry at any given time (Shaikh 2016, 260). With roughly the same price, more efficient firms will have lower unit costs and higher profit margins and less efficient firms will have higher unit costs and lower profit margins. This is important because profitability is a useful indicator of a firm's capacity to increase wages.

Even at this level of abstraction—where we are considering competition between firms in one industry—more can be said about how competition shapes the realm of possibilities for wage growth. A key insight is that employers experience competition as a compulsion to lower costs and failing to do this they will be priced out of the market. Marx was writing at the time of the industrialisation of Western Europe, and as such his analysis of competition concerns large firms making considerable investments in fixed capital to mechanise the production process. In section 4.4 of this chapter I explain why this remains relevant to the nature of competition in the meat industry. Here, it is worth noting one way in which new technologies—the 'key weapon' employers have in their attempt to develop more efficient methods of production (Botwinick 2018, 145)—can affect the demand for labour.

Capitalists generally seek to expand production, but when they fail to do this the introduction of new technologies has the effect of displacing labour. The result is the growth of an excess supply of workers, what Marx referred to as the surplus population or reserve army of labour (Marx 1990, 762–870). The concept has been usefully—albeit contentiously—used to make sense of the incorporation of women and migrants into the Australian labour force (Collins 1984), the expansion of the global proletariat following China's industrialisation and the breakup of the Soviet Union (Harvey 2019) and the recent proliferation of underemployment and

precarious work (Watson 2002). There has been considerable debate about the historical contingency of Marx's 'general law of capitalist accumulation', particularly regarding empirical observations of the demand for labour with respect to the rate of investment, the composition of capital and the labour force participation rate (Howard and King 1985, 197–206; Fine and Saad-Filho 2016, 85). It is clear that the labour displacing effect is not an iron law. It is also clear, however, that where it does exist the reserve army disciplines the ambitions of the active workforce and marks an important plane of competition between the employed, underemployed, and unemployed. The reserve army is thus a concept that links competition between firms to competition between workers.

Competition between industries

Capital has multiple avenues to realise a surplus and is generally indifferent to its application (Marx 1991, 297). The decision for new capital to invest in meat processing, health care or tourism, for example, depends primarily on the rate of profit in that industry. Capital is always in search of a higher rate of return and at any given moment this will differ between industries. New investment is a common feature of industries most of the time due to the growth trajectory of the capitalist economy, but investment will accelerate relative to demand in industries with higher profit rates and decelerate relative to demand in industries with lower profit rates (Shaikh 2016, 264). We recognise this process in the long run as structural change. The result is an increase in supply in industries with higher profit rates and a decrease in supply in industries with lower profit rates. Coupled to this change in supply is a price adjustment, with relative prices decreasing in the industry where supply exceeds demand and increasing in the industry where supply fails to meet demand. With the change in prices comes a change in profit rates, which tend towards equalisation between industries. The equalisation of profit rates is an emergent property of competition between industries; it is a process that is uneven, turbulent and it does not result in equilibrium (Marx 1991, 298; Shaikh 2016, 260).

The fact that industries have different conditions of production is key to understanding the turbulence of profit rate equalisation. In industries with large amounts of fixed capital, like mining or manufacturing, capital faces barriers to entry. New capitals to these industries may require a large investment up front and it may take some years to build a mine or plant and get it operational, hindering new entrants' abilities to immediately realise the industry's average rate of return. As the

post-war institutionalists reasoned, barriers to entry create a kind of monopoly where demand can exceed supply for longer periods in a state of 'structurally (or institutionally) determined scarcity' (Mandel 1991, 58).

Established firms in such industries will have access to surplus profits that are higher than the average across all industries, with barriers to entry insulating these firms from the equalisation of profit rates between industries. Surplus profits may arise due to the concentration of fixed capital, as in this example, due to patents on state-of-the-art technologies, or indeed because there are natural limits to the level of production as in the mineral resources and agriculture industries. But surplus profits 'are always relative, never absolute' (Mandel 1991, 60). All capitals have an interest in overcoming barriers to entry as doing so gives them access to a greater pool of surplus to be divided (ibid. 63). Even apparently inherent limits to production can be overcome. The mechanisation of agriculture, for instance, transformed the industry from a state of structural scarcity to one of structural overproduction (Mandel 1991, 61–62).

A useful example is offered by Botwinick (2018, 159-61, 184, 268), who identified that when the dominance of the US steel, auto and rubber tyre manufacturer was eroded by international competition in the 1970s, the large masses of fixed capital in these industries became a burden. In a state of overcapacity, a long-term period where supply exceeds demand, fixed capital can become a barrier to *exit*, hampering the flow of capital out of an industry with a now lower-than-average profit rate. To minimise losses, firms in heavy industries will run unprofitable plants for several years before decommissioning them.

Industries will as such go through a 'cycle of fat and lean years' as Marx (1991, 310) described it. In heavy industries, long periods of above average profits will be followed by equally long periods of below average profits. Firms in these industries will develop reserve capacity to manage fluctuations in demand by adjusting output, as opposed to in lighter industries where the entry and exit of capital is easier. Heavy industries will as such tend to have more stable or 'sticky' prices (Shaikh 2016, 271–72). In lighter industries the period of profit rate cycles will be shorter and prices will fluctuate with more frequent changes in supply. The equalisation of profit rates is as such turbulent. Substantial profit rate differences (or lack of differences) may persist for years, and in any given period profit rates may be converging or diverging.

Regulating capitals

With respect to the (turbulent) equalisation of profit rates between industries, an important question is: around which conditions of production in an industry will prices and profits gravitate? What are the regulating conditions of production? Marx's understanding of profit rate equalisation was abstract and arguably unfinished (Marx 1991, 279–85). In a more concrete fashion, Shaikh (2016, 265) stipulates that the regulating conditions of production are the best generally reproducible conditions. When firms upgrade their production methods, or when new capitals enter an industry, they seek to replicate the best conditions of production they can—the most efficient machines, software, and workplace structures. It may be the case that the regulating conditions are the best in the industry—as when new and more efficient technologies generate higher profit margins than older, less efficient vintages. However, this need not be the case. If the best conditions are guarded by a firm with a patent or a unique location, then they are not reproducible and new investment will replicate the next most efficient conditions. Or if the nature of the industry is such that the conditions of production are inherently finite, as in agriculture and mining, then no one plot of land or mine site is considered reproducible. Here it is the marginal case, the set of farms or mines with the worst conditions that are still able to secure the general rate of profit, that provides the regulating conditions and where more productive farms and mines accrue surplus profit.[4]

Shaikh's insights have an important bearing on the empirical literature. The norm has been to establish persistent differences in average profit rates between industries to highlight their very different conditions of production. Shaikh and others have focused not on industry averages but on the rate of profit of the regulating capitals, those with new, reproducible technologies. They have found that it is these latter profit rates that participate in turbulent equalisation—with wild swings of convergence and divergence indicative of industrial cycles that are out of phase (Bahçe and Eres 2012; Christodoulopoulos 1996; Shaikh 2008; 2016; Tescari and Vaona 2014; Tsoulfidis and Tsaliki 2005; 2012). The task here is to understand the effect of competition on wages. Workers will clearly have more scope for wage increases in more profitable firms. Given that the latter depends on an industry's

[4] Note that a firm will adopt a production method using the relative prices of capital and labour available. In different countries, different mixes of labour and capital may be equally efficient.

position in the cycle of profitability, the mobility of capital and workers' location within or without the industry's regulating capital are important considerations.

4.3 Hard limits to wage increases

The kernel of Howard Botwinick's *Persistent Inequalities* is the explanation of the fragmentation of the working class as the result of the dynamic processes of real capitalist competition. Following Marx and Shaikh, the crux of his argument is that:

> [T]he competitive generation of differential conditions of production and profitability between and within industries also provides the basis for differential limits to rising wage rates across these same firms and industries.
>
> (Botwinick 2018, 199–200)

Real competition thus explains the realm of possibilities for wage increases, with the success of workers always dependent on their ability to organise and the existence or not of a reserve army with whom they must compete.

The efficiency of the firm as a limit to wage increases

The capacity for a firm to absorb a wage increase depends on firm profitability. When workers have the strength to impose a wage increase on their employer, they increase the firm's total wage bill and the unit labour costs, and as such eat into the firm's profit rate and profit margin (Botwinick 2018: 208).[5] The immediate profitability of the firm is thus the upper limit of an employer's capacity to pay wages as it is the point at which they need to close shop and invest elsewhere. Forcing an employer to the wall would require an enormous amount of worker organisation, but it is theoretically possible. As Shaikh articulated, firm profitability varies significantly both over time and across firms and industries. Profit margins are dispersed within an industry due to differences in unit costs, which themselves change when new technologies are introduced. Further, profit rates will be higher when industries are in a state of structural undersupply and lower in a state of oversupply, and such states also change over time with movements in capital and product demand. As such, we

[5] The definitions employed by Botwinick (2018, 165) are: profit rate (r) = $\frac{\pi}{K}$ where π = the yearly mass of profits and K = the total capital advanced (constant and variable); and the profit margin (m) = $\frac{\pi}{P.Q}$ where P = output prices and Q = output quantity.

can chart a terrain of possibilities for wage increases proceeding from the most ideal to the least ideal circumstances for labour (Table 4.1).

Table 4.1 Industry characteristics and firm capacity to absorb wage increases

Circumstances (according to labour)	Conditions of production within firm and industry	Access to surplus profits	Capacity to absorb wage increase	Examples
Best	Firm is more efficient than the regulating capital. The industry may be in a long-term state of structural scarcity.	Yes, sometimes persistent.	High	Coal and iron ore sectors in Australia, 2003 onwards; or Firms with patents on best-practice technology.
Better	Firm is the regulating capital. Flow of capital into and out of industry is normal.	Temporary technological surplus profits are possible.	Moderate; better in more capital-intensive industries.	Firms with access to new technologies (such as AI-pioneer NVIDIA until 2025); or The most efficient firm in a manufacturing industry.
Worse	Firm is less efficient than the regulating capital (which may be located overseas). The industry may be in a state of structural overproduction.	None	Low	The Australian textiles, clothing and footwear industries from the 1970s onwards; or Low productivity service industries.

Botwinick considers three cases regarding the firm's competitive position within an industry: (1) the firm has lower unit costs than the regulating capital, (2) the firm is the regulating capital, and (3) the firm has higher unit costs than the regulating capital.

The first case is most ideal for organised workers. There are two key scenarios where this occurs (Botwinick 2018, 275–80). In one scenario, the industry is based on the extraction of non-renewable resources such as coal, iron ore, or gas. The regulating capital in this scenario is the highest cost producer, the marginal case, and as such all capitals more efficient than the marginal case accrue surplus profits above the regulating rate of profit—they receive differential rents. Such rents are maximised when the industry is in a long-term state of structural scarcity, as has occurred in Australia's mining sector since demand skyrocketed in 2003 (Tulip 2014).

A more familiar scenario occurs when the regulating capital is more efficient than most participants in the market, however where some firms have lower unit costs on account of their unique access to special conditions. Such firms might hold a patent over a particular production technique or have exclusive access to a special location (such as a port) that uniquely reduce their transport costs.

In both scenarios firms have access to surplus profits and thus have the capacity to pay wages above that of firms where the regulating rate of profit is the highest achievable. Organised workers may be able to share in this surplus through extraordinary wage increases. In both cases, firms can sustain these higher wages so long as their profit rate does not dip below that of the regulating capital—it thus depends on the durability of the state of structural scarcity or the monopoly condition.

The above scenarios are special cases. Most firms do not have access to surplus profits. The next best thing is to be employed by firm with the best reproducible conditions of production—the regulating capital. Since regulating capitals are the price leaders in an industry, they have the unique ability to pass on wage increases in the form of price increases. But they cannot raise prices immediately as doing so risks being unable to sell their normal output and a reduced market share. Contrary to the instantaneousness of comparative statics, what transpires is a more gradual transition from wage increases to price increases (Botwinick 2018, 210). Botwinick argues that regulating capitals will temporarily absorb the rise in wages in reduced profitability, triggering a reduction of capital flowing into the industry since it becomes a less attractive investment. This leads to undersupply and a correction towards higher prices. So long as the regulating capital can survive the process of dynamic equalisation, their profit margins and rates can be restored on top of the new wage level.

Two conditions must hold for the regulating capital to survive. At the upper limit, the profit margin of the regulating capital must not be wiped out by the wage increase, as otherwise they would look to invest elsewhere. A more realistic concern is the threat of competition from the next most efficient capitals, what Botwinick terms the ‘subdominant capitals’ (ibid. 216). If the wage increase causes the regulating capital to lose its cost advantage over the next most efficient firm, they lose their position as price leader and risk prolonged periods of profits below the general rate. Within these bounds of profitability, substantial wage increases can be secured from regulating

capitals. The extent of such increases varies between industries according to labour requirements. Industries with higher capital-intensity and lower relative labour costs have higher profit margins per unit labour requirements and as such have more capacity to absorb wage increases before reaching a crisis of profitability (ibid. 213-15).

The third and least enviable case is the most common: employment in a firm with higher unit costs than the regulating capital. Such firms are price followers—they tend to have relatively lower capital-intensity, lower labour productivity, higher unit costs and higher shares of wage costs in total costs—and as such their profit margins and rates are residuals of the regulating capital's (Shaikh 2016, 268). Such firms have far less room to incorporate wage increases before they experience a crisis of profitability. As Botwinick (2018, 259) writes, 'within any particular industry, the space for rising hourly wage increases will tend to narrow rather quickly as we move down the ranking of capitals by their relative level of efficiency.'

The approach to the landscape of possibility for wage increases described here is particularly dynamic. Technological change is relentless as firms 'leapfrog' over one another and competition from new rivals is ever-present. Barriers to entry can be surmounted and regulating capitals dethroned. As articulated above, the dominant position of US steel, auto and rubber tyre industries up until the 1960s—and the high wages that workers commanded in this context—was undermined by the rise of manufacturing exports from newly industrialised Asian countries (Botwinick 2018, 268, 283). It is thus unhelpful to think about the regulating capital as the most efficient within a particular country when a national industry may be a sub-sector of an international market. Moreover, there is nothing impermeable about industry wage structures—demotion from a 'primary sector' to a 'secondary sector' is always possible.

The dynamic nature of competition and the wage structure is further complicated by the position of industries within the cycle of fat and lean years (ibid. 240, 282). Conditions favourable to capital are also favourable to labour insofar as periods of healthy accumulation are opportune times for achieving wage increases. Demand for labour is on the increase when firms expand their investment in constant and variable capital. But during periods of weak demand and below average profit rates, employers will be more reticent to absorb cost increases and the option of liquidation becomes more realistic. Industries in the process of dying are the extreme case, where

wages are accordingly suppressed as capitals seek to minimise losses by depreciating their assets.

The cost of capitalist militancy: saying no to labour

The above has shown that differential limits to wage growth are found in the variation in profitability with respect to firm efficiency, product demand, unique production conditions, capital-intensity, and the business cycle. But there is no simple correlation between profits and wages (Botwinick 2018, 280-84). For one, institutions play an important role in wage determination regardless of firm profitability. Another is that workers are unequally organised across firms and industries and thus have differential capacities to command pay increases. At the upper end of organisation, workers employ strikes, boycotts, and slowdowns, among other tactics, to force unwilling employers to raise wages. The employer's default position is to obstruct wage increases to minimise the wage bill. By taking part in industrial action, workers impose a cost on employers for obstructing a pay rise (ibid. 225). Workers' chances of securing a wage increase are improved by their level of organisation, militancy, their experience taking industrial action and the length of time they can hold a picket line.

Botwinick (2018, 227–41) identifies various industry characteristics and product market factors that have a bearing on the bargaining power of the two parties. These are summarised and extended upon in Table 4.2.

Table 4.2 Structural factors that influence bargaining power

Factor	Favours labour	Favours capital
Plant size	Large number of workers in a concentrated space fosters increased organisation and class consciousness.	Large workforces will be segmented by skill, sex, and ethnicity. Such divisions may be exploited.
	Larger workforces are harder to replace.	Small, isolated workforces are easier to manage and quash unionism.
Scale and mobility of fixed capital	Unattended means of production due to strike action incur overhead costs on the employer, more so for firms with high levels of fixed capital.	Larger fixed capital investments will mean access to greater pools of profit to fund union-busting campaigns, and easier access to credit.
	Higher levels of fixed capital will increase relocation costs if capital seeks to employ cheaper labour located elsewhere.	Firm exit (liquidation) is easier for firms with few fixed assets.
	Difficult conditions of entry and exit into the industry are helpful to workers as it aids long-term organising efforts.	Surplus profits can be gained in times of structural scarcity.
Mobility of labour	Unionised workers will object to their employer onboarding new workers at lower wage rates.	Existing pools of surplus labour can be used to undermine the wages of unionised workers.
	Training costs are incurred when hiring a new workforce to replace striking workers.	Deskilled labour processes will reduce the training costs of new employees.
	In small communities, it may take a long time to break the union and the bonds of solidarity between workers to achieve this.	Once broken, union culture is hard to rebuild.
Level of capital-intensity	Firms have a high capacity to absorb wage increases when they are capital-intensive, with lower wages as a proportion of total costs.	Increasing wages does not have a large impact on the profitability of the firm.
Market structure	A small number of key firms in a concentrated industry is easier for unions to organise all regulating capitals.	Oligopolies have larger financial reserves that can be used for union-busting.
	In 'competitive' industries with many small firms, unions can use choke point tactics to obtain wage increases (e.g. dock work, trucking).	Firm exit (liquidation) is easier for small firms.

Data: Synthesis and extension of Botwinick (2018, 227–41).

Table 4.2 shows several conditions of production that allow for militant unionism to take root and for workers to command higher wages: when workforces are concentrated in large plants, where they employ large masses of fixed capital, or where workers have access to a choke point in the production line. In these conditions, a militant union's threat of industrial action is credible and an employer

may find it more cost-effective to accept a wage increase than to obstruct it (ibid. 244).

Counter to the claims of the Monopoly Capital School, Botwinick (2018, 34, 47, 58) shows that industry concentration is inconsistently associated with wage premiums in studies of industry wage differentials. The example of low-paid workers in the highly concentrated Australian supermarket sector is a case in point. The yellow union that dominates membership in the industry—the Shop, Distributive and Allied Employees' Association (SDA)—traded away weekend penalty rates that left their membership worse off than the industry award (Schneiders et al. 2016). But not all unions are so business friendly. As such, concentrated industries can provide good conditions for organisation as unions can focus their limited resources on fewer key employers (the regulating capitals).

Beyond these factors, the timing of a dispute is also of critical importance. Periods of healthy accumulation provide better opportunity for wage increases, but striking during periods of weak demand and below average profit rates can be turned in favour of employers who might seize the opportunity to lock out employees and minimise overhead costs (Botwinick 2018, 240; Supple 2021).

Combined with differential conditions of production and profitability, the uneven organisation of workers has a significant effect on wage differentials. If the most highly organised workers in an economy are located in conditions of production that have the highest limits to wage increases, then inter-industry wage differentiation 'will tend to be pushed to the maximum range of variation allowed within the confines of ongoing capitalist competition' (Botwinick 2018: 245). This situation accurately describes the period in the US manufacturing sector between 1940 and 1970: compare the highly organised steel, auto, rubber tyre, and meat-packing industries with the lesser organised textiles, apparel, and footwear industries, with the latter being the first to relocate production first to the US South and then overseas (ibid.). In contrast, Australian wage differentials at the time were constrained by the award system which was specifically designed to limit relativities (ACIRRT 1999, 83, 93).

The reserve army that feeds each industry will provide a limit to differentials between organised and unorganised workers. As organised workers secure wage increases above those of unorganised workers, employers of the former will be increasingly

inclined to tap into the reserve army to replace them (Botwinick 2018, 253). Such a replacement will no doubt entail significant training and other costs, however these will simply be weighed against the costs of obstruction the militant workers are already imposing.

A capital's decision to obstruct a wage increase—just like a union's decision to seek one out—is highly complex, concrete and involves multiple business cost, market and political factors. These considerations are clearly highly indeterminate and require detailed concrete analysis of case studies to isolate the forces at play. As such, the politics and inherent indeterminacies of class struggle infuse every aspect of Botwinick's account. However, even the strongest band of workers will face determinate limits to their demands in the immediate profitability of the firm. As articulated in this section, the immediate profitability of a regulating capital is its profit margin, however it must also maintain its position as regulating capital and as such the unit costs of the next most efficient capital (the subdominant) must be considered. If a wage increase exceeds these hard limits, a highly unionised workforce will find their employer will initiate layoffs or even go under. 'At this level of analysis,' writes Botwinick (ibid. 251), 'the limit to the class struggle is therefore quite clearly the competition of capitals.'

4.4 Botwinick, abstraction and the hyper-industrialisation of meat

When *Persistent Inequalities* was first published in 1993 it received considerable praise and a fair share of negative criticism. Some reviewers found Botwinick's text ushered in a genuine alternative and fully determinate understanding of labour markets (Linder 1996; Mason 1996; Yates 1996). Others found the text excessively abstract and even 'a painstaking step-by-step analysis of the dynamics of capitalist competition' (Vitt 1995, 360). The applicability of Botwinick's analysis faces two challenges. Given that Botwinick himself provided no empirical articulation of his ideas, it is incumbent on his readers to determine the way in which the model can and cannot be used. Second, the great majority of historical examples Botwinick explores are concerned with industrial capital in the United States. It is unclear whether the model can be extended to consider non-manufacturing capital in other sectors. Furthermore, it is unclear whether the approach is even applicable *at all* in a financialised global economy and where employment in the Global North is increasingly clustered in the service sector. To end this chapter, I step through these

questions and defend the aptness of Botwinick's approach to making sense of wage suppression in the Australian meat industry.

Abstracting away from relevance?

Botwinick develops an abstract account of wage differentials rooted in the dynamics of capitalist competition. I argue that this is not idealist, nor irrelevant, but rather it allows for a deeper analysis of wage setting institutions.

There is no doubt that Botwinick's approach suffers from the difficulty of accessing appropriate data. To identify regulating and subdominant capitals within an industry it is necessary to access data on firm unit costs, and to unpack negotiated wage outcomes it is necessary to access workers' original wage claims. As such, Sattinger (1994, 168) suggested that the model does not allow for reliable prediction. When dealing with the contingent facts of labour markets, however, explanation is the object of inquiry. And explanation need not eschew quantitative methods. Shaikh (2016, 300) has developed a useful proxy for identifying the rate of profit of regulating capitals in an industry (he identifies the rate of return on new investment, which he calls the incremental rate of profit). This and similar approaches have been employed to identify the turbulent equalisation of profit rates between industries in the United States, Turkey, Greece and across the OECD (Bahçe and Eres 2012; Christodoulopoulos 1996; Shaikh 2008; 2016; Tescari and Vaona 2014; Tsoulfidis and Tsaliki 2005; 2012). Moreover, there are multiple ways in which firm efficiency can be estimated, including by analysing the annual reports of publicly listed companies (Barrett 2023a) and by evaluating the productivity of existing facilities (such as the number of cattle slaughtered per person employed).

Some empirical work has followed Botwinick's approach closely. Ian Watson (2002) tested the claim that the reserve army puts downward pressure on wages in low-paid jobs and found evidence for this effect throughout the 1990s in Australia. Patrick Mokre has done the most empirical work following Botwinick in extending Shaikh's model of turbulent equalisation to account for wage differentials. Across three recent studies, Mokre (2023; 2021; Mokre and Rehm 2020) incorporated advances from the field of fluid mechanics to Shaikh's (2020) own developments in econophysics to formalise Botwinick's model. Among other things, Mokre's studies found evidence that wage differentials are influenced by: (1) the equalising effect of worker living standards; (2) the dispersing effect of industry factors like capital-intensity and the

share of labour costs in total costs, and (3) the turbulently equalising effect of industry profitability and labour mobility. But the luminous heights of econometric modelling are not the exclusive apogee of research on real competition. Mokre and Rehm (2020, 933) write that 'institutional analysis—which would probably need to come from the intra-industry, firm level—would permit teasing out the concrete channels through which firm profitability is transmitted to wage changes.'

But an industry case study is not immediately amenable to the real competition model given Botwinick himself eschewed such an approach:

> [R]ather than pushing radical economists and sociologists to consider alternative conceptions of capitalist competition, the rejection of the primacy of the dual economy has led instead to the proliferation of numerous case studies that place primary emphasis on contingent historical and institutional factors. Without an alternative analysis of the underlying dynamics of capitalist competition and accumulation that provide the regulating context for these more richly determined factors, however, these important studies will provide little hope for developing a systematic alternative to neoclassical theory.
>
> (Botwinick 2018, 55)

He thus describes case studies as 'important' but ultimately providing 'little hope' as a systematic alternative. Earlier in the book, Botwinick (2018, 18) laments the way many heterodox approaches give primacy to institutions over 'the analysis of general laws of tendency':

> Within the determinate limits of capitalist accumulation and competition, we will also show that various levels and forms of worker resistance will clearly result in a variety of patterns of segmentation and differentiation within the working classes of different capitalist nations. The key analytical point, however, is that we will attempt to lay the foundation for the analysis of these 'relatively autonomous' institutional and historical factors while remaining within a determinate theory of competitive wage determination. By attempting to locate these more concrete historical factors within a systematic hierarchy of determinations, we therefore hope to construct an alternative to the case studies approach where institutional factors are

> necessarily given primary determinacy, and the analysis of general laws of tendency becomes extremely difficult.
>
> (Botwinick 2018, 18)

But is it possible to remain 'remain within a determinate theory of competitive wage determination' whilst also interrogating the specific concrete features of capitalist competition? Is it possible to strike a balance, as Alex Callinicos (1995, 95–97) suggests, between the capacity for overreaching generalisations to 'efface' historical singularities and for empirical descriptions to be put simply with an 'unacknowledged reliance on theory'?

In a similar vein to Ben Fine, whose *Labour Market Theory* came out four years after the publication of *Persistent Inequalities*, Botwinick is highly critical of segmented labour market theory. Fine (1998, 3) wrote that segmented labour market theory's 'rich contribution in terms of empirical content has to be set against theoretical deficiencies and lack of firm analytical foundations.' Yet both Fine and Botwinick have more time for the Cambridge School segmentation theorists. Fine and Villa both stress the qualitative differences between labour markets—there is no such thing as the labour market. And as articulated earlier, both follow a causal approach based on a Marxist model of generative mechanisms.

In this thesis I take a constructive approach and suggest that Botwinick does not provide an alternative to segmented labour market theory but rather a comprehensive instantiation of it. Similar to Watson (2011, 38), I see the two approaches 'dovetail' more than diverge. Where Botwinick is most useful, I suggest, is his thorough articulation of a 'hierarchy of determinations'. Such a hierarchy sees the capitalist firm as a key site of interest within a dynamic landscape that links capital mobility, the transformation of the industry structure, the adoption of new techniques of production, the deskilling, division and displacement of labour, and workers' differentiated capacities to command increased pay. I posit that Botwinick's approach can provide for a deeper analysis of wage setting institutions because explanations can be rooted in these dynamics of capitalist competition. The theory of real capitalist competition can thus firm up the foundations of the socioeconomic approach to labour markets.

Has real competition run its course?

Given shifts in the industrial structure of the Australian economy, it is necessary to ask whether the dynamics of real competition play out in industries with more labour, less fixed capital, and fewer opportunities for technical change.

Similar to other countries in the OECD, the Australian service sector contributes 79 per cent of value added and 88 per cent of employment (Productivity Commission 2021; Organisation for Economic Co-operation and Development 2018). But Persistent Inequalities has an overriding focus on the goods sector. Its principal argument starts from Marx's own premises regarding capitalist competition—large firms with heavy investments in fixed capital battling it out for market share through increasing mechanisation and decreasing costs of production (Botwinick 2018: 143-44)—and throughout the book are several examples of competition and industry structure in different manufacturing industries. There are few examples from service sector industries and none from the public sector.

Watson questions the applicability of Botwinick's model to understanding competition in retail and hospitality:

> Is there really a close connection between technical change and efficiency in production? Does the existence of differentiated profits and wages within service industries derive from uneven conditions of technical development? Is Botwinick's thesis (and the classical Marxist account more generally) based too much on a manufacturing view of the world, and indebted too much to a reliance on technical change for its explanatory power?
>
> (Watson 2002, 105)

The baseline competitive strategy in the goods sector is to introduce more efficient production techniques that lower unit costs, then lower prices, expand output and defend or increase market share. But in the service sector, there is an understanding that this method has limits:

> There are also other mechanisms that limit opportunities for productivity improvement in services. Innovations in services, which can come in the form of human resource management, organisational change and other intangible

> investments, can be more difficult to diffuse or imitate than in the case of technology used by the goods sectors (van Ark, O'Mahony and Timmer 2008). Workers, unlike machines, can resist change, be exhausted by change and may find it difficult to adapt. Furthermore, hiring new staff and retraining existing staff can come with significant costs.
>
> (Productivity Commission 2021, 35)

It is not straightforward to dismiss Botwinick's approach here. The service sector is diverse, encompassing industries like cloud computing that require physical servers using enormous amounts of energy to store data and is likely more capital-intensive than some manufacturing industries (Kettle 2021). There are also countless examples of productivity increases brought about through technological change in the service sector: from the introduction of ATMs and phone apps in the banking sector to self-service machines in supermarkets and automated picking in warehouses. (It is not established yet whether the enormous global investment in AI servers will lead to productivity growth.) Further, the scientific management of labour often coincides with the mechanisation of production but is also employed in its absence (Rubery 1978, 26).

Writing in the 1960s, William Baumol found that service sector firms typically achieve output growth through employment growth rather than through productivity gains (Benanav 2020, 59). Fundamental to competition in low productivity service industries is the ability to secure labour at a low cost. Low wage competition is an endemic feature of service sector employment, from the wage theft of migrant workers in hospitality and cleaning industries (Campbell et al. 2016; Velayutham 2013; Victorian TAFE International and United Voice 2012), to the proliferation of nonstandard employment arrangements such as casual and independent contracts (Benanav 2020, 45–54).

Aaron Benanav (2020) considers the growth of precarious work in the service sector over the last three decades as a symptom of the exhaustion of productive outlets within the manufacturing sector. Benanav follows the work of Robert Brenner (1998), who explains the secular stagnation of the manufacturing sector from the late 1960s on. After the second world war, the United States invested significantly in rebuilding the industrial capacities of Germany and Japan to instil capitalist pathways of development and rebuff potential resentment. Since then, countries in Southeast

Asia, China and elsewhere expanded their productive capacities and various countries in the Global South adopted export-led growth strategies under the auspices of the International Monetary Fund and the World Bank. The post-war period saw a boom in investment which ultimately swung too far and led to an overcrowded global manufacturing sector. Prices fell significantly and the profitability crisis led to a problem of underinvestment across the global economy as 'no other sector appeared on the scene to replace industry as a major economic growth engine' (Benanav 2020, 33).

Other industries in the goods sector and the service sector did not offer comparably profitable opportunities, so capital has since flowed into liquid investment streams—for instance the securitisation of mortgage and other credit repayments—and other speculative assets (see Bryan and Rafferty 2018). Finance capital has dominated, however low-productivity industries in the service sector have not. The rise of the service sector has occurred in almost every country over recent decades, however this is not the result of a 'maturing' of national economies as is commonly understood (Productivity Commission 2021), it is the result of a decline in growth and productivity in the manufacturing sector.

Manufacturing thus appeared as 'a unique engine of economic growth' (Benanav 2020, 37) throughout the twentieth century as production methods were highly amenable to incremental innovations made at scale. Such innovations are a key mechanism for the generalisation of new technologies throughout an industry. This is the leapfrogging dynamic of competition between firms Botwinick and Shaikh described. Given the displacement of manufacturing employment throughout the world, there is some logic to the claim that real competition may have run its course.

Profit-making and the hyper-industrialisation of meat

Botwinick and Shaikh employ a definition of profit typical to the expansion of capital in industrial production. Here, a firm's profit rate is defined as the yearly mass of profits divided by the total capital advanced (including both constant and variable capital) and the profit margin is simply the mass of profits divided by the value of output (Botwinick 2018, 165; Shaikh 2016, 270). Despite being based on fundamentally different conceptions of value, there are some similarities between the Marxist approach to profit and the accounting framework of return on investment (ROI). Levy (2014) found that the ROI framework was popularised

amongst employers in the twentieth century alongside the development of Fordist production methods. Earlier accounting models sought simply to reduce unit costs regardless of the age of the fixed capital employed, leading to situations where techniques might be replaced simply because more efficient techniques became available. In contrast, the ROI approach accounted for the long-run depreciation of fixed capital. As Botwinick articulates (explored above), employers will keep using outmoded technology even in downturns when they become barriers to capital flight.

Levy (ibid.) identifies the rise of an alternate framework, the return on equity (ROE) profit model, which is less concerned with returns on aging fixed capital and more interested in the potential future income gained from new financial products. The books of even traditional manufacturing firms are becoming more 'asset-light' as they adopt the ROE framework. Auto companies are now generating more profit from the financial side of their businesses (leasing, insurance, loans) than their traditional productive side (Do Carmo et al. 2022). The most extreme case is Enron, which was ostensibly an energy company but in practice operated (fraudulently) as a platform for trade in energy derivatives (Levy 2014, 210). In 1985, Enron's lead oil contracts dealer announced that securitisation could 'generate substantial earnings with virtually no fixed investment and relatively no risk' (ibid.).

Gardiner (2024) shows that the Australian meat processing sector is deeply entrenched within financial markets, particularly the large ownership shares of managed funds, the new concerns of market valuation and returns to shareholders, and the adoption of risk management as an overriding business strategy in competition for finance. Contemporary research on the meat industry use both ROI and ROE methods as different indicators of financial performance (Zielińska-Chmielewska et al. 2022; Iotti and Bonazzi 2013). However, as the chapters of this thesis will show, the meat industry operates as what Alex Blanchette (2020, 193) calls 'one of the *Ur*-forms of the industrial[.]'

Producing low-margin, consumer products, an irreducible component of the meat industry business model is volume. Livestock are raised, slaughtered and processed in their billions year on year. The focus on volume is found in several recent accounts of profit in the meat industry. Koroteev et al. (2022) argue that managers make decisions to optimise the production process with respect to a particular forecast on the volume of sales—and that these decisions are inferior with respect to the new automated methods they develop that can simultaneously model hundreds of

alternate production functions. Older, but still relevant studies are Morrison (1997) and Rolfe and Reynolds (1999) who identify the necessity for firms to maximise the use of their fixed capital outlaid—'because the industry is characterised by low margins and high volume turnover, profitability and high capacity utilisation are closely related' (Rolfe and Reynolds 1999, 2). More recent research confirms the connection between processor throughput and profit margins (Revell 2019).

The necessity to produce at scale has resulted in a slow but considerable rise of automating the disassembly line. One study has identified a positive relationship between profitability and investment in fixed capital, and found that both net profit and the market value of processors are maximised when fixed assets are also at a maximum on firm balance sheets (at between 50 and 55 per cent) (Kovalchuk et al. 2019). As such, the meat industry does not neatly fit into contemporary narratives of financialisation and deindustrialisation. Blanchette has an interesting re-framing:

> Depending on the location from which you write, deindustrialization can just as easily be renamed a time of hyperindustrialization: fewer people, places, and species now bear the unacknowledged weight of making the world's material artifacts; it means select people live through unprecedented intensities of work. A key premise of this book is that we err when we think that industrialism is a fixed and prior epoch receding in the rearview mirror, outmoded by new forms and strategies of capitalist accumulation. It is, instead, a process that continues to unfold in novel ways.
>
> (Blanchette 2020, 5)

In counter-distinction to contemporary research on deindustrialisation, post-Fordism, platform capitalism, and algorithmic management, the concept of hyper-industrialisation recognises that the meat industry is fundamentally based on the throughput of enormous quantities of animals taking place in large factories that employ thousands of workers whose minds and bodies are moulded into fast, repetitive movements on an automated disassembly line. As such, a theory of competition able to make sense of the contemporary dynamics of industrial capital is more important than ever before.

4.5 Conclusion

Many socio-economic theories of the labour market at risk of constituting 'watered down' versions of the neoclassical account (Fleetwood 2006, 67). The Monopoly Capital School introduced a thorough-going analysis of class conflict and control over production, however it remains wedded to the orthodoxy's dichotomy of perfect and imperfect competition, which is an idealisation or as Fine (1998, 87) suggests, 'a unicorn-type theory.' The Cambridge School provide a more promising approach—particularly the framework developed by Paola Villa—but it is ultimately incomplete.

This chapter has shown that Shaikh's articulation of real capitalist competition—between firms and between industries—is robust, realistic and generative. Botwinick extends Shaikh's analysis to the labour market and fleshes out competition between capital and labour and competition between labours. At a meta-theoretical level, and in terms of setting out a case study, I suggest Botwinick is most useful in his thorough articulation of a 'hierarchy of determinations' that places a central role on the efficiency of the firm. The firm is a key site of interest within a dynamic landscape that links capital mobility, investment, the adoption of new techniques of production, the deskilling, division and displacement of labour, and workers' differentiated capacities to command increased pay. Botwinick's argument can thus provide a deeper analysis of wage setting institutions and firm up the foundations of a socio-economic approach to labour markets.

In the remainder of this thesis, I seek to apply this framework to the meat industry; to identify and explain the drivers of wage suppression of workers in meat and poultry processing factories.

Chapter 5 – The shifting terrain of Australian industry

> In general, the structure of labor demand is a major long-term determinant of the structure of jobs. A key means by which labor demand is manifest is by the medium of industrial structure.
>
> (Jones 1983, 26)

The industrial structure refers to the composition of various sectors and industries within an economy, commonly considered in terms of their relative shares of output and employment. The previous two chapters showed that the industrial structure can be segmented into two or more sectors with differing competitive dynamics. In more productive sectors, where capital mobility is restricted, surplus profits can be taken by capital and in part appropriated by labour. Villa (1986) showed that technologies in use, product markets and the industrial structure define the 'realm of possibilities' within which employers, workers and unions interact to establish labour market practices and negotiate outcomes. Botwinick (2018) showed that the industrial structure is dynamic—barriers to entry can be overcome, regulating capitals dethroned, and productivity-wage bargains eroded. At any given point in time the industry structure represents both old and more recent investment decisions, just as the current capital stock in an industry is made up of machines of different vintages. Since capital flows in and out of industries seeking the best return, the industry structure is a shifting terrain of possibility.

Much of the evidence presented in the previous two chapters concerned the US and UK economies. But how has the industry structure developed in Australia? What have been the opportunities and what have been the challenges for labour? And if the Australian development of the meat industry is a contemporary instance of hyper-industrialisation—as Alex Blanchette regards its development in the US—how can we make sense of this in the context of a manufacturing sector in contraction due to offshoring, deindustrialising?

This chapter proceeds in three parts. Section 5.1 considers the colonial project of Australian capitalism. I show that Australian industry developed in the context of extensive natural resource extraction (gold and coal) and the production of other primary commodities (wool). After federation in 1901, the family of development

policies termed the ‘Australian settlement’ promised an expanded manufacturing sector and living wages. I show that the meat workers’ union, the Australasian Meat Industry Employees’ Union (AMIEU), held a particularly ambivalent perspective to the new system of arbitration. Some in the union sought award coverage, whilst the more militant strands sought unmediated negotiation with employers. In the early years of the twentieth century the union made some formidable gains, including significant control over the labour process and the supply of labour.

Section 5.2 explores post-war booms in the manufacturing and meat industries from the 1940s to the 1970s. This period was a golden age for Australian manufacturing, where the metals and machine industries dominated the sector’s output and employment, and more than a quarter of the Australian work force were manufacturing workers. Australian studies on manufacturing industry wage differentials show the relevance of the twin concepts of capacity to pay and capacity to command pay in determining the industry wage structure. Most important is the finding that there is no ironclad connection between productivity and wages. As Evan Jones (1983, 38) argued, 'the benefits of high productivity are distributed unevenly.'

The meat industry also boomed in the 1960s and 70s, largely on the back of the US and Japanese consumption of Australian beef. This period is particularly interesting in the history of the Australian meat industry because it marks the generalisation and conflict over the tally system of piece rates in federal meat industry awards. The peak of the industry’s export success in the twentieth century coincided with the peak of the union’s strength, and as such organised workers were able to turn this form of regulation in their favour.

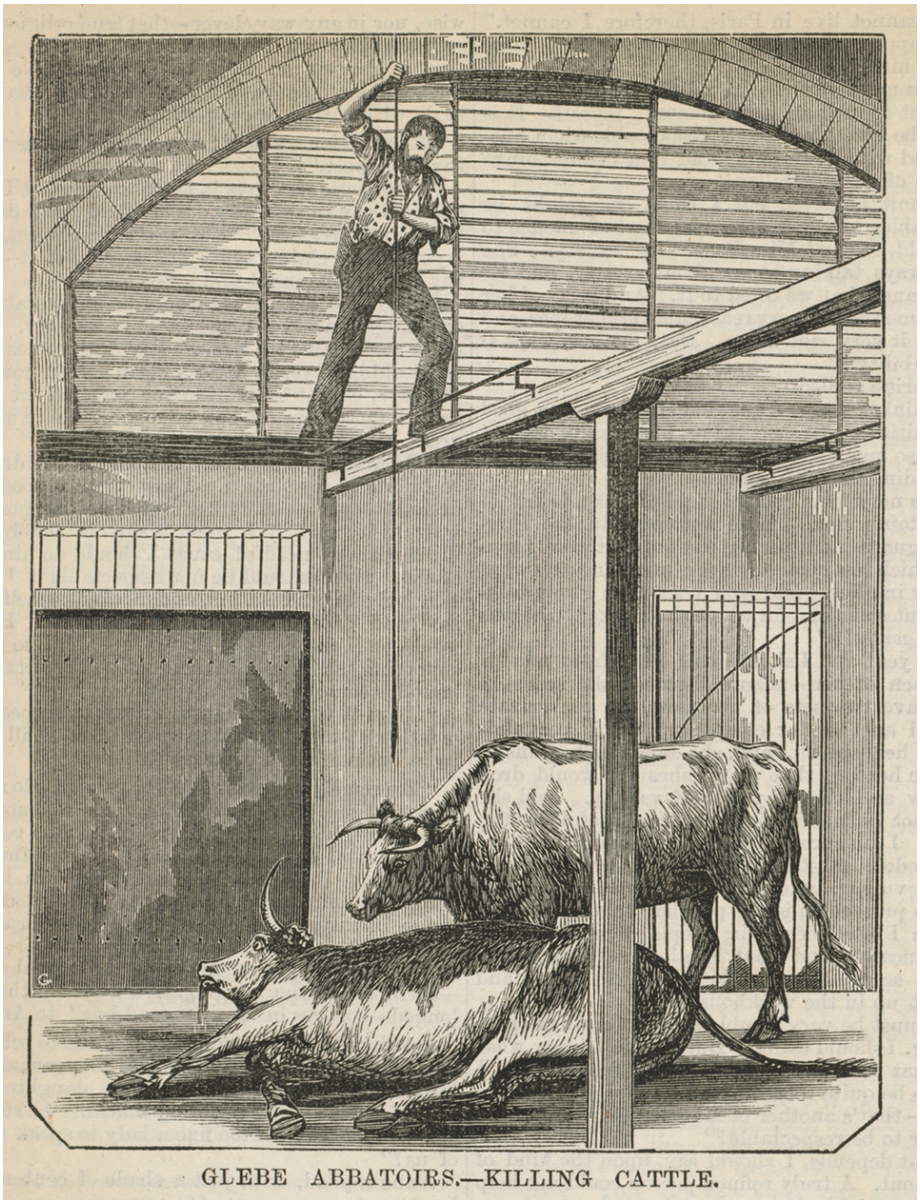
The final section plots the renewed importance of the primary sector to the Australian economy—particularly the mining booms of the 1960s, 70s and since 2003—and identifies a dual push-pull dynamic on manufacturing. Many manufacturers were pushed to offshore at the same time as manufacturing capital was pulled in to processing outputs from the primary sector. In this section I show how the Australian meat industry fits squarely on one side of this dual dynamic of deindustrialisation and hyper-industrialisation. Whilst still employing more workers relative to other manufacturing industries, the meat industry is becoming increasingly capital intensive. But, as mentioned, the gains of productivity increases are distributed unevenly. Meat workers appear to miss out on the gains of the industry’s expansion.

5.1 The colonial project of Australian capitalism

The early settler colonial perspective on the sectoral composition of the Australia colony was to provide resources to Britain and Western Europe where populations were growing rapidly and land was at a premium (Jones 2002, 330; Hutchinson 2014, 288; ACIRRT 1999, 12–13). Throughout much of the nineteenth century, the most significant Australian industries were wool, coal and gold, all major exports (Bureau of Industry Economics 2012; O'Leary 2008, 1–5). Genocidal massacres occurred on the frontiers of pastoral ventures, where squatters seized Aboriginal land for cattle grazing along and inland from the southeastern seaboard (Ryan 2019). From the 1860s onwards, settler violence secured lands for the sugarcane plantations in Queensland, where thousands of South Sea Islanders were recruited and kidnapped to work for little or no wages (Ryan 2024). While the settler population was small, local demand for manufactured goods was met by British production.

Canned meat was another commodity in the imperial supply chain, however its exports were limited throughout the nineteenth century (O'Leary 2008, 3). The colonial governments sought to suppress slaughter numbers in order to build the cattle herd (Cutler 1976, 1). The meat industry was then primarily a domestic retail trade (ibid. 3-9). Live animals were delivered to inner-city slaughterhouses and butchers where they were processed on the spot. The industry was ugly. Public concern about foul smells, blood pouring through the streets, and diseased meat caused councils to build large, dedicated abattoirs that were leased to private operators. Public abattoirs thus opened on Glebe Island, Sydney in 1854 and in Flemington, Melbourne in 1860. After a Royal Commission into 'offensive and noxious trades' in 1882, the Glebe abattoir was directed to move 10 kilometres west next to the Homebush saleyards (now the site of Sydney Olympic Park), which it eventually did in 1913 (Fitzgerald 2008).

Figure 5.1 Killing cattle at the Glebe Island council-owned abattoir, 1879



Source: State Library of NSW (2024), out of copyright.

Instituting industrialisation, or arbitration ambivalence

Industrial development thus took off on the Australian continent in the 1860s in the shadow of the already established natural resources and agricultural sectors (Hutchinson 2014, 288; Jones 1983, 28–29; Stanford 2020, 25). Import replacement industry policy was adopted to service local demand for clothing, food, drinks and metal products, with nascent industries supported by the growing tariff system (Hutchinson 2014, 289; Jones 1983, 29). Manufacturing plants required significant financial capital to build. Some could be drawn from the mining sector, such as the opening of Newcastle steelworks in 1915 by Broken Hill Proprietary Company (BHP) (Barrier Miner 1915). Most capital was secured through foreign direct investment

from UK and US companies that established Australian subsidiaries, such as the new Ford and General Motors auto plants built in the mid-1920s (Hutchinson 2014, 289).

In 1880, industrial freezing technology was introduced into the Australian meat industry, indicating the viability of the meat export industry and sparking the industrialisation of meat production (O'Leary 2008, 37). Foreign capital was needed to build large freezer rooms and following these investments, multinational meat processors established plants in Australia (Cutler 1976, 3). At the time, the bulk of Australian meat exports were to the UK, and in 1905 British firm Thomas Borthwicks & Sons (Borthwicks) began investing in Australian meat works (O'Leary 2008, 47). American concerns also joined the Australian industry, such as US firm Swift from 1912 with the intention to bolster its own supply of meat to the burgeoning American demand (ibid.).

On the back of exporting successes, the militant organisation of shearers and other workers, and the 1890s depression, the newly federated states adopted the policy and ideology of what was latter termed the 'Australian settlement' (ACIRRT 1999, 10–15). A core plank of the settlement was the tariffs on imported manufactured goods to protect the new industries, however it also included the 'White Australia' policy to restrict immigration to Europeans, wage arbitration established in the Commonwealth Conciliation and Arbitration Act 1906 and the Harvester living wage decision of 1907. The settlement largely benefited workers but it contained contradictions.

The labour market structures that developed in the post-federation era had both progressive and regressive elements. For one, the Harvester wage only applied to men. Women remained on fractional wages (Fahey and Sammartino 2013). There was also a complicated relationship between workers and the new federal system of arbitration. The Conciliation and Arbitration Court—the tribunal newly legislated to make awards that set wages and conditions for selected industries, occupations and enterprises with the purpose of preventing and settling disputes—recognised registered trade unions as the legitimate vehicles of workers' interests (Bray and Stewart 2013). Favourable clauses such as union preference in employment were common in the new federal awards (ibid.), giving some unions effective control over labour supply. But the new system privileged the bureaucratic control of union officials (ibid. 24), which was a problem for unions with active democratic structures.

Figure 5.2 Clubbing pigs at the Glebe Island council-owned abattoir, 1879

Source: State Library of NSW (2024a), out of copyright.

The AMIEU, made up of retail butchers and 'slaughtermen' who worked in the domestic and export abattoirs, is one such example (Cutler 1976). The meat workers' union formed in 1905 to make use of the new system of wage determination, however it barely functioned at a federal level until 1963 when it appointed a full-time federal secretary (ibid. 370). The name 'Australasian' indicates the early intention to coordinate with comrades in the New Zealand meat industry, however this never eventuated. The AMIEU won a federal meat industry award in 1916, an outcome also sought by employers at the time, but it only covered Victoria and South Australia and did not extend to the growing meat industry in Queensland (ibid. 109, 158; O'Leary 2008, 68).

For the first decades of the twentieth century, much of the power in the Queensland branch was in the hands of rank-and-file members and their delegates, many of whom were members of the syndicalist Industrial Workers of the World. The Wobblies had been active in Australia since 1907 and started organising the seasonal slaughter gangs of Queensland's export abattoirs (ibid. 117-18). By 1916 they had a strong foothold in the union (ibid. 152). The approach of the Queensland Branch was direct negotiation over agreements with employers backed up by regular go-slow and strike actions. In distinction to the craft union ideology of the retail butchers, the slaughtermen of the Queensland exporters subscribed to an industrial union

philosophy and as such actively recruited unskilled labourers and trades workers employed to maintain the plants (ibid. 123-25).

The years 1909 to 1914 were unusually good for the meat exporters due to a strong supply of livestock and strong international demand (O'Leary 2008, 50). Supply was patchier throughout the First World War, however the price of meat surged and during this period the UK bought Australia's entire export output (Cutler 1976, 150; O'Leary 2008, 51). As such, meat workers in the Queensland export sector found themselves in the ideal position of strong product demand, a high level of organisation and a willingness to walk off the job. The result was a set of collective agreements between 1911 and 1917 that set the standards for the state's export sector for decades and was a key benchmark for other branches of the AMIEU (Cutler 1976, 163).

The agreements formalised the piece work tally system of payment, considerably increased wages and reduced hours of work from 48 hours to 44 (ibid.). But the most significant feature of the export agreements was the provision of union control over the supply of labour. The clauses stipulated preference of employment to AMIEU members, that the union had a responsibility to supply workers and that management had the prerogative to allocate workers in the division of labour (and could source additional workers when the union supply was exhausted) (ibid. 164). As such, the union effectively established itself 'as the employment bureau for the industry' (ibid. 122), which was by no means a simple feat however it did entrench the union's power in the employment relationship. At the enterprise level union organisation took the form of shop committees or boards of control comprised of department delegates, a shop president and secretary (ibid. 171). The committees administered the supply of labour by ensuring all workers were paid union members and by keeping a seniority list—allowing them to allocate work first to those employed in the previous season and thereafter to newcomers. The shop committees effectively functioned as a 'negative control over management' (ibid. 173) and extended worker control throughout the plants beyond labour supply and to day-to-day operations including the pace of work.

Figure 5.3 Homebush council-owned abattoir, c. 1920

Source: National Library of Australia (Davis 2019). Author: Arthur G. Foster. Out of copyright. Created: 1920. The abattoir operated between 1913 and 1988. At its peak, the Homebush council abattoir employed 3000 workers and was the largest in Australia.

The boss's court and the boss's capital

Justice Higgins presided over the 1907 Harvester decision which set the minimum wage according to a reasonable standard of living. But even he was not prepared to establish union preference in employment in the federal meat industry award of 1916 (Cutler 1975, 165) (although it appears preference clauses were inserted into the award later (see O'Leary 2008, 65)). Amidst the fallout from the Great Depression starting in 1929, unionised meat workers became disillusioned with the arbitration system, which they believed 'had become a vehicle of economic regulation rather than social justice' (Cutler 1976, 220). The federal arbitration court delivered a real wage cut of 10 per cent in line with the government's controversial deflationary policy (O'Leary 2008, 53). Pierce Carney, Secretary of the Queensland Branch of the AMIEU, reported in 1931 that: 'The Court was never of any use. It retarded our demands in favour of the boss; and now, when the standard of living is going down, it is speeded up in the interests of the boss' (in Cutler 1976, 221).

Figure 5.4 Homebush saleyards, c. 1920

Source: Foster (1920), out of copyright.

The Great Depression was a contradictory time for the AMIEU. Aside from the wage cuts, unemployment put a strain on the seniority system (Cuter 1976, 206, 232). But while the domestic market for meat slumped, the export sector was buoyed by a strong mutton season and a favourable free trade agreement with the UK from 1934 (Cutler 1976 207-08). A major innovation at the time was the introduction of technologies for chilling beef—which provided a significant advance in product quality over frozen beef—inspiring investments in fixed capital and expanded production in the 1930s (O'Leary 2008, 54-5). More significant, however, was the introduction of the mechanised chain system to mutton processors in 1933 (ibid.).

The new system was a major crisis for meat workers, who faced a wage cut of 40 per cent due to their reclassification (Cutler 1976, 250-61; O'Leary 2008, 72). Workers in the Victorian sheep plant struck in opposition to the wage cut, however master butchers from the employer's union—the Meat and Allied Trades Federation of Australia—came to work as strike-breakers alongside farmers and their sons (O'Leary 2008, 72-3). The union thus had to accept their newly deskilled and devalued situation. As chapter 3 argued, however, women bore the brunt of this devaluation in their allocation to the most menial and least remunerated tasks.

5.2 Post-war booms in manufacturing and meat

After the Second World War, the development of the manufacturing sector was a key priority for John McEwen, the Minister for Commerce and Agriculture and then Minister for Trade in the Menzies Coalition Government. At the time, the mining and agriculture sectors were in a standoff over raw materials imports. High tariffs on raw materials benefitted farmers but increased costs for manufacturers. McEwen struck a compromise between the sectors by ensuring strong tariffs on manufactured goods in return for the manufacturing sector's acceptance of the agriculture tariffs (ACIRRT 1999, 14, 23). Protectionist industry policy was thus consolidated in the post-war period in an updated form of the Australian settlement—now comprising high wages, industry protections and development amidst a favourable economic climate. This period marks the expansion of diverse industries in the manufacturing sector, from metals to meat, to cars and inputs to construction. In the meat industry, the boom coincided with the peak of AMIEU's industrial power.

Wage differentials in the golden age of Australian manufacturing

Between 1945 and 1975, the manufacturing share of employment exceeded 25 per cent of the Australian workforce and by the 1960s labour productivity in manufacturing had reached parity with other sectors (Connolly and Lewis 2010; Butlin, Dixon, and Lloyd 2014, 483; Hutchinson 2014, 304; Toner 2000, 25; ACIRRT 1999, 27–28). The car, iron and steel industries were dominant and had become internationally competitive (Hutchinson 2014, 296; Stanford 2020, 25). Between 1939-40 and 1967-68 the metals and machines subdivision of the manufacturing sector increased employment from 32 to 48 per cent of the sector, and increased output from 32 to 44 per cent (Hutchinson 2014, 292).

The award system ensured gains from the most organised workers flowed on to workers in less organised industries, however productivity gains were still unevenly distributed across the sector. Some Australian studies investigated the predictors of differentials between average wages in manufacturing industries in the post-war period. Keating (1983) found patchy evidence for the effect of changes in productivity on wages over the period 1947 to 1980, causing the author to question the capacity to pay hypothesis. Amongst the Australian—and indeed international—literature, this perspective is in the minority. Three relevant studies in Australia are Kmenta (1963), Adreskelas (1984) and Jones (1978).

Kmenta (1963) investigated factors that explained changes in average annual earnings for 'unskilled' male workers across manufacturing industries over the period 1947 to 1954. He found that the physical productivity of labour and labour costs as a proportion of total costs were both significant predictors, as was concentration amongst high-output industries. Adreskelas (1984) modelled industry earnings differentials in manufacturing between 1972-73 and 1980-81. She found that the major determinants of earnings differentials between production workers were sex composition, labour productivity, industry concentration and capital intensity (measured by electricity usage).

The most important study amongst these is by Jones (1978), summarised by the author in a later paper (Jones 1983). This study is important because it draws out the findings of an inter-industry wage model to develop a theoretically informed schema of labour market segmentation in manufacturing. Jones split the data by industry turnover (a measure of the size of the industry) and degree of capital intensity and sought to explain average earnings in industry groups with several industry and worker characteristic variables between the years 1968-9 and 1973-74. In nearly every model conducted on the data, three predictors were statistically significant: labour productivity, the proportion of males, and the proportion of workers born in countries outside of Southern Europe (referring predominantly to Northern European-born workers). Each of these variables had a consistent positive effect on industry earnings. The findings of these and other models allowed Jones to identify groups of advantage and disadvantage:

> Workforce groups are advantaged or disadvantaged, at least partially, because of their relationship to an industrial structure which dictates advantaged and disadvantaged job segments. Within the disadvantaged groupings, part of the reason for specific work force group receiving low pay is due to their disproportionate employment in industries which cannot afford to pay significantly higher earnings in their total workforce, as manifest in their higher relative wage bills, but fundamentally in their lower productivity.
>
> (Jones 1983, 38)

They key mechanism dictating wage differentials is the capacity of firms within an industry to pay higher wages, dictated in part by the proportion of the wage bill in total costs and most strongly by labour productivity. But the connection between

productivity and wages is not guaranteed: 'the benefits of high productivity are distributed unevenly' (ibid.) depending on a group of workers' level of organisation and the norms, biases and conflicts associated with gender and ethnicity (including such biases from organised workers themselves).

In the 1960s and early 1970s, highly unionised but lesser skilled Australian-born workers were successfully able to capture some of the higher productivity as higher earnings in the mineral processing, simple chemicals, metal working and vehicle manufacturing industries. However, there were also substantial pockets of southern European males in these 'core' industries—secondary workers with lower earnings. Similarly, women contributed a significant share to secondary labour markets in labour-intensive manufacturing industries such as textiles, leather, clothing and footwear, and were also segregated by ethnicity—southern European females took up a subordinate position (Jones 1983, 40). Further—and prefiguring Botwinick's argument which was to come a decade later—Jones (1983, 38) recognised that 'the low productivity of peripheral industries does not preclude the existence and favored treatment of primary workers', in this case older, skilled males in labour-intensive and small-turnover industries.

These studies show two things. First is that wage gains are more expansive in more capital-intensive, more productive industries—viz. industries with more capacity to pay. Second is that these gains are neither guaranteed nor evenly distributed. This point becomes most salient when I consider the growth areas of the Australian manufacturing sector amidst the general trend of deindustrialisation. Now, I turn back to the meat industry.

The birth of industrial chickens and pigs

The industrialisation of chicken and pig production and slaughter arrived late on the scene in Australia (The Senate 1990; Australian Chicken Meat Federation (ACMF) 2025). In the 1940s and early 50s, raising pigs and chickens for meat were generally secondary considerations for farmers—dairy farmers in the case of pigs and egg farmers in the case of chickens. In these small enterprises, pig feed was supplemented with cow's milk and chickens were processed for meat after they were 'spent' from laying. Large scale pig production started in Australia in the 1960s, tracking the changing ethnic composition of Australia after several waves of Southern European migration (Senate Select Committee on Animal Welfare 1990,

176). In 1960 the size of the pig herd was 1.4 million and by 1988 it was 2.7 million. Major developments during this time were the shift from extensive ('free range') pig farming to intensive production of pigs housed in sheds, advances in breeding to ensure pigs' bodies and behaviours were suitable for processing, and improvements to feeding practices.

It is estimated around 3 million chickens were produced for meat in 1950-51, however significant changes to the industry occurred in the decades following such that now the chicken meat industry slaughters more than 700 million birds annually (ACMF 2025). By the late 50s, larger commercial operations established around major cities, a unique chicken meat breed was established, and the chain was introduced to processing plants. In the 1960s, US-style vertically integrated firms first emerged in the market and this model remains the standard today. These firms own the facilities for breeding and hatching, feeding and processing—and where the growing of birds from day old to slaughter-age is either performed in house or contracted out to chicken growers. The local demand for chicken grew year on year, as dozens of Kentucky Fried Chicken outlets and local chicken shops opened throughout the 1970s, such that by 2006 chicken overtook beef as Australian's most consumed meat (Dixon 2002; Dixon and Burgess 1998).

There is limited research available on the labour processes and labour market outcomes in the chicken meat and pig industries in the post-war era. Jerrard's (1999) study of the employment of women in the meat industry at the time primarily concerns red meat abattoirs, however she does make comment on the nascent poultry industry. Jerrard indicates that poultry processing was highly feminised, with women making up around 90 per cent of the workers. This contributed to the association of poultry processing with 'women's work' and its subsequent devaluation.

In an unlikely turn of events, the birth of industrial poultry production in Australia led to the AMIEU becoming one of the earliest campaigners for equal pay for women (ibid.). The union's initial response to the employment of women was regressive—they saw women on fractional wages as a threat to their own pay. Some activists in the union were instrumental in fighting against conservative elements, advocating for the right for married women to work in the industry, to be included on seniority lists, and to elevate women's wages. A key factor in the union's change of position was pragmatic. Around 1946 the AMIEU Queensland Branch lost coverage of bacon

processors after the workers in that industry resigned to form their own, less militant union. At the same time, it gained coverage of poultry workers. To retain density, and in what Jerrard considers to be genuine cultural change, the Queensland Branch actively took to organising women in the meat works and poultry sheds.

The AMIEU was unsuccessful in convincing the Commonwealth Conciliation and Arbitration Commission to value work equally between the poultry and red meat industries, however they made considerable gains improving women's pay in the Federal Meat Industry Award 1965. In 1968, the ACTU selected the meat award as the benchmark in their national case to remove discrepancies between male and female wages. The decision by the Full Bench of the Commission in 1969 was not an outright win as it retained a clause where 'equal pay should not be provided [...] where the work in question is essentially or usually performed by females' (in Jerrard 1999, 154). Nevertheless, the meat workers planted a seed that continues to flower.

The post-war beef boom

The middle of the twentieth century, between 1940 and 1980, was overall a boom in the Australian meat industry. For a short time exports collapsed at the onset of World War Two, however policy makers considered meat production vital to the war effort as they had in the previous war and exports recovered quickly. Meat workers were exempt from conscription and the Australian and UK governments bought the industry's entire output (O'Leary 2008, 57). O'Leary writes of the time,

> These measures resulted in significant economic advantage for the industry as a whole, but particularly for labour, as employers regarded lost production as more serious than paying for increased wages and improved working conditions.
>
> (O'Leary 2008, 57)

Again, the Queensland meat workers made strong gains, including reinstating shop committees, controlling the supply of labour and, to account for the increased workload, they gained a four-shilling war loading in 1941 (in addition to the eight-shilling gain in 1936 which made up for the 1931 cut) (ibid. 74).

Exports in beef and sheep fluctuated around a baseline of around 100,000 tonnes in the first half of the twentieth century, however after the Second World War exports

increased to 300,000 tonnes by 1963-64 and 1 million tonnes by 1979 (O'Leary 2008, 51-57, 86). After a century of the UK market dominating exports of Australian beef, the United States took this position in 1958-59 (ibid. 58). Japan also became a major export destination for high quality, chilled beef at this time, and rampant consumerism in both countries spurred on Australian beef production in the 1960s and 70s. In the mid-1970s, Australia became the world leader in meat exports. The red meat industry employed more than 50,000 workers, and over the five years between 1974 and 1979, meat processor capacity expanded by 60 per cent (ibid. 84-5).

The growth of the Australian beef industry in the post-war era involved major changes to the labour process, to the regulation of work, and to the use of awards. At different times, employers and the union took up different positions with respect to award coverage and the tally system—involving several about faces. Employers sought out federal award coverage, as did the early form of the AMIEU when it was dominated by shop employees. The Queensland syndicalist meat workers, on the other hand, preferred unmediated negotiation. After the major gains taken by labour in the two world wars, employers began to realise that industrial courts were well suited to regulating and limiting union militancy. This dynamic played out in multiple industrial confrontations, including the Townsville strike of 1918 and the state-wide Queensland strike of 1946. Whilst employers were more successful in 1918 than in 1946, O'Leary (2008, 79) identifies 'a pattern of employers choosing increasingly to shift to state intervention for the purpose of the regulation of the wage-effort bargain and as a mechanism for controlling the AMIEU.'

Awards thus proliferated in the meat industry in the 1960s and 70s, including the creation of 26 federal awards and 16 more operating in state jurisdictions (O'Leary 2008, 111-15). Most of these were very specific, covering only a single employer or a particular aspect of the industry. They existed alongside the federal court's Meat Industry Award which in 1939 consolidated state awards in Victoria, South Australia, New South Wales and Queensland and was renamed the Federal Meat Industry Award in 1959. The biggest change to awards at the time occurred in 1962 when for the first time clauses on the tally payment system were inserted into a federal award—the Slaughtering, Freezing and Processing Works (Meat Industry) Interim Award, 1962. By 1970, provisions for the tally were included in almost every federal award in the meat industry.

The tally system

The tally played a complex role in the regulation of the meat industry labour process. Its introduction to federal awards immediately followed the introduction of flow-line technology to the beef industry. The chain had operated in the sheep industry since 1933, however it wasn't until 1961 that a similar technology was employed in the beef industry. The intervention, developed in Canadian abattoirs in the 1950s, was called the CanPak system and it involved the use of hydraulic platforms to position workers as they slaughtered and dressed carcasses hung from an overhead rail (O'Leary 2008, 101). At the time, employers sought the introduction of tally provisions in awards amidst the introduction of CanPak to control production costs by guaranteeing a certain level of output from workers on the line (ibid. 113). The tally was seen as a way to regulate the work relationship amidst the introduction of a technology that changed the labour process. What is interesting about the introduction of the tally here—and its generalisation throughout federal agreements—is the change of tactic by employers from the middle of the 1970s on when they started agitating for its abandonment (ibid. 119).

Two points are salient. The first is the difference between the operation of the tally in the sheep and beef industries. Before the introduction of the chain, the sheep tally was a solo system, stipulating a wage for the number of head slaughtered and processed per worker per day. The chain fundamentally deskilled labour in the 1930s. The ratio of livestock processed to workers employed remained largely unchanged at about 80 to 100 sheep per person per day, however employers lowered wages to reflect the workers' new simplified tasks on the line and they expanded plants to secure economies of scale (ibid. 100). The beef tally, however, was always a team or gang system, where even before the introduction of the mechanised line up to 26 people worked in teams led by skilled butchers to process the much larger animals (ibid. 101). After the introduction of CanPak, job classifications remained largely unchanged and as such the immediate impact on workers bargaining power was less severe than the introduction of the chain.

Second, the form of the tally itself dictates a certain work effort arrangement in the labour process. Traditional piece rate systems are the epitomic form of the efficiency wage—when pay is directly tied to output workers are incentivised to maximise effort and work longer hours. In the agriculture industries where such piece rates still exist,

the need to work hard is a result of the low wages associated with each piece of work. But the meat industry is unique in this respect.

The line concerns the disassembly of animals, some of which will have defects in the quality of their muscles, and where the quantity processed is controlled by the employer who buys the stock (O'Leary 2008, 98-9). Workers were thus paid according to the input of livestock slaughtered and processed, not the output, which means that the quantity of their wage is effectively set and the variable of concern is the time taken to do the work. The records may not be exact, however Cutler (1976, 398) estimated that in the middle of the 1970s the AMIEU had more than 56,000 members, over 90 per cent of workers employed in the meat industry (Jerrard 1999). At the peak of the union's industrial strength and the peak of the industry's export volume, workers in the meat industry were able to work the tally to their advantage by controlling the pace of work and often working days of only 6 or 7 hours (Productivity Commission 1998). Whilst employers had previously heralded the tally as a simple way to calculate labour costs and guarantee a certain level of production, they came to resent it as an impediment to increasing production levels and increasing productivity. Employers were unable to increase production without paying over-tally penalty rates, and innovations to increase the efficiency of the labour process could simply be appropriated by workers in the form of shorter working days.

In defence against labour process change, workers may hold on to particular arrangements in the regulation of work. Botwinick writes that:

> *Within the workplace*, the harmful effects of mechanisation and deskilling have often been partially offset by unions that have managed to force employers to continue to recognise highly structured job classification systems and training programmes that are no longer required by capital.
>
> (Botwinick 2018, 214)

But the tally was not exactly this kind of structure. The tally had existed in various forms in the nineteenth century Australian meat industry. Slaughter gangs used highly detailed tallies to ensure skill margins were fairly valued (stipulating the specific wages for different jobs in cattle disassembly). The generalisation of the tally at the federal level in the 1960s was at the initiative of employers. But in the middle

of the industry's export boom, it became an impediment to capital accumulation. And when demand collapsed, it became a threat to firm survival.

5.3 Deindustrialisation, hyper-industrialisation

The period after the post-war 'golden age' is generally considered a transition away from manufacturing or deindustrialisation. But what really occurred was a reorientation of the manufacturing sector: some offshoring and a push away from advanced manufactures, on the one hand, and a strong pull towards processing outputs from the primary sector, on the other.

The 'death' of manufacturing

In the 1950s, the UK was still Australia's biggest trading partner, but the value of exports to Japan, France, and the United States was increasing. Reciprocal trade agreements limiting tariffs on imports were signed with Japan in 1957 and South Korea in 1965 (DFAT 2023). As government policy shifted away from quantitative import restrictions towards case-by-case industry assistance, it was hoped Australian industry would take positively to the spur of increased competition as consumers and value-adding producers benefitted from cheaper imports (ACIRRT 1999, 28; Stanford 2020, 34).

Imports increased as expected, however the textiles, clothing, footwear, auto and white goods coming from the newly industrialised Southeast Asian countries, where wages were low, competed aggressively with domestic production (ACIRRT 1999, 28; Productivity Commission 2003, 37). Australian manufacturers largely failed to expand into export markets because of limitations to investment in the industry. First, a perverse outcome of industry protection is the lack of the competitive spur, allowing for the stagnation of backward, rent-seeking firms (Hutchinson 2014, 290). Second, there were structural problems that disincentivised capital flow into manufacturing, including: the small domestic market; an over-abundance of small firms without economies of scale or capacity for research and development; and Australia's geographical isolation from the centres of capital which inhibited the integration of firms into global supply chains (ACIRRT 1999, 27–28; Langcake 2016, 32). Lastly, the Australian economy was afflicted by the 'Dutch Disease' or 'resource curse', where the mining boom of the 1960s and 70s drew capital into the resources sector and rising commodity exports increased the value of the Australian dollar, negatively affecting the prospects of manufacturing exporters and manufacturers

competing with imports (Gregory 1976; Hutchinson 2014, 305; ACIRRT 1999, 24–27).

When Paul Keating was Treasurer in 1983 he floated the Australian dollar, which led to a currency devaluation that was a brief reprieve for manufacturers (see Dyster and Meredith 1990: 298 in ACIRRT 1999, 28). However the trend towards deindustrialisation was set. Since the 1960s, manufacturing employment has declined absolutely and the share of national output has declined consistently. Australia was already operating as 'quarry to the world' (Watson 1983, 3), but this position was entrenched in 2003 when the price of coal and iron ore skyrocketed (Gregory 2011; Weller and O'Neill 2014; Cottle and Collins 2015; Collins 2022). The new terms of trade set off a wave of offshoring in the 2000s, made worse by the Global Financial Crisis (GFC) of 2008 (Langcake 2016, 27–30; Atteridge and Strambo 2021). In the 12 years following the GFC, the manufacturing sector experienced an absolute contraction in output, employment, revenue, profits and investment (Australian Industry Group 2019, 4; Stanford 2020, 10). 135,000 manufacturing jobs were lost during this period. The textiles, clothing and footwear subdivision continued its long decline despite exploitative outworker contracts that reduced labour costs (Hutchinson 2014, 299), and all Australian car manufacturers closed plants in 2016 and 2017 (Barnes and Weller 2020).

New life in commodities

The path of deindustrialisation in Australia has reduced the sector's diversity as it came to rely heavily on the simple processing of natural resources. During the 1970s and 80s, structural change in the manufacturing sector suggests exactly this (Industry Commission 1995, 9 in ACIRRT 1999, 29). The share of manufacturing value added increased significantly in the basic metals, paper products, and food, beverage and tobacco subdivisions, whereas significant declines occurred in the other machinery and equipment, clothing and footwear, and textiles industries. Successful industries produced commodities that embodied lesser amounts of labour, skill and knowledge—they were low-value-adding.

The Productivity Commission (2003, 50) identified this rising share of what they call 'natural endowment-based manufacturing'—which is the sum of the food, wood products, simple chemicals and metals subdivisions. Between 1968-69 and 2000-01, the share of total manufacturing value added from natural endowment-based

manufacturing industries increased from 36.5 per cent to 43.8 per cent (ibid.). Researchers at ACIRRT (1999, 28) considered this a turning point in Australian economic history: a failure of investment in the manufacturing sector consolidated its 'low road' development. The resource booms of the 1960s and the 2000s did not destroy manufacturing in Australia, rather, during these periods the sector's orientation tilted towards the primary sector.

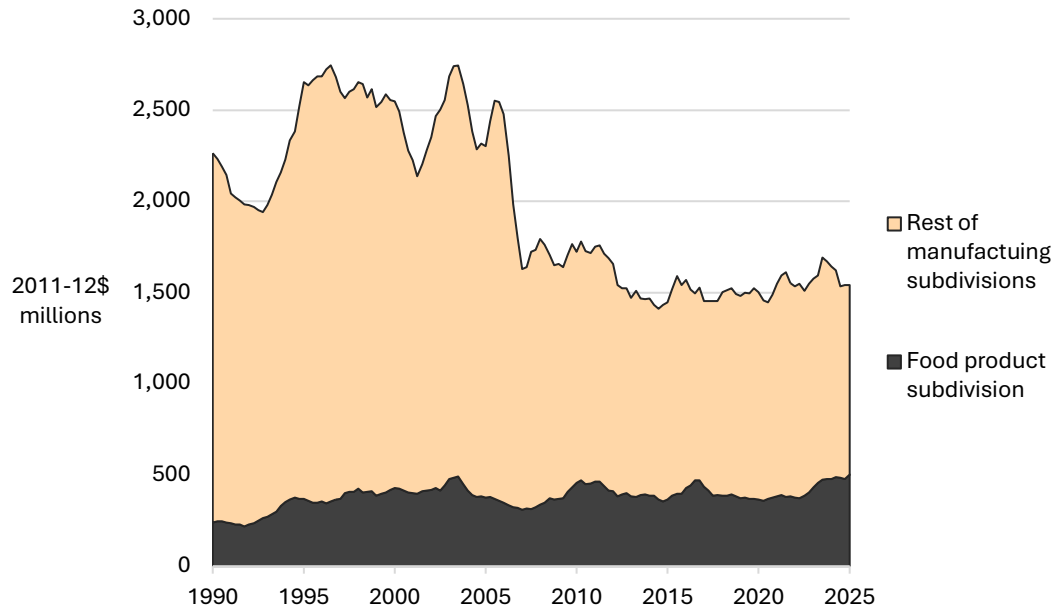
According to Harvard University's Economic Complexity Index, which measures the number and complexity of exported products, Australia ranked 99th overall in 2023—down from its previous position of 60th in 1995 (Harvard Growth Lab 2025). This is unsurprising given that unprocessed primary products such as coal and iron ore made up 61 per cent of the value of all merchandise exports in 2022 (Department of Foreign Affairs and Trade (DFAT) 2024a). In 2022, processed primary products (from manufacturing) made up the second biggest group of merchandise exports by value, at 23 per cent (ibid.). The remainder of exports, just 16 per cent, comprises simply and elaborately transformed manufacturers and an 'other' category which includes art, weapons and uranium (ibid.).

The hyper-industrialisation of meat and its contradictions

The four most valuable processed primary product exports are liquefied natural gas, frozen and chilled meat products, processed metallic minerals and wine (DFAT 2024b). Far from becoming a post-industrial economy, significant capital is employed in processing each of these products. Perhaps most surprising is the amount of fixed capital investment going into the production of food (see Figure 5.5).

Figure 5.5 Private new capital expenditure in manufacturing (quarterly), 1990-2025

Rolling four-quarter average of actual expenditure on equipment, plants and machinery.



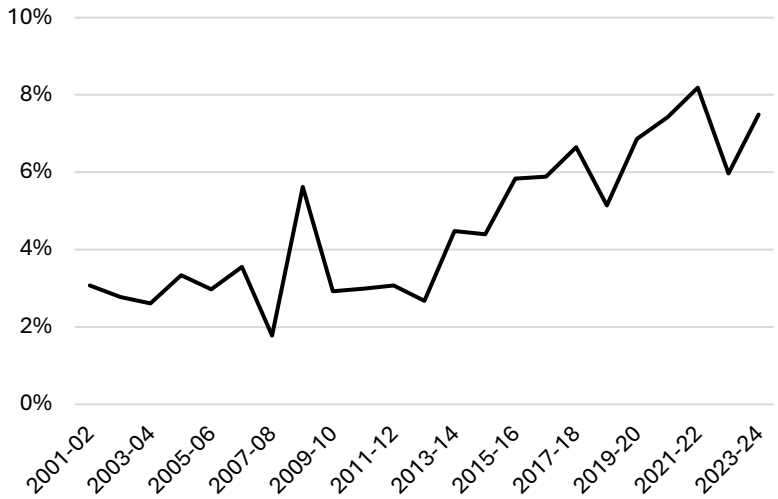
Data: ABS 5625.0 (2025a) and ABS 6427.0 (2025c).
Note: Real expenditure was derived by dividing nominal expenditure (current prices ABS 5625.0) by output price indexes from the machinery and equipment subdivision (ABS 6427.012) and multiplying this by 100.

For the whole manufacturing sector, capital spending per quarter was between 2 and 3 billion (2011-12 dollars) between 1990 and 2005, before it dropped significantly to around $1.5 billion for the next two decades. The decline fits the resource curse logic, as the value of mining exports and the Australian dollar surged from 2003. By contrast, quarterly capital spending in the food product subdivision rose from $250 to $500 million between 1990 and 2003 and remained relatively stable from then on. The relative changes in spending means that the proportion of manufacturing fixed capital investment on the food subdivision rose from 10 per cent to 33 per cent over this period.

Figure 5.6 shows the proportion of manufacturing fixed capital investment going to the meat industry.

Figure 5.6 Proportion of manufacturing capital expenditure spent in the meat industry, 2001-02 to 2023-24

Sum of capital purchases in the financial year. Meat and meat product industry group (ANZSIC 111).

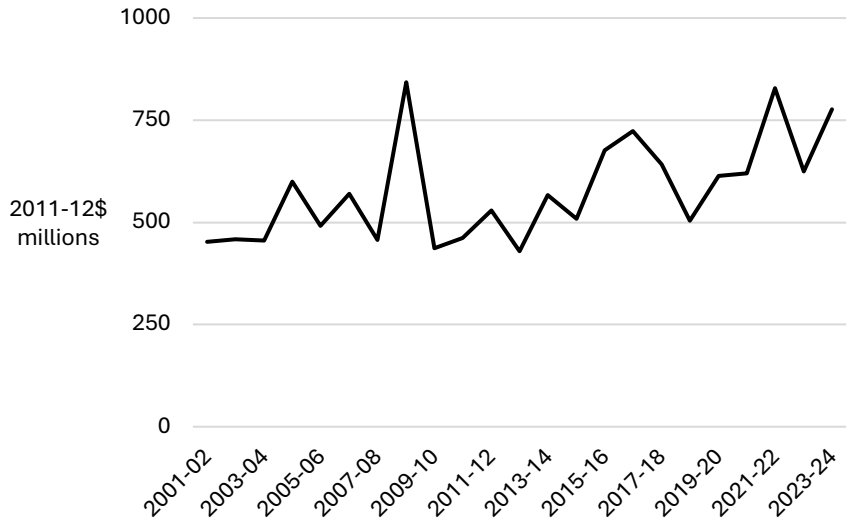


Data: Business Longitudinal Analysis Data Environment (ABS 2025).

Figure 5.6 shows that the meat industry is an increasing share of total capital investment in the manufacturing sector, rising from around 3 per cent in 2001-02 to more than 7 per cent in 2023-24. Given the decline in real spending observed across the sector, it is helpful to consider real spending in just the meat industry. Figure 5.7 does this.

Figure 5.7 Capital purchases in the meat industry, 2001-02 to 2023-24

Sum of capital purchases in the financial year. Meat and meat product industry group (ANZSIC 111).



Data: Business Longitudinal Analysis Data Environment (ABS 2025) and ABS 6427.0 (2025c).

Note: Real expenditure was derived by dividing nominal expenditure (current prices ABS 5625.0) by output price indexes from the machinery and equipment subdivision (ABS 6427.012) and multiplying this by 100.

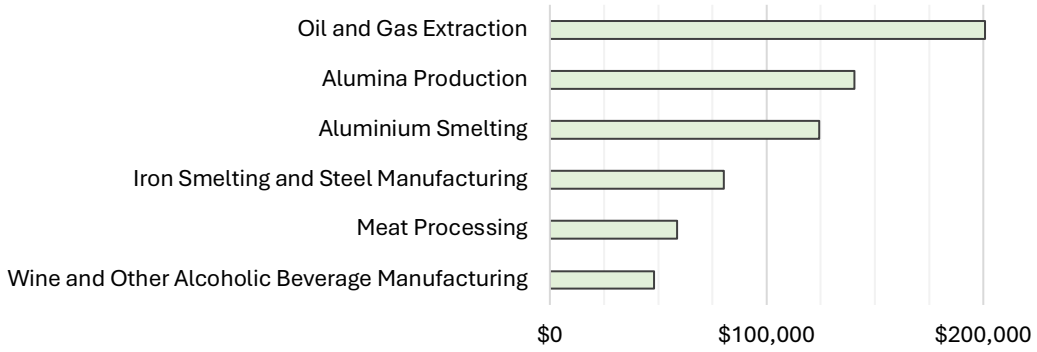
Figure 5.7 shows that capital spending is increasing not just in relative terms, but in real terms. Over this two-decade period, capital spending in the meat industry increased by more than 50 per cent from under $500 million in 2001-02 to over $750 million in 2023-24 (2011-12 dollars).

These data show that the meat industry is central to the orientation of manufacturing capital towards the primary sector. In terms of land use, environmental impact, and economic value, the meat industry is a key extractive industry in the Australian economy, alongside coal, gas, minerals and wine. The increasing capital-deepening in the meat industry is a core strand of hyper-industrialisation within the broader movement of deindustrialisation in the Australian economy.

With hyper-industrialisation comes hyper-productivity growth. The previous chapter stipulated Botwinick's argument that workers have the best chance of wage growth in capital-intensive industries in the 'fat' part of the business cycle. But as Botwinick also explored at length, and as the Australian studies of inter-industry wage differentials considered above showed, the benefits of high productivity need not be distributed evenly (Jones 1983, 38). Labour could make the most gains in these expanding sectors, all attached to the primary sector, however the trajectories of workers' pay have varied considerably (see Figure 5.8).

Figure 5.8 Median income in selected manufacturing export industries (ANZSIC 4-digit class), 2021-22

Income is duration adjusted to be equivalent to annual income. Oil and gas extraction is classed as a mining industry in ANZSIC, however it includes industries that produce liquid natural gas—Australia's most significant processed primary product export.



Data: Jobs and Income of Employed Persons (ABS 2022).

In August of 2021, median income for full-time workers was $77,319 (ABS 2024). Workers in the gas, alumina and aluminium industries earned significantly above the

median. Steel workers earned just above the median, and meat and wine workers earned well below the median, at $58,555 and $48,180 respectively. Certainly there are differences in capital-intensity between these industries. Nevertheless, the current position of meat workers appears to be a considerable turn of events from the height of their strength in the 1970s.

When the Australian Labor Party introduced centralised wage fixing in the Prices and Incomes Accord of 1983 wages were fixed to the Consumer Price Index and the Australian Trade Union Council played a role to convince unions to accept the principle of 'no extra claims' above this policy. Notably, the AMIEU was one of the few unions that objected to the no extra claims principle, a key indicator of their confidence in winning agreements over and above the award (O'Leary 2008, 118). Chapter 2 has shown that many workers in the meat industry experience low pay. The remainder of the thesis examines how and why this this came about.

5.4 Conclusion

My interest in this chapter was to set the history of the Australian meat industry against the history of the Australian manufacturing sector, indicating the way in which the industrialisation of the meat industry is one avenue for capital realisation among others, and highlighting the role of the meat industry in the distinctively extractive, resource-intensive form of Australian capitalism. In the nineteenth century, Australia's role was colonial quarry and pastoral estate—where coal, gold and wool were extracted and produced for the European market. In the twentieth century, the Australian quarry was globalised and the production of food was industrialised.

The development of the meat industry itself is compelling. Meat is a commodity with a special status given its use in reproducing the labour power of a country's working class. The meat industry—and meat workers—have thus experienced periods of protection during the two world wars. Sections of the meat union, in particular the slaughterers and boners and slicers working in the Queensland and Victorian export works, have a history of militant organising and have thus favoured their chances taking on employers directly without the assistance or imposition of the industrial courts. This position on arbitration is long standing within the meat workers' union. In 1990, amidst considerable industrial conflict, the secretary of the Victorian Branch of the AMIEU, Wally Curran, declared:

> We are not arbitrationists in Victoria. Other branches have relied on the arbitration system and that's why they are further behind. We will not allow it to reduce pay and conditions in Victoria.
>
> (Wally Curran in Bolt 1990)

There is no doubt that the union's militant approach was instrumental in its wins, particularly in the early twentieth century shop committees that controlled the supply of labour. But the arbitration framework was not simply a dead weight on workers' efforts at the enterprise level, especially at the bottom end of the labour market. When employers sought the introduction of the tally system to all federal meat awards in the 1960s, the award system functioned to generalise a mode of regulation that workers were able to turn in their favour. At the height of industry in the 1970s, when Australia led the world in meat exports, the meat workers' union was formidable at some 56,000 members strong. The union thus weathered the introduction of flow-line technologies into the beef industry and was able to exploit the now generalised tally system to maintain control over the pace of work. During this time, employers were more inclined to raise wages than risk ceasing production.

Today, the union is in a completely different situation. Production is high and the demand for Australian meat is strong, however workers have lost control of the labour process, many experience low pay, and some experience more severe forms of exploitation. To better understand this period, from the 1980s to today, it is necessary to inquire into the changing nature of competition in the industry, changes to the labour process and the factors governing workers' capacities to command better pay. These are the foci of the next chapter. A glaring omission of the current chapter is the composition of the supply of labour, particularly the employment of migrants, who made up large and growing sections of the manufacturing sector from the Second World War on. This subject will be taken up in Chapter 7, where I show how employers have exploited temporary migrant workers and used them to undermine the pay and conditions of permanent workers.

Chapter 6 – The rise of large firms in the meat industry

> [I]f the innovator's pricing strategy does allow it to seize a dominant position within the market, its lower unit costs and increased market share may allow it to enjoy a number of important, long-term advantages. Higher profit rates and profit margins will obviously provide it with greater internal funds for further accumulation and increased research and development. It may also be able to pursue other competitive strategies such as vertical integration, advertising, and so on. Last, its low-cost position will enable it to become more insulated from rising supply costs and other potentially hazardous events within the ever changing marketplace. Of particular interest to our argument concerning wage differentials, the low-cost firm will often be in a stronger position to absorb wage increases.
>
> (Botwinick 2018, 148-49)

To understand the nature of competition in the meat industry, it is necessary to understand the conditions under which firms consolidated and the strategies employed by the largest, most successful processors. Due to economies of scale and lower unit costs, larger firms are in the best position to absorb wage increases in the Australian meat industry. However, as articulated in chapter 4, the conditions of production, prices and profits of large Australian firms are not necessarily the regulating conditions in the industry nor the benchmark against which the performance of other firms is measured. This is particularly the case in the red meat industry, which is export oriented. Chapter 1 showed that exporters have long compared Australian labour costs with lower-wage countries that also produce meat, particularly the United States and Brazil. In addition to relatively lower labour costs, US processors also appear to benefit from more government support and better economies of scale due to larger plants (Australian Competition & Consumer Commission (ACCC) 2017, 34, 38).

There are several issues evaluating the international competitiveness of Australian exporting processors. One is the presence of multinationals. The biggest firm in Australia is JBS, which originated in Brazil. JBS operates on nearly every continent employing more than 235,000 people and reports a daily processing capacity of 80,000 cattle, 115,000 pigs and 14 million chickens (Primo/JBS 2025). As such,

neither the boundaries of the Australian continent nor the boundaries of JBS in Australia are the appropriate frames of reference for understanding competition. Multinational firms' internal decision making on the allocation of resources clearly affect those employed locally in the industry.

A different problem is the particular nature of meat processing as a manufacturing activity. As considered in Chapter 4, the global manufacturing industry was as 'a unique engine of economic growth' (Benanav 2020, 37) throughout the twentieth century as production methods were highly amenable to incremental innovations made at scale. A feature of such innovations is that in general they are reproducible by rival firms. The previous chapter, however, identified the meat industry among a set of manufacturing industries concerned with processing raw materials from the primary sector. Through its primary input—animals—meat processing has a necessary connection to Australian land, and the importance of the meat industry's use of land cannot be overstated. Recent estimates put livestock grazing on native vegetation and modified pastures at 49.5 per cent of total land use in Australia (ABARES 2024b), and beef cattle production alone is estimated to account for more than 75 per cent of agricultural land use in the country (ACCC 2017, 24). More than half of the total 123,000 farms in Australia are engaged in cattle production (ibid.). The defining economic feature of land is that it is a non-reproducible resource. As such, the regulation of prices and profits in the primary sector is based on differential rents. Such rents must be accounted for in any discussion of international competition amongst processors.

With particular attention to these problems, this chapter analyses the formation, structure and strategy of the five largest firms in the Australian red meat and poultry sectors based off IBISWorld's most recent reports on industry revenue share.

In section 6.1 I undertake a more thorough analysis of the problems posed in this introduction, in particular the location of regulating capitals and the relevance of reproducible and non-reproducible conditions of production to workers' attempts at wage increases.

In section 6.2 I analyse the conditions in which large capitals came to dominate the poultry and red meat industries. I show that the key difference between the two is intensive versus extensive conditions of production. The consolidation of the poultry industry occurred under conditions of reduced input costs, stable demand, and

efficiencies developed in a tightly controlled production system. By contrast, the red meat industry first consolidated amidst industry contraction and continues in the context of volatile swings in livestock supply.

In section 6.3 I analyse exchange relations in meat product markets, particularly the changing nature of processor relationships with wholesalers, retailers and consumers in the context of changing local and international demand. I articulate the relationship between low price competition and changing Australian meat consumption patterns, new partnerships between oligopolistic processors and retailers, and the booming and increasingly diversified export sector.

Last, in section 6.4 I analyse the corporate structure of the large firms identified. Aside from their economies of scale and some evidence of diversification across product groups, the main feature of leading firms in the Australian meat industry is vertical integration. I show that processors use vertical integration to control the supply chain, extract maximum value from inputs and, in some cases, appropriate differential rents from grazing properties. I also show that this strategy sits alongside a more traditional one in the industry, the domination of big processors over much smaller livestock producers. I conclude that it is possible the big processors are indifferent to whether their control over the supply chain is realised internally as an integrator or externally as a monopsony.

6.1 The problem of identifying regulating capitals

Regulating capitals perform an important role in price formation and the equalisation of profit rates between industries. Because of this, Botwinick identifies these firms as often best placed to absorb wage increases. To evaluate the meat industry's capacity to pay wages, it is necessary to identify the conditions of production at the top end of the industry. This section works through two difficulties in this procedure, namely locating regulating capitals and their equivalence with large 'monopoly capitals'.

The boundaries of the market

The location of regulating capitals is of critical importance in attempts made by workers to improve their lot. Militant workers will come up against the limits of profitability in a local firm if an overseas competitor has lower unit costs. As such,

national boundaries are not the immediate reference point for intra-industry competition, since a national market may be a subsector of an international industry.

But certain industries are, by their nature, domestic. It is largely impossible to offshore the labour of nurses, emergency service workers, and other workers whose jobs require face-to-face interaction. Such industries are thus 'captive audiences for union organisation' (Botwinick 2018, 307). The Australian chicken industry is a good example of this kind of industry. Strict biosecurity import controls and limited exports mean that the chicken industry operates almost entirely domestically (ACCC 2020, 17). If workers organise every regulating capital in an industry, they have a real chance at taking wages out of competition and imposing higher wage costs on employers—a result that would be either worn by firms in reduced margins or by consumers in increased prices, or both.

Most beef and sheep meat, however, is exported to various countries in Asia, North America, the Middle East and Europe. As articulated in the introduction to this thesis, effectively since the industry's inception red meat exporters have been concerned with the international competitiveness of Australian labour costs. But the industry- and government-funded literature often elides the fact that the global meat industry is dominated by multinationals. The result is that a good deal of the competition described here is in fact intra-*firm* competition, or the internal consideration of allocating resources between outlets of differing profitability. One side of the Australian meat lobby's argument is thus a familiar concern amidst discussions of international competition—securing multinational firm investment, employment and tax revenue. The other side is, of course, limiting the state's profit capture.

Multinationals are the characteristic firm under globalised trade relations. If free trade agreements are the pathways that facilitated the globalisation of the meat industry, multi-national firms are the vehicles—described by Moody (1997, 48) as a 'major source for integration.' Due to the demands of real competition within industries, capitals are impelled to globalise in search of lower production costs (ibid. 46). In the typical case, a firm seeks to move production to a lower-wage country to supply the home country's domestic market at a lower cost. For multinationals with a presence in each country, they create a kind of internal labour market with employees geographically separated (ibid. 71). The wage differential is then exploited: the threat of further offshoring allows the firm to drive down wages for those still employed domestically. This is the story of the clothing and textiles

industries shifting production from the United States and Australia to China, Bangladesh and Vietnam; and of US manufacturers moving production first to the south of the country—where labour laws are laxer and unions are weaker—and then to Mexico and China (Botwinick 2018, 127 n. 50, 220).

Chapter 2 showed that Australian meat workers are relatively low-paid, and this has important ramifications for their living standards. But colonisation and resource extraction have entrenched Australia's economic position within the Global North, meaning that low wages in this country are not low by international standards. The drawcard for multinationals to invest in the Australian meat industry was not cheap labour, then, but cheap and high-quality livestock. Labour costs were a factor to be managed. For Australian meat workers, this puts them in the unfortunate position of having their wages compared to workers in low-wage countries—which may take the form of competition between workers within a firm. A crucial detail in the AMPC's analysis of processor costs is the relative size of the wage bill compared to the cost of other inputs, namely livestock (SG Heilbron Economic & Policy Consulting 2018). Whilst meat processing is labour intensive, livestock purchases far outweigh all other costs including labour (Industry Commission 1994; Meat & Livestock Australia (MLA) 2010). The extent to which Australia has a competitive advantage in livestock production is thus an important factor in multinationals' presence in this country and has an important bearing on workers' bargaining power.

Within the Australian meat industry, the pig meat industry is a special case insofar as a significant proportion of domestic consumption is imported. The dominant player in Australian pig production is, however, seeking to increase supply to reduce local reliance on imported pork (Thompson 2021).

Distinguishing between regulating capitals and monopoly capitals

Like many other Australian industries, the meat industry is characterised by the dominance of a few very large firms including both multinationals and local companies. An analysis of competition in the industry must engage with this fact. But how? Firm size is an important, but problematic, tool in identifying regulating capitals. Throughout *Persistent Inequalities*, Botwinick was at pains to show that Marx was not interested in ideal relationships between infinitesimally small firms in perfectly competitive markets. Rather, he was concerned with large capitals battling it out for market share through low-price competition, reducing costs through

technological innovations and acquiring smaller firms to increase economies of scale. There is a considerable body of evidence that firm size, particularly with respect to turnover, is associated with lower average unit costs. Australian examples include Revesz and Lattimore (1997), McGuiness, Webster and Mavromaras (2012) and, in regard to the meat industry, Morrison (1997). Given the lower costs associated with increased size, firm size is a good starting point in identifying regulating capitals.

Two problems arise when we consider firm size within an industry. The first problem concerns competition. Both neoclassical approaches to competition—typified institutionally by the ACCC—and Monopoly Capital School Marxists employ a quantity theory of competition in which an increasingly concentrated industry indicates a reduction in competition. There is a lot in common between my approach and that of the Monopoly Capital School. The latter's concern with the enormous resources large firms wield to control the labour process, divide workers, and defeat organised labour is critically important to an analysis of the persistence of low pay (Gordon et al. 1982; Reich et al. 1973). But such an analysis is hamstrung by an excessive focus on the market power of monopoly capitals. For its part, the ACCC has inquired several times into the effects of consolidation on competition in the meat industry (see recently 2017 and 2020).

In reality, large firms are actively engaged in the competitive process (Botwinick 2018, 198; see also Weeks 1981; Semmler 1981; Bryan 1985; Shaikh 2016). Consider Bryan:

> [T]he proposition that monopoly contains no competition has no meaning in Marxist theory for it leaves unexplained the process by which value circulates 'into' and 'out of' these so-called 'monopoly' enterprises. It has already been emphasised that competition in the capitalist mode of production is a central element in the development of the forces of production; in the allocation of productive capacity between alternative uses, and in the general process of the circulation of value (esp. Shaikh, 1978, 1978). So-called 'monopolies' are subject to all these processes. By definition, then, they engage in competition.
>
> (Bryan 1985, 82)

Competition is not simply between rival firms in a product market, nor is it simply between dominant firms and their more fragmented upstream suppliers. As the inner

nature of capital, competition is tied to the accumulation of capital and is articulated in conflict between firms within an industry, in the movement of capital between industries, and extends as an external pressure on firms to limit labour costs and take control over the labour process. As the internal relations of total social capital, competition relates directly to class relations and the exploitation of workers in production (ibid. 77, 88).

The second problem regarding firm size is the equivalence of monopoly with market share or market power. Monopoly does in fact play a role in the competitive process—it is 'a form of competition, not its antithesis' (Bryan 1985, 72)—however it is not simply defined by market share or the relationship between big and small capitals. Rather, monopoly must be defined by conditions of production. Regulating capitals have the most efficient *reproducible* conditions of production, which means that other firms can adopt the same methods and over time will increasingly do so (or adopt newer, more efficient conditions). But firms may develop even more efficient production conditions by attaining unique access to productive resources, patents, or special locations. As Botwinick writes:

> In order for non-regulating capitals to be able to maintain a competitive advantage over regulating capitals within the same industry, these capitals must enjoy some form of monopoly power over a productive resource that provides them with a unique cost advantage. Thus, what we are essentially describing is the situation of surplus-profits, which often take the form of differential rents.
>
> (Botwinick 2018, 276)

According to real competition, then, monopoly refers to *non-reproducible* conditions of production. Marx's classic example is the manufacturer with exclusive access to a waterfall, providing it uniquely-low energy costs (Botwinick 2018, 276). The distinction between regulating capitals and firms with access to monopoly rents is crucial to an analysis of large firms in the meat industry. As I argue in this chapter, such firms have access to both reproducible and non-reproducible conditions of production.

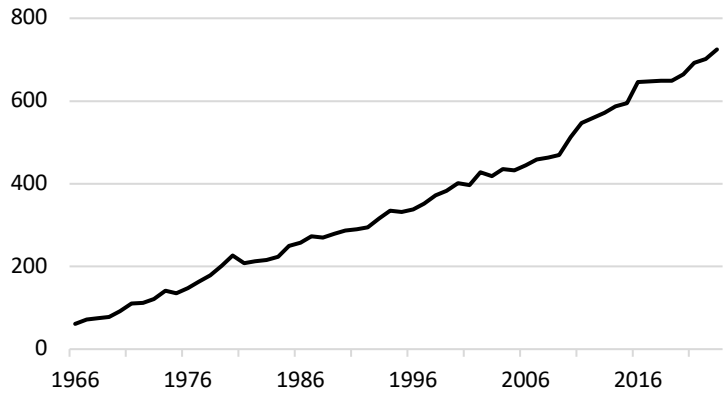
6.2 The process of concentration

Part of the problem with a quantitative perspective on competition is its static account of industry concentration. In such an understanding, '[t]he contradictory process by which capitals grow large is not considered, yet it is precisely the process which is a central element of competition' (Bryan 1985, 82). In this section, I show that the process of concentration—often referred to by the term rationalisation—occurred under distinctly different conditions within the meat industry. The distinction is made here between rationalisation in the poultry sector and in the red meat sector, but really the distinction of concern is between the intensive and extensive production and slaughter of animals. I show that the poultry sector rationalised under the familiar model of price-cutting competition in an environment of remarkable stability and growth. Rationalisation in the red meat industry, on the other hand, occurred in various stages of volatility and stability.

The rationalisation of the poultry industry

Mergers and acquisitions and the rise of oligopolistic processors with economies of scale occurred in the poultry industry in the context of continuous growth in output and battles for market share through product price competition (Dixon and Burgess 1998; Dixon 2002; Ronan et al. 2003). Figure 6.1 shows the astronomical rise of chicken slaughter over the previous six decades.

Figure 6.1 Annual number of broiler chickens slaughtered (millions), 1966 to 2023



Data: ABS (2024b).

Between 1966 and 2023, chicken slaughter increased by a factor of 12 from 61 million to 723 million. There have been short-run increases and declines in processing output, but the growth trend over this period is remarkably stable. Economies of scale compounded growth in the industry since its industrialisation in the 1950s and 60s.

In this period, chain processing was introduced to chicken sheds and the increased efficiency fuelled price discounting wars between the major operators—then Inghams and Steggles—in the late 1960s.

The industry rationalised quickly, with concentration levels higher in chicken than in the red meat industries, even pig processing where animals were produced and processed in similarly intensive conditions (Dixon 2002, 86-7). By 1982-83, the largest four processors made up 66 per cent of industry turnover. Ingham's and Steggles dominated the market until 1999. Including the second-tier processor, Bartter, the top three processors had a total market share of 78 per cent of throughput in 1996 with Ingham's alone commanding a whole 40 per cent. With the sale of Steggles to Bartter in 2000, the top two firms commanded more than three quarters of the market. Today, the biggest firm is Baiada.

Table 6.1 Concentration in the Australian poultry industry, 2025

Firm	Revenue ($m)	Market share (%)
Baiada	2,845.1	28.2
Ingham's	2,771.1	27.5
Turosi	673.7	6.7
Golden Cockerel	470.6	4.7
Hazeldene's Chicken Farm	418.7	4.2
Other	~2,900	28.7
Total	**~10,100**	**100.0**

Data: Larter (2025).

Baiada is a locally-owned company that arose from a family-run business. After purchasing Eatmore Poultry in 2004 and Bartter in 2009, Baiada rose to a dominant position, owning brands such as Lilydale and Steggles (Butler 2012). Baiada and Ingham's now make up a 55.7 per cent share of the market, both with annual revenues exceeding $2 billion (see Table 6.1).

The Ingham family sold their poultry business to global private equity firm TPG in 2013 and the family retained private ownership of some of the company's property portfolio (Ingham Property 2019). TPG's strategy was to extract value out of Ingham's primarily through selling and leasing back the company's considerable property holdings, a cash-releasing strategy adopted by other large firms such as Coles, Woolworths and Myer (Cummins 2014). Ingham's Group Limited was listed on the ASX in 2016 (Ingham's Group Limited 2016). TPG sold down its position in

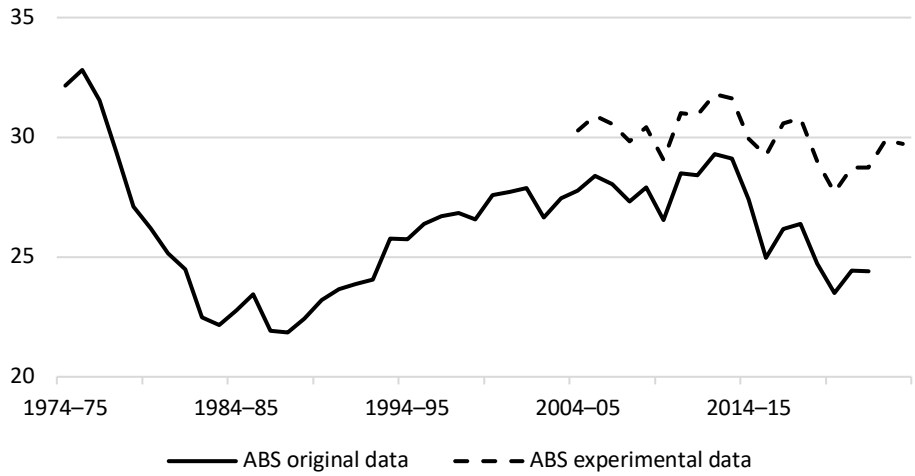
Ingham's to investment banks over the years, relinquishing all shares by 2020 (Thompson et al. 2020).

The dominant firms continue to expand. Baiada is currently developing a new site in Tamworth, NSW, to open in April 2026 and is expected to process up to 3 million birds per week at full capacity (Graber 2025).

Rationalisation of red meat processors in the 1980s and 1990s

In contrast to the chicken meat industry, the rationalisation of the red meat industry occurred first in the context of industry contraction. Prior to the bust, in the 1960s and 70s business confidence was strong in the beef export industry (O'Leary 2008, 84–89). The two main export partners were the US (which bought primarily frozen, grass-fed beef) and Japan (which bought primarily chilled, grain-fed beef). The cattle herd had been growing steadily for decades, firms invested heavily in plants and equipment, and by 1976 there were around 50,000 workers employed in red meat processing (ibid.).

Figure 6.2 Australian cattle herd (millions), 1974-75 to 2022-23

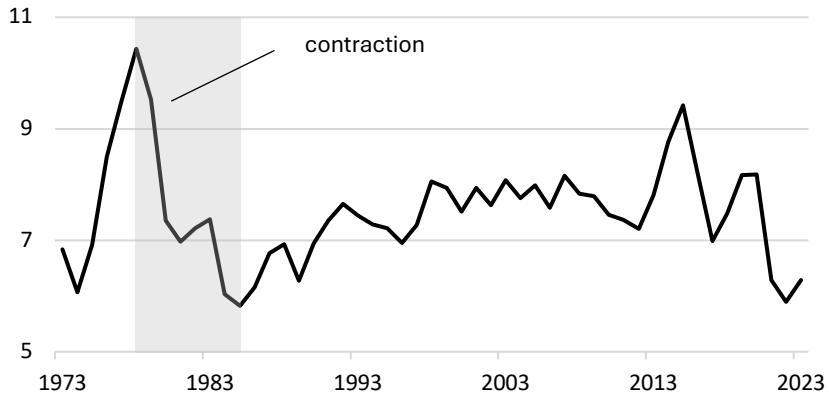


Data: ABARES (2024a)

In 1976 the Australian cattle herd peaked at more than 33 million and this was matched by large herds overseas. The peak was bookended by oil crises in 1973 and 1979, which led to an economic downturn. The result was a global oversupply of cattle and the collapse of demand for Australian beef, particularly in the US, as overseas governments reduced import quotas to protect their own industries (Matthews and Ryan 2015). The price of beef collapsed and, after a mass liquidation of cattle, the

national slaughter rate peaked in Australia in 1977-78 at more than 10 million animals (see Figure 6.3).

Figure 6.3 Annual cattle slaughter (excluding calves) (millions), 1973 to 2019



Data: ABS (2024b).

With a decimated national cattle herd and limited export demand, the cattle slaughter rate fell by more than 40 per cent between 1978 and 1984. This was not a secular trend, but a correction in the boom-bust cycle. The total volume of red meat processed fell by a smaller amount—around 30 per cent from 2.9 to 2.1 million tonnes—over this period because the sheep meat industry had more diverse export markets and was therefore more robust (ABARES 2024).

The contraction put enormous pressure on processors that had expected the boom conditions to continue. The capital invested in the 1970s became a burden. Capacity utilisation rates sunk from 87 per cent in 1979 to 53 per cent in 1981 (O'Leary 2008, 85-6). The number of red meat export plants declined from 260 in 1982 to 200 in 1986, and employment fell by around 40 per cent to just 30,000 (ibid.).

Strictly speaking there is no national market for livestock, but rather several regional markets, however sometimes stock is transported long distances interstate. For the most part, cattle and sheep are transport by truck and rail less than 400 km to feedlots, saleyards and abattoirs (ACCC 2017, 7). In 1986, in the midst of the fragmented national market for livestock, the low overall concentration of processors, and after several years of declining slaughter rates, four of Queensland's largest exporters formed Australia Meat Holdings (AMH), in what Patrick O'Leary (2008, 121) described as 'the most radical departure from the traditional business structure of the Australian meat processing industry in more than 100 years.' The

primary objective of the new consortium was to rationalise the nine abattoirs it owned such that the remaining plants could operate near full capacity (ibid. 127-28).

The merger drew the attention of the Trade Practices Commission (TPC), which allowed the initial formation however ordered AMH to divest from two abattoirs in Queensland it acquired from Borthwicks in 1988 (Bowen and Mackay, allowing it to hold a third Borthwicks abattoir in Portland, Victoria) (ibid. 127-29; Waye 1989). Judge Wilcox deemed that, after the purchase of the Borthwicks abattoirs, AMH would have accounted for 77 per cent of processing capacity in the North Queensland fat cattle market and hence would be able to co-ordinate lower livestock prices (Waye 1989). AMH argued that the boundary of the market was the entire state of Queensland, a distinction that would downplay their position, but the argument was not accepted by the TPC (ibid.).

After its formation, AMH quickly took on a militant anti-union orientation and outcompeted rivals in the markets for livestock by offering higher prices (see O'Leary 2008, 122-153, 181-216). Victorian graziers found it more profitable to send their cattle to Queensland to be processed by AMH, helping the conglomerate increase its share of the national slaughter from 8.4 per cent in 1990 to 13 per cent in 2001 (ibid.).

AMH's aggressive approach during a time of generalised overcapacity drove several processors out of the industry in the 1990s (ibid.). Rolfe and Reynolds (1999, 8-9) estimated that average capacity utilisation in the Queensland meat processing industry bounced between 70 and 80 per cent in the late 80s and early nineties, peaked in 1992-93 at 84.6 per cent, and then declined to more unsustainable levels between 69 and 73 per cent for the remainder of the decade. Fifteen export abattoirs closed in Queensland between 1984 and 1998, causing the state government to commit at least $20 million to underwrite the sector (ibid.). From a peak of 550 in 1972, the number of processor facilities declined to 310 by 1996 (Industry Commission 1994, 13; Productivity Commission 1998, 21). During this time, the number of exporters halved from 89 to 43 (Productivity Commission 1998, 22). In the middle of the 1990s employment in red meat processing had fallen to just 27,500 (ibid. app. D1).

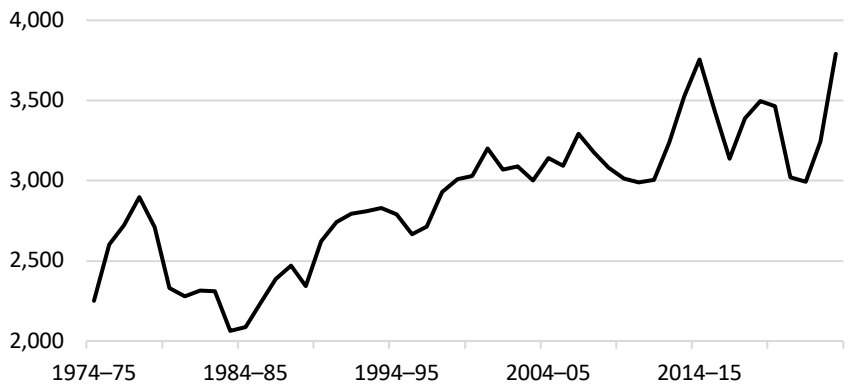
Compared to other manufacturing industries, and poultry processing, the rationalisation of the red meat industry was late. In 1996, concentration was still relatively low by international standards. That year, the five largest firms accounted

for 29 per cent of industry output, compared to 60 per cent in New Zealand, 64 per cent in Argentina and 71 per cent in the United States (Productivity Commission 1998, 22). During this period, the ownership structure of processors also changed. Foreign ownership increased, although from a relatively low base, and was the norm for the large exporters (Industry Commission 1994, 17–18). The number of co-operatives waned and there was a decline in council-owned abattoirs—from 20 public export plants in 1976 to just four in 1996 (Productivity Commission 1998, 21). The council-owned Homebush abattoir, which at its peak employed 3,000 workers, closed in 1988 (Davis 2019).

Rationalisation of red meat processors in the twenty-first century

Figure 6.3 above shows that the slaughter rate never returned to the peak of 1976 however stabilised at around 8 million cattle in the new century. Considering all red meat animals, including cattle, sheep and pigs, the total volume of processor output has surpassed the peak of the 1970s (Figure 6.4).

Figure 6.4 Annual red meat production (kilotonnes), 1974-75 to 2022-23



Data: ABARES (2024a).

Since about the year 2000, the volume of red meat produced, by weight, surpassed the peak of 1978-79. While there has been recent volatility in output, production has not fallen back to twentieth century levels.

The increased output of the red meat processing industry involves changes in the composition of animals slaughtered (ABS 2024b). Sheep processing has remained relatively stable over the decades, except mutton declined significantly and lamb has increased. Calf slaughter for veal meat was always less common and is becoming

increasingly marginal. Pig slaughter trended upwards gradually over the last 50 years from around 4.5 to 5.5 million per year.

Figure 6.4 shows that the total volume of red meat produced nearly doubled from 2 million to 4 million tonnes over the forty years between 1983 and 2023. Consolidation of the red meat processing industry has continued into the twenty-first century, but now under conditions of expansion. Over the period 1988 to 2016, the share of livestock throughput of the four largest processors increased from 24 per cent to 55 per cent (Senate Rural and Regional Affairs and Transport References Committee 2016). The market share of the big processors changes year on year. In 2025, the five largest firms account for 47.6 per cent of the market (Table 6.2).

Table 6.2 Concentration in the Australian red meat processing industry, 2025

Firm	Revenue ($bn)	Market share (%)
JBS Australia	7.8	25.5
Thomas Foods International	3.2	10.3
Teys Australia	2.2	7.2
Midfield Meat International	0.9	3.1
Fletcher International Exports	0.5	1.5
Other	17.2	52.4
Total	**31.8**	**100.0**

Data: Gonzalez (2025).

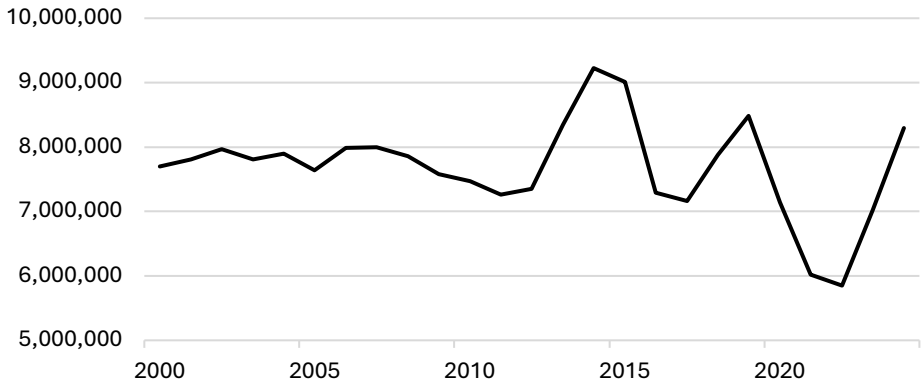
The main difference between concentration in the poultry and red meat industries is that while there exists a 'big two' in poultry, in red meat there is just one. Brazilian firm, JBS, dominates the Australian food processing sector with a market share of 25.5 per cent, whereas the next biggest firm has a share of 10.3 per cent.

Founded in 1953, JBS has grown to become the largest processor of beef and poultry in the world, and the second largest pork processor. The year 2007 was pivotal for the firm. In exchange for a shareholder stake in the company, JBS secured a low-interest loan from the Brazilian government's development bank (Howard 2017, 17). Since then, total government investment in the company has been as high as 31.4 per cent (ibid.). The loan allowed JBS to expand into the United States and Australian processing sectors, purchasing major US processor Swift for USD 1.4 billion alongside several US poultry processors (The Economist 2009). Swift was previously financed by the bigger agriculture corporation, ConAgra, the company that owned AMH. In 2007, Swift was the parent company of AMH, meaning the JBS purchase of the US

processor put AMH's four processing plants and four feedlots in the hands of the growing multinational firm. JBS has since expanded its position in the Australian meat industry, acquiring several beef, sheep, pork and seafood processors including Tasman Group in 2008, Rockdale Beef in 2010, Primo Foods in 2015 and Huon Aquaculture and Rivalea in 2021 (Tobin et al. 2022; ACCC 2017, 29). In 2011, Teys Bros and Cargill Beef Australia joined forces to create Teys-Cargill, operating across Australia and the United States (Australian Competition & Consumer Commission 2017, 29).

A decline in processor throughput equates to a decline in processor profit margins. As Figure 6.5 shows, the previous fifteen years in the beef processing industry have been particularly tumultuous, with distinct declines in throughput between 2015 and 2017 and between 2019 and 2022 (Figure 6.5).

Figure 6.5 Annual national cattle slaughter (excluding calves), 2000 to 2024



Data: MLA (2024a).

Drought settled along the eastern states of Australia from 2013 to 2016, causing increased turnoff and hence a sharp rise in slaughter numbers to a maximum in the contemporary era of nearly 2.5 million in the third quarter of 2014. Following this period, producers rebuilt their herds in 2015 and 2016, causing a sharp drop in slaughter rates and the closure of at least eight beef processing plants (Revell 2019, 6).

The roughly five-year cycle of boom and bust in slaughter numbers repeated over the years 2017 to 2022 on the back of dry and then wet spells. Slaughter rates declined significantly in 2020, 2021 and 2022 as graziers rebuilt their herds and exports were

subdued amidst the COVID-19 pandemic (ABS 2024f). In September of 2023, an El Niño event caused drought on the eastern seaboard. Since then, the national herd has declined and slaughter rates have returned to around 8 million per year—the norm for the stable period between 1997 and 2007 (MLA 2024a). Currently, Queensland is experiencing rain and flooding, which in the short term is a risk to stock lives but in the medium term will boost cattle prices and foster a period of rebuilding (Lefort 2025). At the same time, South Australia and western parts of Victoria are experiencing a historically dry period, causing high turnoff (McCubbing 2025).

New plant builds are rare in the industry. Volatile livestock supply is an obstacle to investment and it is necessary for new builds to process at a sufficient scale to be viable. In 2017 the ACCC (2017, 50) estimated this minimum was 400 cattle per day, with a plant of this scale costing between $33 million and $49 million. Larger processors have taken advantage of the recent volatility to upgrade their facilities, leveraging their relationships to secure more livestock and pushing smaller processors to the wall. In 2017, Teys spent $18.5 million on its Wagga Wagga beef abattoir, in 2018 it announced spending $30 million to upgrade the Naracoorte abattoir, and it spent an additional $42 million in Wagga Wagga to construct a low emissions energy hub for the beef processor (IBISWorld 2024f).

Thomas Foods has followed a similar strategy. After a fire destroyed its massive multi-species abattoir at Murray Bridge, South Australia, in 2018, Thomas Foods built a new, state of the art facility nearby with an expected future capacity of 1,200 head of cattle and 15,000 head of small stock per day and employing an expected 2000 workers (Thomas Foods International 2025a). The new plant includes a beef boning room with automated packaging technology and fully automated carton chilling, freezing and storage systems.

Between 2019 and 2023, JBS Australia increased its property and plant equipment assets from $0.93 billion to $1.71 billion (IBISWorld 2023b). Much of this will result from the acquisitions of Huon and Rivalea in 2021, however it is also the result of plant upgrades. In 2023, JBS spent $77 million to upgrade its Dinmore abattoir (Long 2024). The abattoir, which is located just outside of Brisbane, processes both grass- and grain-fed cattle for Australian supermarkets and for export and is the largest in the Southern Hemisphere (ibid.). The facility employs 1800 workers and in 2024 JBS introduced a second shift, expecting to eventually double processing capacity (JBS 2024). The yearly total slaughter of cattle in Australia is around 8 million, or 23,000

per day. As such, currently the Dinmore facility is able to process about one tenth of all cattle sent to slaughter, roughly 2,300 head per day. In the near future, it expects to raise that number to a staggering 3,400 head per day (Beef Central 2024b).

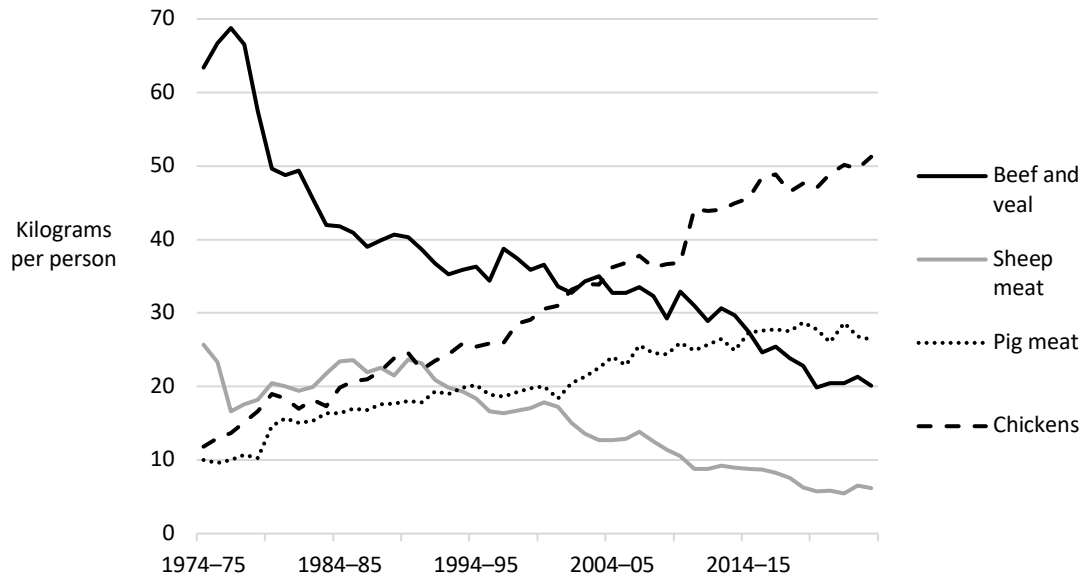
6.3 Exchange relations in meat product markets

The stability and volatility of the different meat sectors is a product of the reliability of input supply and product demand. The latter has an important bearing on the nature of competition in the meat industry. This section works through the evolution of domestic and international demand for Australian meat and how processors' relationships of exchange with wholesalers, retailers and consumers have changed.

Domestic consumption

Australians are amongst the largest meat consumers in the world. Consumption trends have changed significantly over the last 50 years (Figure 6.6).

Figure 6.6 Annual Australian meat consumption, 1974-75 to 2023-24



Data: ABARES (2024).

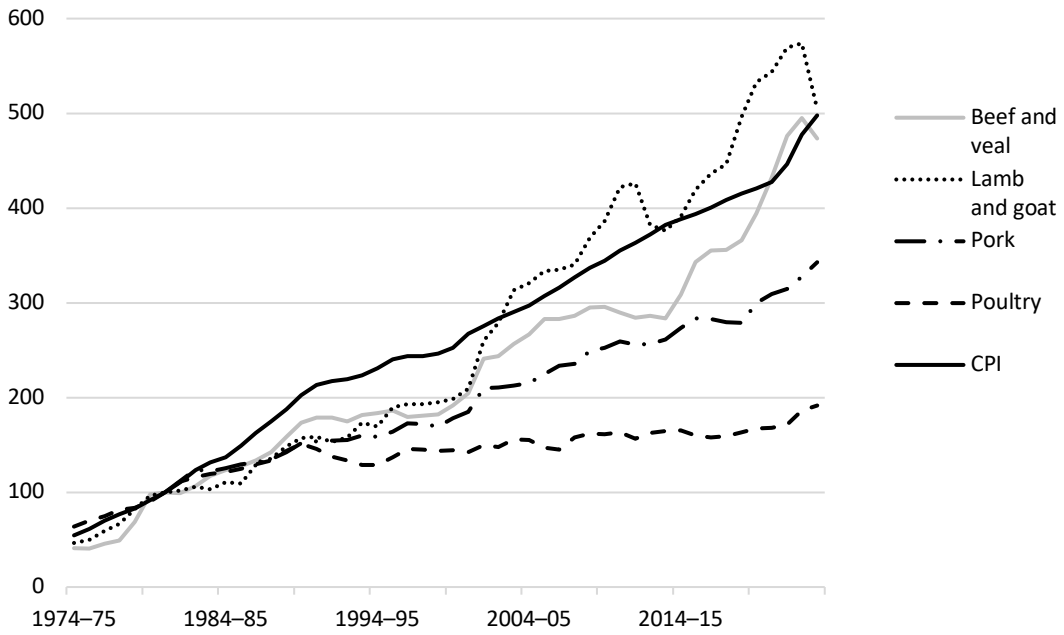
In the 1970s, when the cattle herd was at its peak and prices were low, annual beef consumption peaked at 69 kg per person. Since then, beef consumption declined and chicken and pig meat consumption increased linearly. From 1990, sheep meat consumption began to fall, entrenching the pattern of Australian meat consumption away from grazing animals and towards industrialised factory processed animals (Dixon 2002, 83). Pig meat consumption has increased almost threefold from 10

kilograms to nearly 30, however the rise of chicken consumption is even greater. Australians now consume on average more than 50 kilograms of chicken meat per year, which is more than any other meat and five times more than chicken consumption in the 1970s.

Several factors contributed to the increased demand for chicken meat—including increasing health consciousness about the animal's lesser fat content, its availability in takeaway shops, and the marketing success of KFC—however reduced real prices are an overriding trend (Figure 6.7).

Figure 6.7 Price changes of meat versus CPI, 1974-75 to 2023-24

1980-81 = 100 (first year available for pork prices)



Data: ABARES (2024).

Between 1980 and 2000, prices for all meats increased at a slower rate than the Consumer Price Index (CPI). Price increases for lamb and goat and beef and veal have since increased to about the same level as CPI in the period since. Due to strong international demand, domestic prices for beef and lamb have increased significantly in the last 10 years. Pork and poultry prices, by comparison, have continued to increase more slowly than CPI. The nominal price of chicken in particular has barely increased since 1990. The price changes for pork and poultry indicate real declines in price over time, making them cheaper for consumers. The Australian Chicken Meat Federation suggests that the real price of chicken declined 40 per cent from $10 per kilogram in 1970 to less than $6 per kilogram in 2012 (Butler 2012). In 2025, the

average retail price per kilogram is $6.62 for chicken, $14.85 for pork, $18.99 for lamb and $26.02 for beef (MLA 2025a).

Lower chicken meat prices are also the result of continuous price competition amongst processors with increasingly efficient production lines. Compared to the climate-caused volatility inherent in the supply of cattle and sheep livestock, and the volatility of export demand resulting from dynamic trade relationships, the chicken industry has remarkably stable inputs and demand. Outbreaks of avian influenza, other diseases, or industrial action can cause breaks in supply, however these are less common than the regular, multi-year long cycles of high and low rainfall that affect livestock turnoff in the red meat industry. Chicken growers and processors are thus less susceptible to price changes due to the climate (Dixon 2002, 76). They can also respond faster to setbacks: broiler chickens tend to live six to eight weeks before they are slaughtered—compared to 12 to 18 months for cattle—meaning that restocking chickens is less burdensome (The Royal Society for the Prevention of Cruelty to Animals 2020; Poole 2015). In addition, poultry processors have benefited from a long-term decline in coarse grain prices (IBISWorld 2024b).

Amidst the context of reduced input costs and strong product demand, chicken processors have successfully introduced efficiencies in the production process and achieved economies of scale. Important here is also the differences between chickens and most red meat animals. Processors have more quickly industrialised chicken and pig lives. They are bred in confined spaces, under more control than grazing animals, and their disassembly is more easily automated. Control over the production process and its increasing intensity are directly related to increased efficiency and lower prices.

Inter-capital alliances in the domestic market

In the domestic market, meat processors primarily sell to supermarkets and fast food restaurants, with the remainder going to wholesalers, independent butchers and other restaurants. Considering just beef, the ACCC (2017, 35) estimated the shares of domestic sales were: Coles and Woolworths (36 per cent), butchers (14 per cent), other retailers (13 per cent), fast-food restaurants and cafes (9 per cent), hotels (8 per cent) and other food services (7 per cent). (The amount going to fast-food chains would likely be much higher if chicken were included.) Aside from alcohol and tobacco, fresh meat is supermarkets' largest sales category (ACCC 2020, 14). In 2021, McDonalds alone bought 30 million kilograms of Australian beef for its local stores

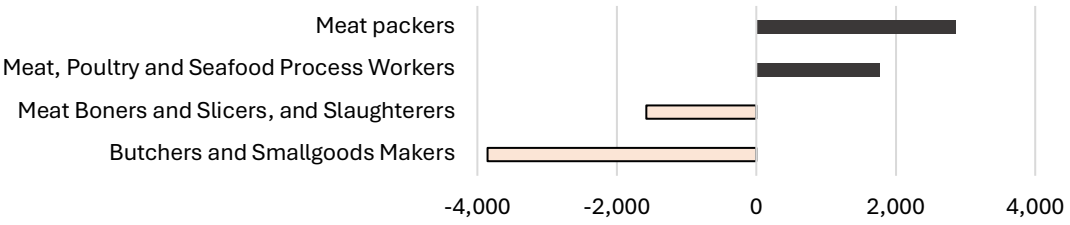
(MLA 2022). The supermarket and fast food industries are dominated by oligopolies: Coles, Woolworths and Aldi for the former and McDonalds and franchiser companies Competitive Foods (which owns Hungry Jacks) and Yum Restaurants Australia (which owns KFC and Pizza Hut) for the latter (Campbell 2025).

There are several new dynamics to the relationships between big processors and big retailers. Processors and retailers are now closer than ever, in longstanding partnerships where negotiations over the price and quantity of meat supplied occur at regular two to four weekly intervals (Stringfield 2025, Scott et al. 2009). The risk of price volatility is often shared by the two parties, who might bear equivalent burden of input price increases (ACCC 2020, 31). Supermarkets are also increasingly adopting service-kill arrangements, where they purchase livestock directly from producers and pay a fee to processors for disassembly (SG Heilbron Economic & Policy Consulting 2025).

The new competitive environment is difficult for smaller livestock producers, smaller processors, independent wholesalers and retailers, and in-store supermarket butchers. Increasingly, abattoirs are closing their doors to small producers, performing service kills for only larger customers (Australian Food Sovereignty Alliance 2025). The big retailers can command lower prices and the big processors are willing to provide them. As such, big poultry processors have exploited these arrangements through price wars that put second-tier processors on the margin of and beyond the limits of profitability.

Acquisitions in this environment led to the industry's early rationalisation. The market structure has also put a price squeeze on contract chicken growers. The Australian Chicken Growers' Council (ACGC) states that 'there are no fundamental issues of countervailing power between processors and supermarkets,' on the contrary, 'processors are effectively acting as proxies for the supermarkets' (ACGC 2024). Further, there has been a reduction in wholesale meat suppliers as the wholesale market has been bypassed by the closer relationship between processors, supermarkets, and fast food restaurants, and large processors are themselves expanding into wholesale (Tan 2024). On the retail side, skilled butchers are being squeezed out, both those employed by supermarkets and the self-employed (AMIC 2024, 10).

Figure 6.8 Employment change of selected occupations in the meat industry, 2006 to 2021



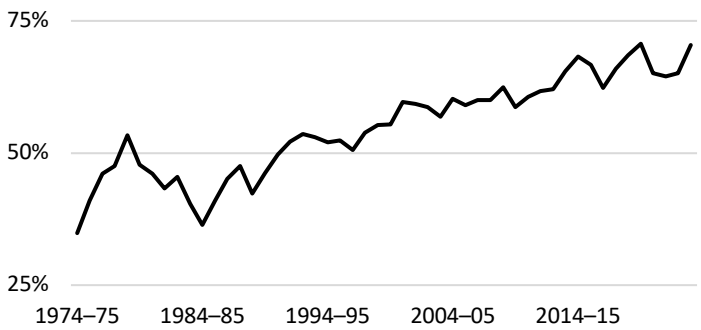
Data: Census of Population and Housing (ABS 2006; 2021).
Note: All occupations are at the 4-digit ANZSCO level. Meat packers was created by selecting all packers (ANZSCO xx) within the Meat and Meat Product industry group (ANZSIC 111), because it is necessary to exclude packers in other industries, and it was not possible to compare 6-digit ANZSCO occupations between datasets, because the 2006 data does not go to the 6-digit occupation level.

Figure 6.8 shows that butchers and smallgoods makers declined by almost 4,000 between 2006 to 2021, or 21.9 per cent from 17,630 to 13,776. Much of this decline occurred for butchers working in supermarkets, followed by those in local independent stores (ABS 2006; 2021b; AMIEU 2024; Price 2015). The rise in process workers and meat packers, in contrast, shows that the meat industry in Australia is expanding. It is expanding, however, through the continued process of task specialisation transforming skilled jobs into factory processing roles. Processor firms are also taking on a larger role in the supply chain, now performing more value-added or further processing tasks like marinating, preparing and packing shelf-ready retail products (MLA 2010, 15; see also Wright 2012, 9). This adds to the demand for lower-skilled workers in the industry.

Export markets

The Australian meat industry is differentially exposed to international trade however the red meat industry is increasingly export-oriented (Figure 6.9).

Figure 6.9 Proportion by weight of red meat production exported, 1974-75 to 2022-23



Data: ABARES (2024a).

Since the contraction in the early 80s, international demand for Australian cattle has recovered and as such export processors are expanding and processors are also diverting production from domestic to export markets. Figure 6.9 shows that over the last 10 years between 65 and 70 per cent of red meat was exported, with generally higher rates for beef and lower rates for sheep meat, a considerable increase from below 40 per cent in 1974-75 and 1984-85. By contrast, very little chicken meat is exported—around 2 to 3 per cent of national production (Chan 2024; Larter 2025)—and around 9 per cent of pork meat is exported (Australian Pork 2020).

Table 6.3 shows the primary Australian red meat export markets in 2024.

Table 6.3 Export destinations by volume (kilo tonnes), 2024

Product	Asia	North America	Middle East	Rest of world	Total
Beef and veal	854.1	426.0	36.6	26.8	1,343.6
Lamb	105.9	100.0	97.0	56.4	359.3
Mutton	148.7	26.1	66.9	13.3	255.1
Edible co-products	156.7	28.0	27.4	21.8	234.0
Goat, pork, buffalo	47.6	33.0	0.4	4.8	85.8
Total Meats	**1,313.2**	**613.2**	**228.4**	**123.1**	**2,277.8**

Data: compiled from tables available at Department of Agriculture, Fisheries and Forestry (DAFF) (2024c).
Rest of world = Oceania, Africa and Central and South America, and the Commonwealth of Independent States. Edible co-products = organs, glands, heads, tripe and brain processed for consumption; described in the industry as 'fancy meat'.

Table 6.3 shows—in terms of weight—that the bulk of red meat exports go to Asia (57.6 per cent), over a quarter goes to North America (26.9 per cent), and the remainder goes to the Middle East (10.0 per cent) and other countries (5.4 per cent). Beef and veal make up 59.0 per cent of red meat exports (although the vast majority of this is beef), lamb and mutton together make up 26.5 per cent, 10.3 per cent is edible co-products such as organs intended for consumption, and the remainder (3.8 per cent) is made up by goat, pork and a very small amount of buffalo meat.

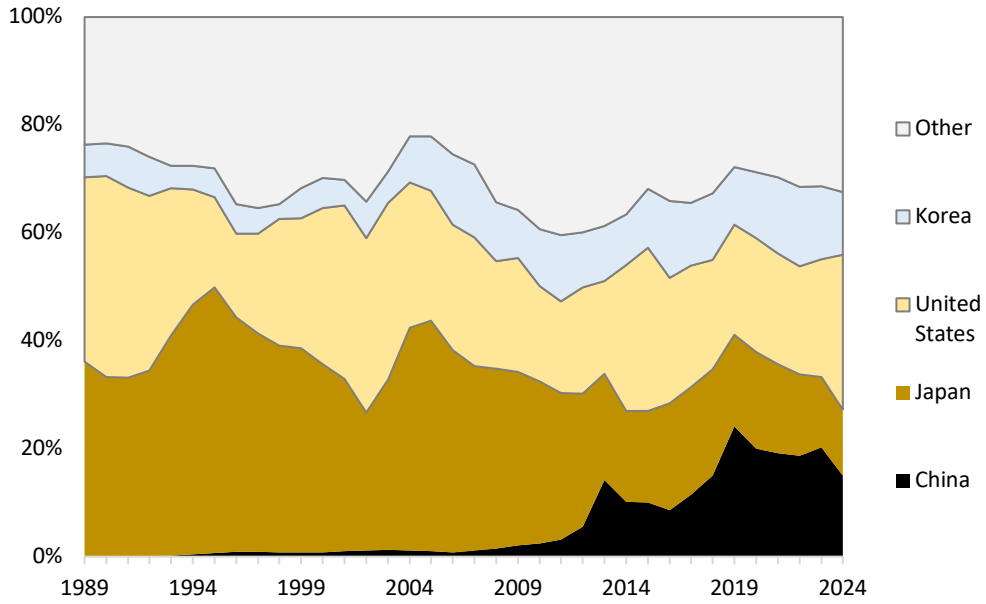
In terms of the size of each market—insofar as we can refer to a continent as a market, as opposed to a series of markets—the largest is beef and veal demand in Asia (854.1 kt), followed by beef and veal demand in North America (426.0 kt), then co-products (156.7 kt) and mutton (148.7 kt) in Asia and equivalent demand for Australian lamb in Asia, North America and the Middle East (around 100 kt). Not shown in this chart is the breakdown between chilled and frozen meats, which is otherwise available in this dataset (DAFF 2024). In 2024, in terms of weight, around

three quarters of all beef products were frozen and one quarter chilled. There are large markets for both chilled and frozen beef in North America and Asia. Mutton was primarily exported frozen, however lamb was exported both chilled and frozen. There is considerable demand for chilled lamb in North America and the Middle East.

The Australian meat export industry was built on the back of foreign investment. British, US and Japanese firms took root in the industry to cater to their own domestic demand. JBS, for their part, entered the Australian market via their expansion into the US. The product market of concern is not Brazilian consumption, which is already sufficiently catered for by domestic Brazilian production, but the markets that Australian processors have traditionally supplied and were expanding into—the United States, Japan, South Korea and now China (see Figure 6.10).

Figure 6.10 Share of meat export value, 1990 to 2024

Value of exports from the meat and meat preparations TRIEC category (1211).



Data: (Department of Foreign Affairs and Trade (DFAT) 2024)

The most significant feature of the above chart is the increasing diversification of Australian red meat exports. In 1989, just two countries dominated Australia exports at 70 per cent of the total. In the years 1995 and 2004 just Japan accounted for 49.3 per cent and 41 per cent of the value of the total. In 2024, however, the top two destinations made up just 43.6 per cent, and the top four countries accounted for 67.6 per cent. The cause of the increased diversification is the increased exports to South Korea—which increased from between 4 and 7 per cent in the 1990s to between 10

and 13 per cent since—but overwhelmingly the rise of exports to China. From just 0.1 per cent of total exports in 1989, and 2.4 per cent in 2010, the Chinese market now takes 15.0 per cent of all Australian meat exports.

In the second half of the twentieth century, the world beef market was segmented into Atlantic trade between South America and Europe and trade around the Pacific Rim, between the United States, Japan, Canada and New Zealand. This gave Australia a protected status, particularly in sales to North America, because Australian cattle were free of foot and mouth disease. But from 1994, the United States began accepting beef imports from South American countries (SG Heilbron Economic & Policy Consulting 2018).

China is now the world's largest importer of beef (MLA 2024b). Since 2012, China has increased its beef imports from a negligible amount to more than 200,000 tonnes per month—which is the equivalent to the Australian beef processing industry's entire monthly output (ibid.). While Australia and the US have benefited from protected positions as the dominant exporters into the Japanese and South Korean markets, South American processors now dominate the enormous Chinese market. In the first quarter of 2024, Brazil, Argentina and Uruguay met three quarters of Chinese demand for overseas beef (with 45 per cent of imports coming from Brazil) (ibid.). A diplomatic row after the onset of COVID-19 resulted in China banning key Australian exports, including beef, but trade between the countries has since recovered as the ban was officially lifted and Australia is now the fourth largest exporter of beef to China (Sullivan et al. 2023; Coorey 2024).

Declined red meat production in the US, where in 2024 the herd count is expected to reach the lowest point in 72 years, provides an opportunity for Australian processors to increase exports (AMPC 2024). Increased exports coincide with a relatively low Australian dollar. Exchange rates have favoured all importers of Australian beef recently except for Japan. Moreover, free trade agreements (FTA) play an increasing role in Australian exports. In 2000, less than 1 per cent of Australian red meat was exported under free trade agreements. In 2020, 86 per cent of beef enjoyed the benefit of an FTA (MLA 2021). From 2022, Australia has taken part in the Regional Comprehensive Economic Partnership trade agreement between ASEAN members, including Korea, Japan and China. Given these factors, the Department of Agriculture, Fisheries and Forestry and the Meat & Livestock Association project the volume of exports to increase over 2025 and 2026 (AMPC 2024a). Further, the Australian

government is currently seeking to modernise food safety regulations in the meat processing sector, employing cutting edge technologies to streamline meat inspection and increase the efficiency of the export process (DAFF 2024a).

6.4 The anatomy of large firms

An effect of the increasing orientation around export markets in the red meat industry is that abattoirs are becoming larger—in terms of their physical footprints, throughput, employment and turnover. The concentration of capital and larger plants means increased economies of scale and lower wage to turnover ratios (Nguyen and Ollinger 2009; Ollinger et al. 2006). Processors are also now more focused on securing a reliable supply of livestock to maintain high throughput and realise the gains of scale. In this section I show that processors maintain control in securing inputs either by exerting bargaining power over independent farmers or by integrating animal production into their own operations. Both methods appropriate a non-reproducible rent.

Turnover, employment and throughput

Considering Botwinick's analysis of the possibilities for wage growth, abattoirs are developing increasing capacities to pay higher wages. In the meat industry, data from 2019 indicates that most of exporters (53.2 per cent) have total sales of $50 million or more and fewer exporters have lower sales (ABS 2025). 10.1 per cent of exporters have sales between $200,000 and $2 million, indicating smaller firms filling niche markets. By contrast, this small turnover band is the modal category of non-exporters (34.5 per cent). Non-exporters are spread across the entire range of sales bands, with a significant proportion (18.4 per cent) taking in less than $50,000 (either contractors or firms pausing or ceasing production). Employment data suggests that most exporting processors are larger operations employing 200 or more people, whereas most non-exporters employ fewer than 20 (ibid.).

The top five red meat processors by revenue in 2024 are all major exporters. Key characteristics of these firms are described in Table 6.4.

Table 6.4 Large red meat processors

Top five processors by revenue, 2024 (see Table 6.1).

Firm trading name	Total revenue ($ m)	Employment	Number of processing plants^	Estimated maximum processing capacity	Sources/notes
JBS Australia	8,744.9	14,177	10	50,000 cattle 80,000 small stock 20,000 pigs	IBISWorld (2023a), JBS (2025). Annual report date 31.12.23.
Thomas Foods International	3,304.5	2,760	5	8,000 cattle >200,000 small stock	IBISWorld (2024g), EPA South Australia (2023), Regional Development Victoria (2025), Oldfield and Kelly (2018), Thomas Foods International (2016; 2020). Annual report date 30.6.24.
Teys Australia	3,153.1	3,006	6	29,000 cattle	IBISWorld (2024f), Teys (2023). Annual report date 31.5.23.
The Midfield Group	943.4	>1,600	1	65,000 cattle and small stock	Midfield (2025). Revenue from Table 6.2.
Fletcher International Exports	452.0	>1,300	2	90,000 small stock	Fletcher International Exports (2025), Bearup (2025). Revenue from Table 6.2.

^Excluding further processing or value-added plants.

In contrast to the red meat processors, poultry processors export to a very limited extent. The top five poultry processors by revenue in 2024 are described in Table 6.5.

Table 6.5 Large poultry processors

Top five processors by revenue, 2024 (see Table 6.2).

Firm trading name	Total revenue ($ m)	Employment	Number of processing plants^	Estimated maximum processing capacity	Sources/notes
Baiada	3,668.2	5,340	6	4 million chickens	IBISWorld (2024a). Annual report date 29.5.24. Capacity based on similar market share to Ingham's.
Ingham's	3,265.3	6,640	5	4 million chickens	IBISWorld (2024e), Ingham's (2023). Annual report date 26.6.24.
Turosi	899.1	1,312	2	~1 million chickens	IBISWorld (2023c). Annual report date 30.12.23. Capacity based on one quarter of Ingham's.
Golden Cockerel	435.1	649	1	650,000 chickens	IBISWorld (2024c), Golden Cockerel (2020). Annual report date 30.6.24.
Hazeldene's Chicken Farm	419.4	1,020	1	1 million chickens	IBISWorld (2024d), Graber (2021). Annual report date 29.6.24.

^Excluding further processing or value-added plants.

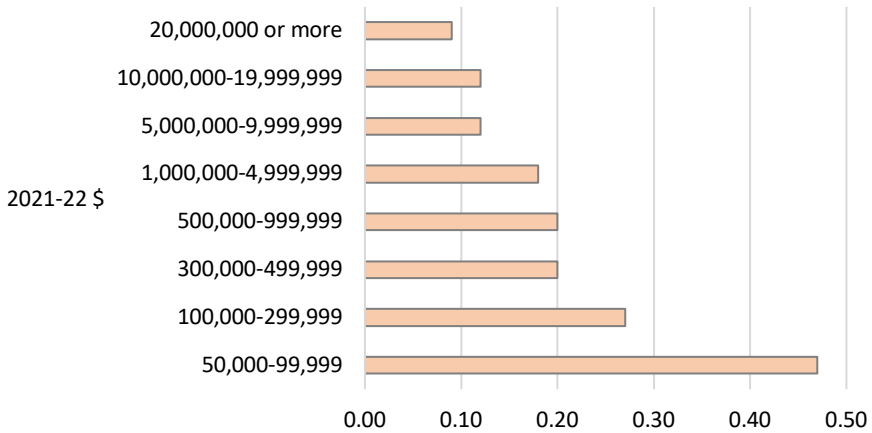
The largest ten firms in the Australian meat industry employ approximately 38,000 people. Accounting for the fact that some people employed by these companies do not directly work in the processing industry, it is highly likely that the largest ten firms account for more than half of total employment in meat processing (which is around 60,000 workers).

The throughput of livestock between these processors is enormous. Until 2009, MLA aggregated a list of slaughter numbers for each firm in Australia, however processors stopped supplying this data. As a stopgap, throughput estimates in Tables 6.4 and 6.5 were compiled from company websites, environmental protection submissions, and company reports. Revenue, employment and processor capacity are all markers of economies of scale that provide larger processors lower unit costs (MacDonald 2024).

Processor capacity is not an immediate indicator of profitability, since profitability requires actual throughput. During periods of low turnoff, as in the early 1980s beef industry, large capacity means idle capital, which is a drag on profits. Without data on capacity utilisation, other measures can be used to identify processor efficiency. Figure 6.11 shows the median wage to turnover ratio of 276 meat processors organised into groups of turnover size.

Figure 6.11 Median wage to turnover ratio by turnover band, 2021-22

Sample = 276 firms in the meat and meat product manufacturing industry group (ANZSIC 111).



Data: Australian Tax Office (2022a).

This shows that larger firms have lower wage to turnover ratios, as low as 9 per cent in the case of firms taking in $20 million or more in 2021-22. These efficient firms are the large red meat exporters and the large domestic poultry processors. They are also the largest employers in the industry. The next chapter shows that these firms

participate in both over- and under-award wage payments. On aggregate, despite employing more than 1,000 workers each, their wage bills are a relatively small proportion of revenue. As explored in chapter 4, a lower relative wage bill means that wage increases have a smaller effect on the profit margin.

Diversification

Because of the relationship between rainfall and livestock prices, volatility is an integral component of industries processing extensively produced animals. A key method for mitigating this risk is diversification (elsewhere sometimes referred to as horizontal integration). As explored already, multinationals such as JBS have diversified the location of their plants. The company now operates across four continents and is currently building plants in Asia and Africa. In addition to geographic diversity, JBS is a major operator in multiple animal and plant protein products and various industries developing products from the by-products of animal slaughter, such as tallow and bone. Table 6.6 shows that JBS's level of diversity is unique amongst the top operators in the Australian meat industry.

Table 6.6 Diversification of large firms across the meat industry

	Red meat processors					Poultry processors				
Animal	JBS Australia	Thomas Foods Int.	Teys Australia	Midfield	Fletcher Int. Exports	Baiada	Ingham's	Turosi	Golden Cockerel	Hazeldene's Chicken Farm
Cattle	X	X	X	X						
Sheep	X	X		X	X					
Goats	X	X		X						
Pigs	X									
Chickens	*					X	X	X	X	X
Turkeys						X	X	X	X	X
Seafood	X	X								
Other	dairy, fertiliser, stockfeed (overseas)			dairy	grains, pulses, cotton	property	stockfeed, property			

Data: (JBS 2025; Thomas Foods International 2025a; Teys Australia 2023; The Midfield Group undated; Fletcher International Group 2025; Baiada 2025; Ingham's Group Limited 2024; Turosi 2018; Golden Cockerel 2020; Hazeldenes Chicken 2025).
*JBS is world leading poultry processor but does not participate in the Australian poultry industry.

The activities of these large firms are generally split between the red meat processors and the poultry processors. However, JBS is the world leading poultry processor, the result of its operations in the United States and Europe. JBS does not participate in the Australian poultry industry. Most poultry processors are specialists, however Inghams has extended its operations to the development of stock feed for chickens and other livestock. Both Baiada and Inghams have considerable property portfolios, built from agriculture property investment throughout the twentieth century

(Ingham Property 2019; IBISWorld 2024a). After its purchase by private equity firm TPG in 2013, Inghams Property operates as a separate entity to the processing business.

Amongst the red meat processors, the second-tier firms are more specialised than JBS. They can be separated into those with multi-species processing plants, Thomas Foods and Midfield, and the more specialist operators, Teys and Fletcher. It appears only JBS is actively involved in pig production. Fletcher is vertically integrated from production to export, owning grain-producing and livestock farms, processors, and their own trains and carriages to transport meat across New South Wales to Port Botany. A result of their vertical integration is a further diversification of interests. To help fill their meat trains, Fletcher buys up and exports grains, pulses and cotton from farmers across the state (Bearup 2025).

Value extraction and market power by the seamless model of integration

The global meat industry is becoming 'an increasingly "seamless system," with just a few firms controlling every aspect of production' (Howard 2017, 2). Vertical integration is an increasingly important feature of Australian and international meat commodity chains (ETC Group 2022; Hayenga 1998). An important aspect of vertical integration in the meat industry is the extraction of maximum possible value from animal lives. A representative quote comes from Blair Angus, one of Queensland's wealthiest pastoralists, who straightforwardly said '[w]e focus on taking our product to the next level by capturing as much value from the animal as possible' (AgriBusiness Futures Alliance 2023). More expressive is Alex Blanchette, who describes the operations of large pig processor in the United States. Blanchette refers to the company as 'Dover Foods' and the town in which it operates as 'Dixon':

> When Dover Foods entered the economically depressed region of Dixon in the early 1990s, it had its own strategy: it wanted to achieve the "full" vertical integration of an animal. Broadly put, and though it is hardly unique in this regard, this means that it wanted to directly own and engineer every stage of the pig's life-and-death cycle. It merged historically separate industries such as swine genetics, boar studs, sow insemination, hog growing barns, feed mills, slaughterhouses, and post-kill processing facilities. It has done so with few subcontracted farmers, unlike some other corporations, owning the vast majority of the land and buildings itself. Dover Foods now derives revenue from nearly everything that goes into or comes out of the porcine species

> while operating almost exclusively on the wage labor of thousands of migrant workers (and migrant managers from other parts of the country). Not only does this one corporation own 1,200 hog barns, scores of feed mills, and some of the world's largest slaughterhouses, but it also appears to be trying to construct a closed-loop system powered by porcine substances themselves. Dover Foods converts fat into biodiesel to fuel trucks; it recycles porcine blood into plasma for feeding piglets; and it captures energy from methane in hog feces to provide energy for barns and slaughterhouses. From the outside observer's view, the company has constructed a model for industrializing porcine vitality itself.
>
> (Blanchette 2020, 15–16)

The description of employer control over the process extracting value from pigs is totalising, however it is neither fanciful nor inapplicable to the Australian context. For decades, co-products (also called byproducts) from slaughtered animals have been an important aspect of the Australian meat industry. Midfield describes the use of animal fats (tallows) for the production of frying oils, margarine, fuel, soap, greases, rubber tyres, lubricants, cosmetics, perfumes, inks, glues, solvents, explosives, textiles, cleaning products and paints (The Midfield Group undated). They also describe the use of bone meals (dried proteins) in the production of fertiliser, poultry feed, fish meal, livestock feed and pet food. To varying degrees, all of the top ten processors in the Australian meat industry extract value from animal byproducts.

Integration became a major part of the Australian meat industry in the 1960s when poultry processors replicated the model of US 'integrators' (National Poultry 2024). Until the 1990s, a ban on the import of fertilised chicken eggs meant that all Australian processors used local broiler chicken strains. The larger processors had their own nucleus breeding stocks, which they would sell to breeding farms and second-tier processors (Dixon 2002, 83–85). Now, the majority of the world's chicken meat comes from two hybrid strains, the Ross 308 and the Cobb 500, both developed for their fast growth rate and high yield and are owned respectively by Germany- and US-based firms EW Group and Tyson Foods (ETC Group 2022). Both strains are imported as fertilised eggs and hatched under quarantine conditions. The new genetic stock is purchased by Australian processors and bred over two generations before being used in their own breeding farms (Scott et al. 2009). From

the breeding farms, large processors control the entire supply chain right up until sale to retailers (Table 6.7).

Table 6.7 The integrated poultry supply chain

Industry	Description
Feed mill	Processing raw materials into chicken feed. Provides inputs to breeder and broiler farms.
Breeder farm	Raising chickens to produce eggs for hatching (not consumption).
Hatchery	Controlled conditions for egg incubation and hatching.
Broiler farm	Raises day old chickens until 4-8 weeks. Free range and barn. Often contracted out.
Processing plant	Slaughter, defeathering, evisceration, deboning chicken carcasses.
Further processing plant	Making further processed products like chicken nuggets and marinated whole chickens. Also called value-added plant.
Co-product processing	Also called protein recovery plant. Bones, cartilage and meat scraps are processed for use in pet food, pharmaceuticals and cosmetics.
Warehousing, distribution, wholesale	Urban warehouses selling to retailers. Sometimes wholesalers also retail to the public.
Transport	Trucks. Often contracted out.

Data: developed from information at Turosi (2018) and Inghams (2023).

In 2009, the ACCC (2009) found that most small regional processors were not vertically integrated. In 2025, the five firms that dominate the Australian poultry market—including both the giants Baiada and Inghams and the second-tier processors Turosi, Golden Cockerel and Hazeldene—are all vertically integrated and follow very similar versions of the process outlined in Table 6.7.

As explored above, the chicken meat industry is in a near-constant state of oversupply. Reduced input costs, processor efficiency, and economies of scale have allowed massive production growth at lower unit costs. Oligopolistic retailers demand low prices from processors, and integrated processors can provide them. Dixon articulated the dynamic clearly:

> To achieve this the processors had to be ruthless with the inputs they applied to their business, and the input over which they felt they had the most control was the contract growing fee paid to the farmer.
>
> (Dixon 2002, 87)

Growing day old chicks to slaughter weight on broiler farms is one part of the supply chain which largely remains separate from the integrators and it is a near-constant source of friction in the otherwise seamless system. While some processors own and operate broiler farms, many contract out to chicken growers. Processors retain ownership of the birds throughout the process and pay a fee to contract growers. Given the concentration of the integrated processors, they have increased bargaining power over the more fragmented contract growers. It is estimated that around 80 per cent of Australian chicken meat is grown by around 700 contract farmers, yet a similar proportion is bred, hatched, processed and distributed by just five integrated processors (Chan 2024). Growers may have access to only one or two processors in their region (ACCC 2020, 20). The bargaining power allows processors to set strict conditions on grower practice whilst reducing their own financial risk (ibid. 19). Much of the risk involves the fixed capital required to grow chickens, including large sheds with adequate ventilation, feed and water lines. The ACGC claims that growers are responsible for almost 40 per cent of fixed capital investment in the chicken meat industry, however they recoup less than 3 per cent of the retail price (ACGC 2024). This investment is a liability when processors move locations or require upgrades.

A predatory environment of low fees paid to contract growers has existed since the industry's rationalisation in the 1960s (Dixon 2002, 85). Growers unionised in the 70s and 80s, with strikes leading to multiple state attempts at fee regulation (ibid. 88). In 2020 the ACCC undertook an inquiry into competition in perishable agricultural goods supply chains, including the meat and poultry industries. The inquiry received and published several reports of harmful practices in the industry, including the unfair allocation of risk (processors able to unilaterally alter volumes), the harmful use of bargaining power (processors leveraging their monopsony to decrease grower fees, even mid-contract), and excessive processor control over grower operations (including dictating capital investment) (ACCC 2020, 49–54). As a result, the ACCC is planning an in-depth inquiry into the industry. ABARES (2025) is currently conducting a review into the relationship between growers and integrators in the industry. On top of this pressure from processors, independent chicken growers also face the threat of consolidation in their own industry. One company, ProTen, grows one quarter of all broiler chickens in Australia (ProTen 2025).

The production and market structure of the chicken and pig industries are similar (ACCC 2020, 27-30). Both independent farmers and highly integrated processors take

part in pig production on relatively small, intensive farms. Like poultry processing, pig processing is highly technical and industrialised. The recent takeover by large integrator, Rivalea, by JBS was heavily scrutinised but ultimately allowed by the ACCC in 2021. JBS is now a fully integrated operator in pig meat, spanning feedstock production, pig farming, transport, imports, slaughter, processing, value-added processing, smallgoods manufacturing, wholesale and exports (ACCC 2021).

Vertically integrating extensively produced animals

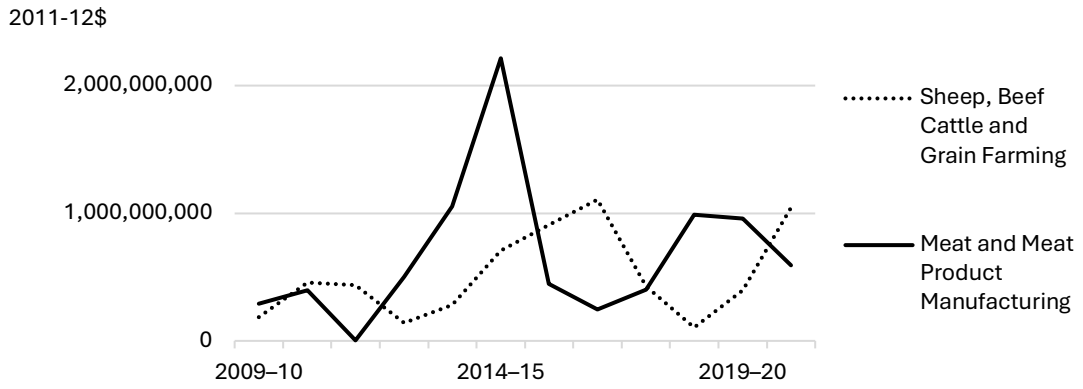
The vertical integration of extensively produced animals (cattle and sheep) differs from the integration of intensively produced animals in that it connects the supply chain to more significant land masses. The result is a higher exposure to differential rents, a value-form uncommon in the manufacturing sector, wherein firms usually access surplus profits by their unique location or patents on technologies. Botwinick writes that manufacturers can achieve this exposure:

> [C]ertain industries (or firms) that are involved in the processing of raw materials (such as steel fabrication and oil refining) may be vertically integrated so that differential rents deriving from raw materials production can filter back up to the capitalist enterprise as a whole.
>
> (Botwinick 2018, 276)

By owning farms where animals are raised, processors can access the differential rents (surplus profits) derived from the unique, non-reproducible conditions of production on the land. Importantly, 'it is these excess profits that form the potential base for above-average wage rates' (Botwinick 2018, 278).

Unlike in the United States, where the major processors source a significant proportion of livestock from their own feedlots (ACCC 2017, 19), the relationship between livestock producers and processors is more fragmented in Australia. There is an inevitable conflict of interest between the parties over livestock prices. Such conflict is heightened by the volatile nature of the industry; and currently there is a paucity of financial instruments (swaps, derivatives) available for firms to mitigate this risk (Beef Central 2024a). Figure 6.12 shows total profits in the sheep, beef cattle and grain farming industries versus meat processing industries.

Figure 6.12 Total profits in the livestock and processor industries, 2009-10 to 2020-21



Data: ATO (2022b).

Livestock prices have surged and slumped along with volatile swings between wet and dry seasons over the years 2009-10 to 2020-21. The result is a complementary swing in profits between producers and processors. On its own this complementarity is neither good nor bad. Inefficiencies result—to use the orthodoxy's term—when there is unequal bargaining power. During 2013 and 2014, at the peak of the drought, was a particular fractious time in the industry where exporters had considerable bargaining power and profited handsomely (ACCC 2017, 3–4). Like the contract chicken growers, livestock producers can find themselves with a limited number of regional processors. The processing sector is an oligopoly nationally, a duopoly regionally, and in certain areas, a monopoly (Senate Rural and Regional Affairs and Transport References Committee 2016, 6). The AMPC counted around 100 red meat processors in Australia, including the five dominant participants, and approximately 77,000 cattle properties (AMPC 2016, 32).

The AMPC identified profiteering as a cost inefficiency that may arise from this situation:

> This type of structure is traditionally typified by a lack of information sharing, as information asymmetries can be capitalised on to capture additional profit at the expense of participants higher or lower in the chain[.]
>
> (AMPC 2016, 32)

Considering Botwinick's intervention on manufacturing firms' exposure to differential rents, it appears here that processors can appropriate this rent through

their bargaining power over livestock producers, without themselves being vertically integrated. There have been several attempts to identify the share of profits between producers, processors and retailers in the Australian beef industry (ACCC 2007; 2017, 36). The models face multiple problems (see ACCC 2017, 36-9), but chief among them is that domestic retail meat sales represent a small proportion of total sales given that most beef and lamb is exported. In lieu of a more representative model, it is helpful to consider the relationship between producers and processors more broadly.

The ACCC (2007; 2017) and the Senate (2016) have investigated the ability of consolidated meat processors to depress livestock prices and reduce producer margins. There are five main methods of livestock sale: auctions at saleyards; direct purchase from buyers on the seller's property (paddock sales); delivery to processors with price established at slaughter ('over the hooks'); online auctions; and forward contracts where the number, price and length of contract are negotiated (ACCC 2020, 22). Different buyers tend to purchase livestock in different ways. Live exporters primarily purchase through saleyards, large processors by over the hooks, and supermarkets by forward contracts (ACCC 2017, 6). Saleyards are more susceptible to bid-rigging by cartels (ACCC 2020, 57) than other methods of sale.

In 2015, nine cattle buyers boycotted the Barnawartha saleyard near Wodonga, Victoria, after the saleyard changed the sale process from weighing cattle after the sale to weighing before the sale, a change the processors objected to (Australian Competition & Consumer Commission 2017). With fewer buyers present, cattle sold on that day attracted a lower price. The ACCC did not find evidence of collusion or a breach of the Competition and Consumer Act, a finding that was disputed by the farmer's lobby (Nason 2016). Aside from this instance, there are certain features of saleyards that allow for cartel-like behaviour, including a close relationship between buyers from different processors and buyers simultaneously representing different processors (The Senate 2016).

But saleyards are one method of sale; up to 90 per cent of livestock are acquired directly by processors and sold over the hooks, where cattle prices are determined after slaughter by accredited graders (ACCC 2017, 9). Grading is associated with a lack of transparency and information asymmetry, generating a lack of trust in the process. Graders have a conflict of interest insofar as they are processor employees, and it is possible for animals to degrade whilst they are in the processor's care (ACCC 2020,

59). The MLA has sought to develop technology that objectively measures carcase quality, however it is not widely used in the industry (ibid.).

These concerns are not unique to the Australian industry or the Australian operations of multinationals JBS and Teys-Cargill. The US Department of Agriculture has investigated price spreads in the meat industry since the 1990s, and has not found statistical evidence of profiteering (MacDonald 2024). But cattle producers continue to express grievances, filing a class action lawsuit against the four biggest meat packers in the country, JBS, Tyson, Cargill and National Beef, in 2019. JBS's established strategy is to deny wrongdoing and settle out of court—the company agreed to pay $83.5 million (USD) to the claimants (Beef Central 2025b). Prior to this, facing charges of price fixing by artificially limiting production and increasing prices for retailers, JBS paid out more than $100 million (USD) in multiple settlements to pork and beef purchasers between 2020 and 2023 (Scarcella 2023; Funk 2022). The strategy is not unique to JBS. In January of 2025 Cargill (the US side of the Teys-Cargill partnership) agreed to pay a $32 million settlement for turkey price fixing (Scarcella 2025).

Scrutiny over the companies extends beyond producer-processor relationships. In 2017, members of the Batista family, owners of JBS, admitted to an extensive operation to bribe 1,829 Brazilian politicians and officials in exchange for their support for funding from Brazil's development bank—which they received and was crucial to their 2007 expansion (Tobin et al. 2022). JBS's parent company, J&F Investimentos, was fined $3.2 billion (USD) by Brazilian authorities and made further settlements with the US Department of Justice over the affair. The company is embroiled in multiple other scandals, including Indigenous rights violations, illegal deforestation of the Amazon, and the employment of children (Funk 2025; Global Witness 2025). In Australia, JBS is in a longstanding legal dispute, alongside PwC, with the Australian Tax Office (Chenoweth 2022). Despite these, JBS was approved in 2025 by the US Securities and Exchange Commission for dual listing on both the Brazilian and New York Stock Exchange (Beef Central 2025a).

Cattle and pig processing plants are larger in the United States than in Australia. In the US a large plant might process 5,000 cattle per day, whereas the biggest plant in Australia, JBS's Dinmore facility, can process up to 3,400 (MacDonald 2024). To realise the gains of economies of scale, high capacity utilisation is required, increasing processors' dependence on a high, regular volume of livestock. This has

pushed processors to take direct ownership over livestock production and feedlots (ibid.). Whilst processors and the ACCC often draw a comparison between the US red meat industry as a highly integrated market and Australia as fragmented, in reality vertical integration is a key feature of all large processors on the Australian scene and also amongst several smaller operators.

Small operators backed by big capital (e.g. mining magnate Andrew Forrest and Queensland's wealthy Angus family) are adopting seamless supply chains, and incorporating livestock production, processing and export into their businesses (Thompson 2018; AgriBusiness Futures Alliance 2023). And there are several examples of large cattle producers extending down the commodity chain into processing, including NH Foods, Stanbroke Pastoral, Australian Agricultural Company, and Australian Country Choice (Finlayson 2018). All five of the largest firms in the red meat processing industry are vertically integrated to various degrees (see Table 6.8).

Table 6.8 Vertical integration of large firms in the red meat industry

Industry	JBS	Thomas Foods International	Teys	Midfield	Fletcher International Exports
Grain production					X
Livestock production	X	X		X	X
Feedlot	X	X	X	X	X
Processing plant (abattoirs)	X	X	X	X	X
Further processing plant	X	X	X		
Co-product processing plant	X	X	X	X	X
Transport (rail, road)	X	X		X	X
Export (trade logistics)	X	X	X	X	X
Wholesale (domestic trade)	X	X	X	X	
Retail	X				
Other	automation technology				

Data: JBS (2025); Thomas Foods (2025); Teys (2023); The Midfield Group (undated); Fletcher International Group (2025).

Vertical integration in these firms extends from livestock production and feedlotting to export and wholesale. The key connection considered here is the ownership of livestock farms and feedlots. JBS participates in pig farms and growing sheds via its Rivalea and other pig meat enterprises, however in the beef industry its main involvement is the six feedlots it operates. In addition to these, JBS operates 11 beef processing plants, eight value-added facilities, eight distribution centres, and three seafood processing plants (JBS 2025). Further, similar to its operations in Brazil and the US, JBS operates its own trucking fleet in Australia totalling 48 machines (Condon

2025b). Thomas Foods International owns farms producing sheep, cattle and potatoes, as well as one feedlot, five processing plants, multiple seafood processors and controls wholesaling and exporting operations (Thomas Foods International 2025b). Teys Australia owns three feedlots, six meat processing plants, and multiple value-add facilities (Teys Australia 2023). Midfield Meats claims its Warrnambool abattoir is the largest multi-species processor in Australia, with an annual throughput of around 3.4 million cattle and small stock (The Midfield Group 2025). Midfield participates directly in livestock production through farm ownership, however it is also a major livestock purchaser in Victoria. Vertical integration is a core part of Fletcher International's business strategy. The firm is involved in grain and sheep production, lot feeding, processing, transport (via their own trains), and export logistics.

It is difficult to estimate the proportion of livestock sourced through processor-owned farms and feedlots and the proportion bought from independent farmers. Processors suggest the vast majority of throughput is sourced on the market at saleyards or over the hooks (ACCC 2017, 20), however recent data suggests otherwise. For one, lot feeding has become an increasingly important feature of the Australian red meat industry, with nearly half of cattle going to slaughter via feedlots, up from less than 10 per cent in the 19990s (MLA 2023). Aside from the higher prices fetched for heavier cattle, lot feeding also provides a less seasonal, year-round supply to processors that is proving increasingly important in the industry (Finlayson 2018, 11). Second, large processors are coming to dominate lot feeding. JBS, Teys, and NH Foods, three of the largest processors with feedlots, made up a combined 22.5 per cent of industry revenue in lot feeding in 2024 (Reeves 2024), and data from Beef Central (2023) suggests that around half of total feedlot capacity is owned by integrated processors.

Two methods of supply chain control are viable. Processors can leverage their market power over livestock producers externally as a monopsony. Or they can take ownership up and down the chain and realise this control internally.

The value of Australian differential rents

The differential rents drawn from Australian land hold value only by comparison to alternative propositions overseas. Australian processor profits—and thus the wage

ceiling for Australian process workers—rely on the quality of conditions in livestock production.

The Australian continent does indeed provide certain competitive advantages (Teys Australia 2016; Australian Farm Institute 2014; Fell 2022). Whilst the proportion of land with sufficient rainfall for crop production is low, most areas of Australia are suitable for extensive livestock grazing, facilitating efficient cattle and sheep production. Predominantly, animals can be grazed year round without shelter due to the mild weather. As an island country with strong biosecurity controls (including traceability via the National Livestock Identification System), Australian stock are free of all major epidemic diseases. In addition are strong food safety standards (Meat Standards Australia), proximity to Southeast Asian markets, strong free trade agreements, and a reputation for robust animal welfare and environmental sustainability. A consequence of these is the Australian meat industry is a highly successful exporter and is internationally competitive despite receiving a relatively low level of government subsidies (DFAT 2017; ACCC 2017, 34). Livestock producers, exporting processors, and retailers all deploy branding that meat products are 'Australian made' to differentiate products in overseas markets (MLA 2025b).

But how durable is the Australian competitive advantage in livestock production? And how might processors adapt to changing local and international competition and a changing climate? Locally, the live export industry is a direct competitor with processors over livestock. Exports of live sheep have declined from around 6 million per year in the 1990s to less than 2 million in 2019, and the Federal Government plans for all live sheep exports to cease by 2028 (DAFF 2024b; ABS 2024a). In contrast, exports of live cattle have increased from negligible amounts in the early 1990s to regularly more than 1 million animals each year in the 2000s and 2010s (ABS 2024a). Given the success of the live cattle export industry, the AMPC (2016, 41) identified that if global meat processors set up a major processor in a low-wage country like Indonesia or Malaysia, the Australian processing industry could be effectively offshored. This has been an enduring concern for the AMIEU (Jerrard 2020).

A former accountant in the red meat industry considers the risk minimal, given the value big retailers hold in being able to say their product is Australian made (Stringfield C., personal communication, 17 February 2025). Botwinick (2018, 230) argues that fixed capital is both a barrier to entry and a barrier to exit. Since the big processors are putting money towards plant upgrades, it does not appear that any are

letting their plants depreciate in preparation for a relocation. However, multinational JBS is currently pursuing an alternative model, where slaughter and carcass preparation remains onshore and further processing is offshored (Beef Central 2025c). I take up this discussion in the concluding chapter, where I argue that partial offshoring presents a major challenge for Australian meat workers.

Processors attachment to Australian land and livestock production is a fundamental source of value for the industry. But it is also a risk. In their 2016 report, the AMPC outlined seven environmental risks for the industry, including the increased incidence of extreme weather events, changing weather patterns resulting in warmer northern regions and cooler southern regions, and biodiversity loss connected with the meat industry that damages the industry's reputation and results in a reduction in available grazing land. Blanchette (2020, 15) talked about the processor's dream of the 'full' vertical integration of the pig industry, total control over the animal's whole life and death cycle. A feature of that dream is the hog growing barn, an enclosed space where pigs are raised and fed, often using automated feeders, under controlled environmental conditions. Even when they are raised free range, pigs' access to space is limited, not unlike cattle in feed lots.

Could such conditions take root in the Australian cattle and sheep industries to mitigate climate risk? What are the limits of intensive factory farming in Australia? Feedlots are already a form of intensive farming, and a form that is only growing in relevance. In an Australian first, Teys has just finished a three-year trial of a feedlot shed in Victoria to preserve cattle against cold and wet winters (Barker 2025). They indicate that in specific circumstances, productivity increases can be achieved, including more cattle per square metre, heavier weights and reduced illness. This kind of enclosed, intensive production already happens in the dairy industry (which use the same subspecies of cattle as most cattle in the meat industry, *Bos taurus taurus*). Dairy cows are kept in a continuous cycle of pregnancy, birth and lactation to maximise milk production. About 20 per cent of Australian cow's milk comes from cows that are housed year round in sheds (Doak 2024). It appears that a further intensification and integration of the red meat industry, under more controlled and cost-effective production methods, is plausible.

6.5 Conclusion

This chapter has shown that large capitals in the Australian meat industry have low wage bills due to economies of scale. This should mean that they are in a good position to afford wage increases. However, an analysis of the capacities to pay of large capitals in the Australian meat industry is insufficient to answer the question of whether there is space for wage growth for Australian meat workers. It is necessary to consider the boundaries of the market the firms participate in, the possible presence of more efficient rivals overseas, and whether the firms have access to non-reproducible conditions of production.

In the case of the Australian chicken meat industry, which is largely protected from international trade, it is fair to consider the two largest firms, Baiada and Ingham's, as regulating capitals. Both have survived long battles of price competition and acquisition and have emerged as dominant firms, each with multiple plants, employing thousands of workers and processing millions of birds weekly. For the most part, this chapter has found that Ingham's and Baiada do not have access to non-reproducible conditions of production. As the Australian Chicken Meat Federation (ACMF) suggest, 'market signals move quickly in the supply chain, as do advances in farming and processing' (ACMF in Finlayson 2018, 30). Processors rely on imported genetic stock which they do not have exclusive access to. And whilst they have considerable power over chicken growers, and have integrated growing into their own operations to an extent, differential rents from chicken farms are likely minimal given their small scale and the fact that chickens are grain and not grass fed. Both Ingham's and Baiada, however, have considerable property portfolios, both alongside and as a result of their poultry operations. Access to ground rent from their properties can cross-subsidise their other operations and could provide more room for wage growth.

In the case of Ingham's, which was bought by a private equity group in 2013, had its land sold off to a real estate investment trust, and was then itself sold on, wage growth may be more limited. Certainly the capacity for wage growth is particularly constrained amid short-term ownership by private equity firms interested in appropriating a one-off value-creation opportunity (Barber and Goold 2007). Private equity firms' ruthless attempts at cost reduction are associated with numerous cases of wage theft of migrants on temporary visas working for high-end Australian restaurants (Schneiders 2022). Ingham's is not the only large processor taking this

route. In 2021, second-tier processor Hazeldene's Chicken Farm sold to BGH Capital in 2021 (Verley 2021; see also Lynch 2021).

For several reasons, it is harder to identify whether large capitals in the red meat industry are regulating or not. These include the export orientation of the sector, its dominance by multinationals (JBS and Teys), and the global differences in livestock production conditions. Industry groups repeatedly cite high Australian wages as a limit to the international competitiveness of Australian processors, however they tend to downplay the value of the industry's access to Australian land. Such land is a non-reproducible resource, meaning that livestock producers, monopsonistic processors, and integrated processors have access to surplus profits inaccessible to overseas operators. The competitive advantage of Australian conditions of production are highly valuable to the industry and cut through the industry's claim that wages are a drag on competition.

Chapter 7 – A new industrial settlement

> The competition among workers is only another form of the competition among capitals.
>
> (Marx 1973, 651 in Botwinick 2018, 198)

Old divisions in global meat trade are eroding. Japan and South Korea are expected to accept imports of Brazilian beef for the first time following the country's recognition as foot and mouth disease free without vaccination (Walendorff 2025). With increasing international competition, the importance of cutting unit labour costs will only increase for meat processors (Kandel and Parrado 2005). Since the chain was introduced to Australian sheep processors in the 1930s, increasing task specialisation of the labour process has been a fundamental method for labour cost reduction and process control across the meat industry. And as cost pressures intensify, so too does task specialisation, in particular amongst larger firms (Norton and Rafferty 2010, 31).

An important result is that work in the meat industry is not just difficult—as it always has been—but monotonous, requiring task-specific but not general skills, and it is now a lower status job. Adding to the problem is a changing toll on meat workers' bodies. A particularly painful 'break in' period is expected for new recruits in the industry as workers' bodies adapt to the intensity and repetition of the new movements (Blanchette 2020, 183), and the incidence of musculoskeletal injuries in the industry far exceeds the national average (see below). Compared to better-paying alternatives like work in mining, meat work is now a less attractive career (Norton and Rafferty 2010, 9, 17).

Employers' attempts to solve the labour cost problem through task specialisation caused a labour supply problem. The red meat industry experiences very high labour turnover each year, as high as 61 per cent (AMPC 2020, 17). The issue is particularly problematic for the meat industry, which is labour intensive, where profit margins depend on capacity utilisation, and which experiences volatile labour demand. But 'labour shortage' is not a neutral term (Campbell 2019). From the union's perspective, the industry would be a much more attractive place to work if employers were willing to pay market rates—that is, lifting wages in response to the alleged

shortage (AMIEU 2018, 3). As this chapter shows, employers took a very different route to solving the dual labour problem.

This chapter works through two key phases in managing the dual labour problem, from employers' increasing militancy in the 1980s and into the era of enterprise bargaining, to their capacity to wholly sidestep enterprise agreements through the engagement of labour hire workers.

In section 7.1 I address employer militancy in the era of enterprise bargaining. Starting with the Mudginberri dispute of 1985, I explore advances made by the newly formed Australia Meat Holdings group from 1986 to the mid-1990s. Using the Workplace Agreement Dataset, I establish that meat workers achieved below average wage increases in almost every year since the introduction of enterprise bargaining in 1991. Amidst unfavourable microeconomic reform, meat workers lost control over the labour process.

In section 7.2 I unpack the most distinctive contemporary feature of the meat industry workforce—the high proportion of temporary migrant labour. These workers constitute a 'pure' form of reserve army insofar as they are brought into the country, form a core part of the labour force, and then they are subsequently expelled. I show that temporary migrant workers have been employed in the meat industry extensively since 2004, however the most egregious problems associated with the visas develop from the late 2000s when low-skilled workers on backpacker visas were engaged by labour hire companies. I show that the PALM scheme has replicated the same problems of wage theft, extreme work hours and other forms of financial abuse, and that the root of the problem is employers' attempts to abuse loopholes in labour standards to minimise production costs. The exploitation of temporary migrant workers is an insidious form of low-wage competition.

7.1 Employer militancy in the era of enterprise bargaining

As explored in chapter 5, the introduction of flow-line technology to the beef industry occurred three decades later than in sheep abattoirs. The CanPak system of continuous on-the-rail dressing was introduced to Australian beef abattoirs in 1961 and coincided with employers' attempts to guarantee worker output by inserting tally provisions into the state and federal meat awards. This period is particularly interesting in the history of the Australian meat industry because the employers' plan

backfired. Despite the re-orientation of work around the disassembly line, workers in the beef industry were able to shape the work arrangement to their own ends. They worked quickly on the line, but at their own pace. They were rewarded by short working hours, generally 6am to about 12pm or 1pm, offering a decent work-life balance (Norton and Rafferty 2010, 17).

A primary issue with the tally was the fixed rate of output. Employers paid over-tally rates for extra production, which limited productivity growth. Technology could not solve the problem because efficiencies introduced into the processing line could be co-opted by labour in the form of shorter working hours (Rolfe and Reynolds 1999, 16). The dual dilemma of a slow uptake of new technologies and a rigid working arrangement meant productivity growth was low in the meat industry in the 1980s and 1990s (Jahan et al. 2003, 9), adding to the other problems in this period including overcapacity and rising international competition.

In 1988, the new conglomerate, AMH, initiated a conflict that led to a series of protracted disputes that would change the path of the industry's development permanently. AMH and other militant employers were successful in removing tally provisions, lowering hourly wages, increasing the length of the working day, and introducing a second shift. The employer offensive 'broke the back of worker control of production' and permanently altered the balance of power between employees and employers in the red meat industry (Norton and Rafferty 2010, 16; see especially O'Leary 2008). In this section I articulate the key elements of the employer offensive of the late 1980s and 1990s and trace its consequences into the twenty-first century.

Employers on the front foot

Before getting to the AMH offensive, it is helpful to go back to 1985 when a significant blow was dealt to the AMIEU at a national level resulting from its dispute with a remote buffalo abattoir on the Mudginberri station in the Northern Territory (Green Left 1996; Kitay and Powe 1987; Kitay 2001; Brian 1999). The Mudginberri meat workers were employed on individual contracts to a third party (a labour hire company). Their pay and conditions were below the Federal Meat Industry Award, however the itinerant workers were not interested in collective action. Despite this, the AMIEU initiated a picket on the plant to maintain a floor to standards in the industry. Some of the plant employees joined picket, but most didn't. With the financial support of the National Farmers' Association, the Meat and Allied Trades Federal Association (MATFA) and the Country Liberal Party, the manager of

Mudginberri, Jay Pendarvis, sought an injunction on the AMIEU under the secondary boycott provisions of the Trade Practices Act. The last time this law was used against a union was the gaoling of Victorian Tramways union leader Clarrie O'Shea in 1969. The AMIEU defied the injunction and refused to lift the four-month-long picket, which resulted in their assets being seized and, in response, three national strikes of meat, maritime and transport workers. The dispute was resolved by the Arbitration Court in 1986, with some concessions to the union, but the AMIEU was ordered to pay Pendarvis $1.76 million in damages—a major hit to the organisation. This dispute was particularly emboldening to then leader of the Opposition, John Howard, and the barrister representing Pendarvis who became Howard's longstanding Treasurer, Peter Costello.

Arguably the AMIEU lacked real power on the Mudginberri shop floor, but this was an exception in Australian meatworks. The union was generally very successful in drawing concessions from individual employers. But with the formation of AMH in 1986, the AMIEU was confronted with an employer that could shift resources between multiple plants and outlast workers in drawn out campaigns (O'Leary 2008, 126–50). AMH's first salvo was in 1986, shortly after the conglomerate was established, when it dismissed the entire workforce of the Fitzroy River plant in Rockhampton, Central Queensland. After two months, workers agreed to return to work under reduced conditions and in the absence of some of the more militant unionists who were blacklisted (ibid. 132-33). But the defining dispute of the time was in Portland, Victoria, 360km west of Melbourne.

In April of 1988, AMH retrenched around 550 workers at its Portland plant, claiming there was not enough livestock available. Five months later the workers were officially terminated, after which the company made public its intentions to re-open the plant under a new award with lower pay and conditions (O'Leary 2008, 137-49). The over-award agreement negotiated with the plant's previous owner, Borthwicks, afforded better wages and conditions than the Federal Meat Industry Award (FMIA), which at the time had not kept pace with other awards. As AMH sought to re-open the plant, union members formed a longstanding picket, causing the Full Bench of the Commission to intervene in March of 1989. The Commission issued a new award that was superior to the outmoded FMIA however it included increased tally quantities and significantly reduced wages, which in some cases amounted to a reduction in excess of $100 per week. It was thus a brutal defeat for the AMIEU—the new federal

award ‘negated almost two decades of over-award bargaining by AMIEU at the Portland plant’ (ibid. 149)—and workers eventually returned to work in July of 1989.

The Portland win put extra pressure on meatworks in the rest of the state, as AMH’s low wage agreement afforded it a considerable cost advantage and the AMIEU was pushing up wages elsewhere in defiance of the ACTU’s ‘no extra claims’ principle (O’Leary 2008, 159-72). The employer group MATFA resolved to take on the AMIEU in Victoria: ‘MATFA and its members chose the path of open, direct conflict in the field’ (ibid. 159). The Victorian employers refused to honour or renegotiate over-award agreements and sought to establish a new lower-wage state award. In response, the AMIEU staged rolling stoppages at sites one after another in an extraordinary, protracted dispute that lasted from 1989 to 1992. Strikes were held on a full 23 per cent of available working days during this two-and-a-half-year period—a cumulative five months of industrial action. Eventually the Commission got involved and ran the Meat Industry Inquiry of 1990 to 1992 which led to a Full Bench Decision that rationalised around 50 awards to just three and in which seniority clauses and the tally were both abolished (except where negotiated in enterprise agreements). As the inquiry was underway, the employer bloc fell apart under pressure from the union. Individual employers broke ranks from MATFA’s aggressive, centralist position and negotiated enterprise agreements individually with the AMIEU. On 17 November 1991 the first enterprise agreement was certified in the Victorian meat industry, and MATFA was excluded from negotiations in dozens of other agreements that followed. Strong worker militancy at the plant level had worked to successfully divide employers.

After their win in 1989, AMH sought similar wage cuts in their Queensland operations (O’Leary 2008, 184-210). At the same time, the ACTU pressured the AMIEU to settle enterprise agreements throughout the state. As AMH sought out a new low-wage minimum rates award in the Commission in 1994, the company negotiated with the union at each plant over enterprise agreements. Between 1993 and 1997 slaughter rates declined in Queensland, which meant conditions were not favourable for labour in negotiations. The union imposed an eight-day fortnight on AMH plants, and in response AMH ran minimum tallies to limit workers’ pay and introduced a second shift to maintain production levels. Against the advice of state officials, members at the Fitzroy River went on strike, walking into the management ‘trap’ as they were immediately locked out and then dismissed (ibid. 203). Management then re-opened the plant with labour hire and workers who crossed the picket line, and the picket

collapsed in October of 1995. Union representation was decimated at the plant, and the AMIEU lost right of access entirely in 1996 as the newly elected conservative Howard government introduced anti-worker legislation. The resulting enterprise agreement settled in March of 1996 increased ordinary hours of work from 37 to 40, abolished the tally and introduced time-based wages at lower rates per hour.

By the mid-1990s AMH came to look more like a modern meat multinational—between 1990 and 1996 it was progressively bought out by the giant US food processor, ConAgra (O'Leary 2008, 187). As in Victoria, the Queensland members of the AMIEU fared better against the less oligopolistic employers. The smaller employers had held out negotiating until the AMH Queensland disputes were settled, hoping to avoid locking in uncompetitive wage deals. However they eventually conceded to relatively higher wages and retaining the tally (ibid. 195). As explored in the previous chapter, the 1990s was a difficult time for smaller processors—many were forced out of the market entirely (ibid. 209-11).

Missing out on gains from enterprise bargaining

A key feature of the arbitration system of labour regulation was the attempt to maintain and limit wage relativities between industries. Applying principles of need, fairness, and comparative wage justice, members of the twentieth century industrial tribunals often based award wage increases on national productivity, thereby reducing inequities that arose from differences between high and low productivity growth industries (ACIRRT 1999, 17, 40, 64; Watson et al. 2003, 107-13; Beggs 2021, 143-52). Given the presence of segmented product and labour markets elaborated in chapter 3, labour mobility could not be relied upon to resolve wage differentials between industries. Another basis of wage increases was movement at the top end, the so-called pace-setting awards such as the metals award. The courts established that gains in pace-setting awards would flow on to other awards, which also worked to limit relativities.

Given differences between the pay of workers on less favourable awards and those on over-award agreements, there is some debate as to whether the Australian system was effective in compressing wage relativities (Adreskelas 1984, 43–50). Other evidence suggests it was effective in reducing wage inequality, particularly by reducing the incidence of low pay (ACIRRT 1999, 83, 93). There is less debate, however, about the decompression that occurred in the 1990s due to the institutionalisation of enterprise bargaining.

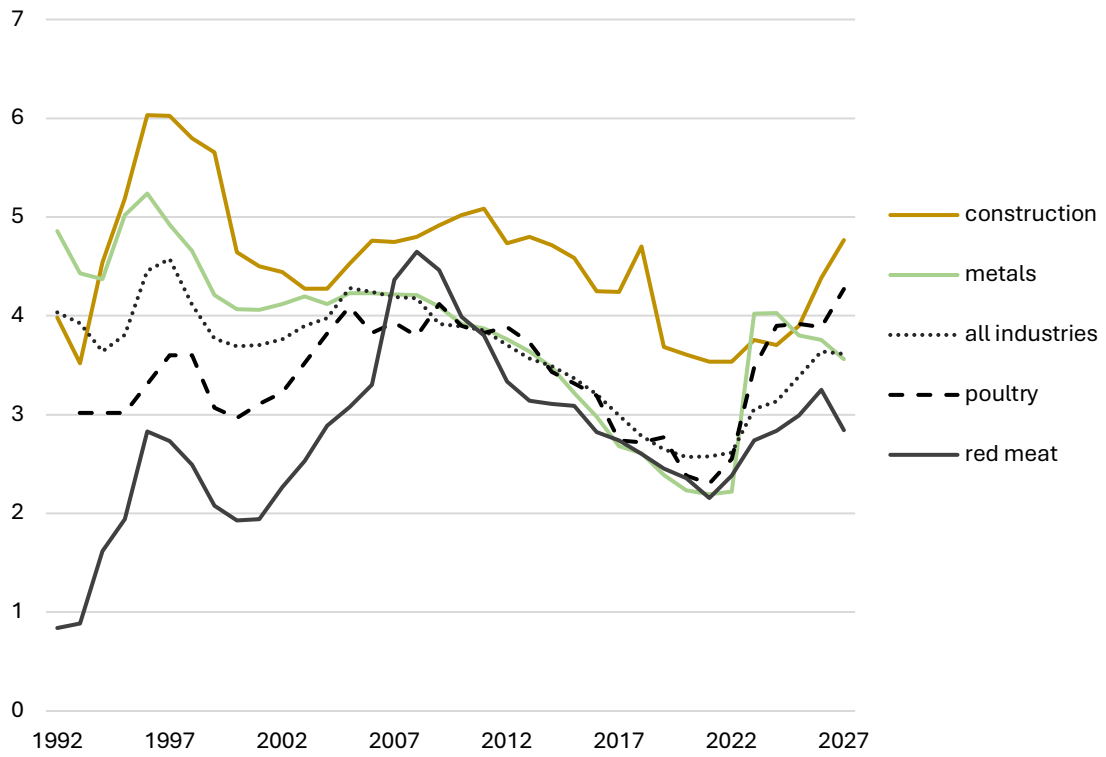
Bargaining had always occurred at the firm level, however in 1993 Prime Minister Paul Keating formalised the system and relegated the role of awards to the provision of a 'safety net' for the few workers not on enterprise agreements or individual contracts. In the context of a crisis of profitability and heightened worker militancy in the 1970s, the Australian capitalist class, via their lobbying vehicle the Business Council of Australia, had campaigned for reform of the industrial relations settlement. The key idea was scrapping the principles of fairness and comparative wage justice in favour of tying wage growth to the implementation of efficiency measures that would boost productivity in individual firms. The changes were welcomed by the ACTU, who believed that enterprise bargaining would revitalise workplace-level engagement.

The effect of linking wage increases to firm-level changes was to quarantine wage increases to only those workplaces with increasing productivity and organised workers at the same time as it enhanced the prerogative of employers to set pay and conditions. From the early 1990s, inter-industry and gender-based wage differentials increased as organised workers in mining, metals and construction, who were more often men, were able to secure strong pay agreements and less organised workers in retail, hospitality and health care and social assistance, who were more often women, either secured weaker deals or remained on the now diminished awards (Preston and Crockett 1999). Across the whole economy, wages at the bottom stagnated throughout the 1990s whilst those at the top grew significantly (Buchanan and Watson 1997b; ACIRRT 1999, 50, 65, 76–79; Borland 1999; Buchanan 2000, 293).

The wide variation in average wage increases during the 1990s can be observed between the construction, metals, red meat and poultry industries (Figure 7.1).

Figure 7.1 Average wage increases in enterprise agreements (%), 1992 to 2027

Employee weighted Average Annualised Wage Increase (AAWI) per calendar year.



Data: author's analysis of the Workplace Agreement Dataset (Department of Employment and Workplace Relations 2025).
Note: weighted averages of AAWIs were taken for every current enterprise agreement in each calendar year.

Previously, enterprise level agreements suited the meat workers, who were well practiced at securing good deals at individual plants. As shown in Figure 7.1, this was no longer the case. In the first decade of enterprise bargaining, the employee-weighted average annualised wage increases (AAWI) for workers in the red meat industry (including smallgoods) was about three per cent less than average increases in construction, about two per cent less than in metals, and consistently well below the all-industry average. From the mid-2000s onwards, the differences are less significant, with each industry—except for construction—following the all-industry average in a decline in nominal wage increases across the entire 2010s. Amidst a thirty-year peak in inflation from 2021 to 2023 the gaps start to re-open, with red meat workers again advancing the least.

There is a significant jump in the red meat wage increases between 2007 and 2009. This is due to the presence of an outlier in the Workplace Agreement Dataset—a 6.71 per cent increase afforded to 2,193 workers on one agreement. This agreement was negotiated in 2007 between AMH and AMIEU at the Dinmore plant, just outside of

Brisbane, the largest in the southern hemisphere. The agreement includes pay rises of 4 per cent each year, in line with the industry and national average at the time (AMH and AMIEU 2007). Because negotiations were drawn out over 2006 and 2007, two pay rises five months apart were granted in the agreement's first year to make up for a missed increase preceding certification (C. Buckley, personal communication, 20 June 2025).

Caught in Keating's safety net

In the 1990s meat workers faced a series of challenges to the industrial relations settlement that were both unique and felt across the working class. After Howard became Prime Minister in 1996, the decentralisation and individualisation trajectory of industrial relations that arose under Keating continued, and anti-union elements were compounded. Howard curtailed unions' right of entry to workplaces, introduced new individual contracts called Australian Workplace Agreements and reduced the purview of the Australian Industrial Relations Commission to officiating the diminishing award system. Awards were stripped down to only 20 allowable matters, drastically limiting their content. And just as he was intent on crushing the Maritime Union of Australia in the waterfront dispute of 1998, Howard sought to double down on the AMH's wins against the AMIEU in the decade prior.

In 2000, Howard pushed through a bill proscribing tallies as an allowable matter in awards, thereby striking them from all federal awards (Australian Parliamentary Library 2001). In their submission opposing the new legislation, the AMIEU argued:

> Removing tally provisions, given that most employers would maintain some form of incentive system, would destroy the effectiveness of the award safety net. … Award tally provisions represent a key award entitlement, which must be maintained in order to avoid substantially reducing the award safety net. … Employees in the meat industry are not highly paid by community standards. … The effect of making tallies a non-allowable award matter would be to make it legally possible to reduce a tally workers gross pay by 25 per cent. The safety net value of the award would become virtually irrelevant.
>
> (AMIEU in Australian Parliamentary Library 2001, ellipses original)

Adding to the decline of meat industry awards was the union's own strategy. As the Secretary of the Victorian Branch of the AMIEU Paul Conway (2024) suggested

recently, the union purposefully diverted energies away from campaigning on award conditions as a recruitment strategy: to show that better outcomes could be achieved by workers bargaining collectively.

In a recent submission to the Fair Work Commission, the AMIEU reflects on the proscription of the tally:

> The banning of tallies significantly eroded the pay rates of all employees across the meat industry and since that time the wages and conditions of meat workers have gone down by a large proportion compared to what they once were.
>
> (AMIEU 2024, 4)

Chapter 2 showed that the pay differential between meat workers on the award and those on collective agreements is significant, on average around $300 per week. Awards no longer afford the protection they once did. Over the last decade, more and more people have found themselves caught in Paul Keating's safety net. Since 2012, the proportion of people reliant on awards increased from 16.1 per cent to 23.2 per cent, whilst the proportion of people covered by collective agreements decreased from 42.0 per cent to 34.0 per cent and the proportion of those on individual contracts has remained steady at just under 40 per cent (ABS 2023; see also Pennington 2018).

The tally remained in place outside of the award and enterprise agreements, through informal negotiations between employers and workers (C. Buckley, personal communication, 19 June 2025); however it is less common and its removal from federal awards signalled a new industrial settlement in the red meat industry (Norton and Rafferty 2010; Jerrard et al. 2020). Second shifts were introduced throughout the industry, improving capacity utilisation and lowering unit costs during fat years (Hayenga 1998). While the industry came to be associated with anti-social working hours (Moolchand and Marshall 2025, 28), employers also introduced 'mums' shifts' spanning 9am to 3pm in an effort to broaden the available labour pool (Norton and Rafferty 2010, 26). With the industry's major industrial disputes behind it, workplace relations generally developed a more conciliatory tone as a modern HR culture emerged (ibid.). Large firms were amenable to surpassing the award with modest wage increases so long as their productivity and flexibility regimes were accepted (C. Buckley, personal communication, 19 June 2025), and unions and employers sat

together on the board of the National Meat Industry Training Advisory Council (MINTRAC) (which was established in 1992).

After a decade of regressive reforms, the Howard Government's draconian *Workplace Relations Amendment (WorkChoices) Act 2005 (Cth)* was short lived given the Labor Party came to power in 2007. However, with respect to industrial relations, the new Prime Minister Kevin Rudd broke from Howard's legacy as much as Howard broke from Keating's—not very much. The Labor Party's *Fair Work Act 2009 (Cth)* retained provisions first introduced in WorkChoices that limited the right of Australians to take industrial action. Australian private sector workers may only take legally protected industrial action when they are renegotiating an expired enterprise agreement (or establishing a new one)—and even then, only after undergoing an onerous balloting process (McCrystal 2010; Peetz 2016; Stewart et al. 2018, 9; Avery and Hill 2023; Rudman and Ellem 2024). A direct result is the declining nominal wage increases achieved on average in enterprise agreements across the country over the 2010s, as shown in Figure 7.1 (see also Stewart, Stanford, and Hardy 2018).

Wage growth stagnated for most workers in Australia at the same time as the industrial relations system baked in a power imbalance in favour of employers. Strikes were not completely eliminated from the red meat industry, but they became much smaller, shorter affairs, with 24-hour and half-day stoppages common (Felton-Taylor 2012; Beef Central 2013; Wingham abattoir workers on strike 2014; Australasian Meat Industry Employees Union 2014; Reid 2018). Union membership in the private sector has fallen to around 8 per cent (Marin-Guzman 2023).

Poultry gains?

By comparison, Figure 7.1 shows that poultry workers did better than workers in red meat processing. Poultry workers regularly achieved wage increases about one percentage point above those achieved by red meat workers throughout the 1990s and the first half of the 2000s, and also in the agreements negotiated in 2023, 2024 and 2025; however their gains were generally lower than the all-industry average. As referred to in Chapter 3, Jerrard (1999) identified a gender pay gap between the better-paid and predominantly male red meat processing workers and the worse-paid and predominantly female poultry processing workers. Low pay and the framing of poultry processing work as low skill was thus built into the industry's formation and mid-century expansion.

The better results achieved recently are attributable to the efforts of organised workers making strong gains from a lower base, and also the fact they were able to draw out concessions from employers reticent to cease production (C. Buckley, personal communication, 19 June 2025). And since all big poultry processors cater only to the domestic market, they are 'captive audiences for union organisation' (Botwinick 2018, 307). In a difficult context, the National Union of Workers adopted an industrial strategy uncommonly militant in the era of enterprise bargaining (L. Kakogiannis, personal communication, 1 March 2025). The NUW represented workers in poultry processing plants in every state except for New South Wales where they are still represented by the AMIEU. NUW merged with United Voice to create the United Workers Union in 2019.

Some employers had a conciliatory approach. Before they sold their poultry empire to a private equity firm in 2013, the Ingham's family adopted an approach that was generally appeasing to the union, in contrast to their more implacable rivals (G. Moase, personal communication, 12 May 2025). One of these rivals is Baiada, which operates a plant in the Melbourne suburb of Laverton. In 2011 workers at the plant took indefinite strike action and ended up staying out for two weeks. The strike occurred a year after a worker at the plant was decapitated by machinery that was in motion whilst he was cleaning it—the line was operating at full speed, 183 birds per minute (Barlow 2010). In addition to safety concerns, in 2011 workers mobilised on issues including the underpayment of contract workers paid cash-in-hand, line speed, and a lack of access to workers' compensation (Bolton 2011). The dispute is an important moment in labour's opposition to the unique exploitation faced by temporary migrant workers. Workers won the minimum wage for contractors at the plant, however in 2016 Baiada decided to shut down the processing facility (whilst keeping a distribution centre operating) and redistributed their processing requirements to their interstate operations (Edwards 2016). The company did not cite higher labour costs as the reason for the move. Instead, Baiada suggested price competition over supermarket sales drove consolidation.

The 2011 Laverton strike came to be a model for the United Workers Union. In a bid to catch up on real wage declines due to high inflation in 2022, poultry workers have done well in recent years, with average wage increases in enterprise agreements above the all-industry average (see Figure 7.1). A telling example is a five-day long strike of poultry workers at Ingham's plants across South Australia and Western Australia in September of 2023 (Victoria Trades Hall Council 2023). Workers sought a

$1.50 per hour pay rise, which the company claimed it could not afford, despite offering their CEO a 9 per cent bump to his salary in the same year, bringing it to $1.2 million. The dispute suggests a change in tone to the company's industrial approach. During negotiations at a plant in northern Adeliade, an open bin filled with offal was placed next to the picket line inside the plant's gates in a clear attempt to disrupt the strike. The workers pushed on and secured a 5.12 per cent pay rise in the first year of the agreement and 4 per cent in subsequent years, including agreement for an external audit of senior management conduct in both states.

7.2 A divided workplace: labour hire and temporary work visas

While the most organised workers achieved modest wins in the era of enterprise bargaining, in the twenty-first century employers found a way to entirely sidestep agreements: labour hire contracts. Labour hire arrangements have existed in the industry since at least the 1980s—they were a key issue in the Mudginberri dispute of 1985 (Underhill and Kelly 1993). However they were not always problematic, particularly when the union could negotiate directly with labour hire companies (AMIEU 2021, 4).

The widespread adoption of labour hire contracts at substandard levels occurred from the late-2000s onwards as a result of the introduction of new temporary visas for workers performing low-skill jobs. As the Baiada dispute of 2011 illustrates, workers on temporary visas are most often employees of the labour hire company that engages them, not the processing company they work for. This triangular arrangement has led to the systematic exploitation of migrant guest workers in the meat industries and elsewhere in Australia. This section explores how the new labour regime developed under conditions of low wage competition and the deleterious effect it has had on workers' bargaining power.

The new labour regime: same job, different pay

In *Persistent Inequalities*, Botwinick (2018, 106-36) argues that the reserve army of labour sets the lower limit to wages in an industry due to competition between workers for employment and over different levels of employment. In the Australian context, this does not simply apply to the level of awards or the federal minimum wage, but to workers' access to award wages and the capacity for firms to exploit loopholes in the wage floor (e.g. through unpaid overtime (Schneiders 2022)). Two criteria previously used to assess whether migrant workers have constituted a reserve

army in the Australian manufacturing sector are the position of workers within the industry and occupation structure, and their expendability from those structures (Tracy 1981; Jones 1983; Collins 1975; 1984). After the Second World War, migrants took up central and subordinate positions with the manufacturing sector and in the burgeoning smallgoods industry. Retrenchment from the sector has continued with absolute employment decline since the 1970s, and recent evidence suggests those with poorer English language skills and who were employed in lower-skill occupations have a harder time regaining employment (Productivity Commission 2014, 185, 188). The same factors that channel workers into subordinate positions hold them in unemployment when they find themselves on the outside.

Up until the end of the twentieth century, migrants permanently settled in Australia after arrival. As such, argued Tracy in 1981, they did not constitute a true reserve army. In the last 25 years, Australia's expansive development of a temporary working visa program has fundamentally changed the dynamics of labour markets in this country, allowing labour to be systematically incorporated and then expelled.

From 2004 onwards, the Temporary Work (Skilled) (Subclass 457) visa was used extensively throughout the meat processing industry with workers from Brazil, China, Vietnam and elsewhere sponsored by employers to work primarily as boners, slicers and slaughterers (ASCO/ANZSCO 8312) (AMIEU 2021, 7). From the very start the visas were associated with problems. Intended for skilled butchers with industry experience and English language proficiency, it became clear that many visa-holders did not meet these criteria and were being used simply as an alternative labour source for the bulk of processing work (AMIEU 2015; 2021; 2022). The scope of the problem extended to the recruitment firms operating between the home and host countries, that were supposed to be screening workers under the established criteria. This left workers without the language skills necessary to qualify for permanent residency afterwards.

Other problems included a requirement on employers to meet a minimum payment level to the visa workers, which many did not receive (Hannan 2015). In the meat industry, with relatively low wages, the minimum was generally not achieved through ordinary work hours. The solution was to allocate all overtime to 457 workers, locking out local workers from overtime and causing resentment. In 2006 the Minister for Immigration suspended the meat industry's access to foreign labour until new standards were negotiated (Morris 2007). The product of these

negotiations was the Meat Industry Labour Agreement—which the meat workers' union was a party to—and was put in place in 2007. The MILA improved the pathway to permanent residency for temporary visa workers and ensured that all 457 workers were employed directly by meat processors, not by labour hire companies (AMIEU 2021, 10). Under the MILA, individual processor firms make an agreement with the Federal Government to secure foreign labour.

Just as 457 visas were being regulated by the Federal Government and the AMIEU, employers found a new golden goose of labour supply in temporary work visas for unskilled or semi-skilled workers—principally the Working Holiday (Subclass 417). The working holiday visa is a short stay visa, 12 months in duration. (It is now complemented by the Work and Holiday (Subclass 462) visa, which has additional requirements.) From the late 2000s onwards, backpacker visas provided the meat industry a key source of labour in lower skilled roles such as processing, packing and cleaning. Bilateral arrangements with South Korea, Taiwan and Hong Kong resulted in the expansion of workers from these countries taking up backpacker visas in the meat industry.

In 2021, one quarter of workers in the meat industry (and more than one third of factory process workers) were employed on temporary working visas (ABS 2021). As international travel came to a standstill during the COVID-19 pandemic, many workers on student and working holiday visas went home and Australia's intake of people on temporary working visas, which prior to the pandemic was around 300,000 per year, was decimated (AMIC 2022, 5). The result was a severe labour shortage in the meat industry. In response, in 2022 the Pacific Labour Scheme was revamped as the Pacific Australia Labour Mobility (PALM) scheme (using visa subclasses 403 and 408), with changes including the extension of employment to any industry in regional areas and also to metropolitan meat processors. In 2024 there were more than 30,000 PALM workers in the country (whereas in 2019 there were fewer than 7,000) (Howes 2024). It is estimated that in February of 2023 there were 9,000 PALM workers in the meat industry, up from a total of 1,000 in 2019 (Wong 2023). In 2025 it was estimated that Pacific Islander visa workers constitute 23 per cent of the meat processing workforce (Moolchand and Marshall 2025, 5).

The AMIEU (2016, 3) has suggested that 'virtually all of the exploitation of temporary migrant workers occurs in the context of labour hire arrangements.' The dynamic is different for skilled boners, slicers and slaughterers working on 457 and 482 visas,

but for the semi-skilled or people with no industry experience working under working holiday and PALM visas, unscrupulous labour hire companies have developed a business model pushing substandard working and living conditions on these workers, who for the most part are forced to accept the conditions due to fear of deportation. The issues uncovered by the Fair Work Ombudman's investigation of Baiada in 2016 are the same as those now arising in the PALM scheme. Table 7.1 summarises the abuses experienced by semi- and unskilled temporary migrant workers.

Table 7.1 Abuses reported by working holiday and PALM visa holders in the Australian meat processing industry

Pay	- Same job, different pay. Identical job as workers on enterprise agreements but at lower, award wages. - Wage theft, receiving below award rates. (Related to unpaid overtime.) - Receiving training wages (Level 1, Meat Industry Award 2020) for months after training ceases. - Sham contracting. Misclassified as independent contractors, given below award rates. (Specific to working holiday visas.) - Unpaid or underpaid overtime. - Debt to labour hire company. - Lack of control over the receipt of pay and unclear deductions for air fares, visas, phone plans, housing, furniture rental, and transport.
Work conditions	- Long and extremely long shifts (FWO reports up to 19 hours per day). - Anti-social work hours (due to long shifts). - Disregard for occupational health and safety (e.g., lack of vaccination for Q fever). - Some bonding to the employer (minimum 6 months for working holiday visa). Note recent changes to PALM worker employer bonding below. - Intimidation to avoid joining a union. - Excessive control over bathroom breaks.
Life	- Threat of deportation. - Paying above-market rates for housing in unsafe conditions (reports of up to 30 people in one share house).
Lack of accountability	- Employers maintain ignorance and refuse to investigate. - Poor record keeping by employers and labour hire companies hinder investigation. - 'Phoenixing' or liquidation of labour hire firms under investigation. - Complex layers of subcontracting.

Sources: (AMIEU 2015; 2016; 2022; 2023b; AMIEU New South Wales Branch 2020; Patty 2015; James 2015; Four Corners 2015; Meldrum-Hanna et al. 2015; Om 2013; Baker 2021b; 2022b; Thompson 2022; Cockayne et al. 2024; Moolchand and Marshall 2025)

The reported abuses have sparked several investigations into labour hire and temporary work visas by different regulatory, government, and law enforcement bodies including the Fair Work Ombudsman (2016), the Senate Education and Employment References Committee (2016), the Queensland Parliament Finance and Administration Committee (2016), a taskforce with members of the Australian

Border Force, the Department of Jobs and Small Business and the Fair Work Ombudsman (2016), the Federal Government's Migrant Workers' Taskforce (2019), the Senate Select Committee on Temporary Migration (2021), the Senate Select Committee on Job Security (2022), and the Federal Department of Home Affairs (2023).

Labour hire as a form of low wage competition

The key interest for this thesis is the way in which labour hire is used systematically as a form of low wage competition, i.e. abusing labour standards loopholes to lower unit costs (see Brosnan and Wilkinson 1988). The employers' union, the Australian Meat Industry Council (AMIC), puts the above instances of exploitation down to the behaviour of 'rogue employers' (AMIC 2020). But even AMIC acknowledge that the use of labour hire is widespread throughout the processing industry.

The alternative explanation is that labour hire is used systematically to reduce labour costs. The wage bill is reduced directly by engaging labour hire companies that supply workers who are paid at or below the award level. The engagement of labour hire also has a devastating effect on collective bargaining. Indeed exactly this is the chief explanation provided by the union for the use of labour hire: 'the principal motivation for its use has become the desire to undermine collective bargaining outcomes and undercut hard-won working conditions' (AMIEU 2016, 1–2). Using labour hire, employers can minimise their exposure to over-award conditions, and they can also undermine workers' capacity to bargain for better conditions. Union membership is low across the private sector, including in the meat industry, but it is even lower amongst visa workers (AMIEU 2022, 11). Unionising across the visa status divide is difficult because the system fosters resentment between parties. Local workers can come to resent visa workers who gain employment and have access to more overtime, and visa workers can come to resent locals and other visa workers who are paid more for doing exactly the same work.

In addition to these structural forms of division, the AMIEU cites multiple occasions when employers used the labour hire regime tactically to manipulate the bargaining process. Labour hire workers have been brought in to vote on an agreement, and then dismissed, and in another instance workers were threatened with replacement by labour hire if they failed to accept certain bargaining demands and lower wage increases in an agreement (AMIEU New South Wales Branch 2020; AMIEU 2023b, 6).

The effect on enterprise agreement outcomes is clear. Going back to Figure 7.1, the trend of average wage increases in red meat processing enterprise agreements below the all-industry average (correcting for the anomalous 2007 Dinmore agreement) has continued beyond the 2000s into the next two decades, even when the all-industry average was itself declining. The outcomes for workers on labour hire contracts are clearly worse than those on enterprise agreements, but wage levels in collective agreements are also suppressed by the presence of contracts that undercut them.

Aside from the Mudginberri dispute, the AMIEU generally did not have a problem negotiating with labour hire firms prior to the 2000s, which were often large, established companies (AMIEU 2015, 2). What changed with the expansion of 457 visas in the meat industry in 2004 was the proliferation of smaller fly-by-night labour hire syndicates that seized on the new arrangements (AMIEU 2016, 5). Competition between labour hire firms has different facets, including for instance the 'quality' of the labour supplied, but its primary referent is price. Labour hire firms compete over labour supply contracts with processors. Those who can lower their costs, by getting more out of workers and paying them below the minimum wage, have an advantage over firms that observe legislative standards. (Getting the most out of workers is beneficial when the labour hire firm itself is paid by the level of output achieved, as was the case for the Baiada contractors (FWO 2015).) So lucrative are labour supply contracts, instances of cash bribery of meat processors by labour hire syndicates have occurred (Baker and Kuang 2021a).

The previous chapter identified that competition to reduce costs is at an advanced stage in the meat processing sector, such that firms seek out marginal gains to achieve efficiencies. Labour hire, and in particular labour hire based on hyper-exploitation, offers a marked cost advantage to meat processing firms. The dual interest in wage suppression caused by the two axes of competition—between labour hire companies and between processors—has created a 'race to the bottom' for wages and breaches of labour standards in the industry (AMIEU 2016, 5). The AMIEU identifies that most incidents of exploitation occur within lower end operators, both smaller labour hire firms and smaller processors. Labour hire firms that engage in wage theft, sham contracting, intimidation and unfair wage deductions are invariably smaller firms, often companies that can liquidate very quickly (AMIEU 2021, 12). And it is smaller processors that the union has had difficulty with regarding investigating and addressing breaches of labour law (AMIEU 2023b, 14). With higher

unit costs than larger processors, smaller processors are more susceptible to engage labour hire firms and wilfully ignore exactly how such firms achieve low contract prices.

Low wage competition is not just a competitive strategy for smaller processors. Baiada is the largest poultry processor in Australia and was the most notorious example of labour hire exploitation. Baiada has since sought to own the problem and introduced reforms to stamp out the practice (FWO 2015). But they are not alone in using labour hire, or in incidents of wage theft. Temporary visa workers at JBS have filed complaints of underpayment (Moolchand and Marshall 2025, 22), and other large processors including Southern Meats and Midfield Meats have been embroiled in scandals involving 457 visa workers (see below). Large processors will adopt the lower labour hire costs for different reasons. All face intense competitive pressure to lower prices, from supermarkets in particular for poultry processors (Meldrum-Hanna et al. 2015), and from lower wage processors overseas in the case of red meat processors. The only large operator that appears to have avoided engaging temporary visa workers as lower-paid labour hire workers is Ingham's, where all workers are engaged as employees (AMIEU 2015, 4).

Large sections of the meat processing industry have come to depend on temporary migrant labour on labour hire contracts. The employer's union has come to frame the use of temporary foreign labour as necessary for many firms' viability: 'without access to an international workforce they would be forced to close their operations' (AMIC 2022, 3). Importantly, for AMIC, it is not just a labour supply problem but also a labour cost problem. The body's response to the 'same job, same pay' provisions in the Albanese Government's *Fair Work Legislation Amendment (Closing Loopholes) Act 2023 (Cth)* indicates exactly this:

> A large amount of our membership relies heavily on the labour hire industry to keep their businesses operating and responsive. The introduction of this Bill will affect businesses' models and cost structures. Additionally, the increased costs, may in part, be passed on to an already struggling consumer. The cost burden and lack of flexibility will affect businesses bottom line, and ultimately erode a business's ability to operate. This could be catastrophic to the industry and the communities they operate in.
>
> (AMIC 2023, 5)

AMIC considers that calculating wages for workers on different contracts 'is almost insurmountably complex and burdensome', and interestingly the body closed ranks with labour hire firms, suggesting both processors and labour hire companies will face 'serious direct cost increases' that will threaten their competitive viability (ibid.).

So long as the meat industry has access to temporary migrant labour, there will be no genuine solution to the industry's labour shortage. In fact, the industry's dependence on temporary workers cuts against the claim that there is a genuine skills shortage, or at least that employers are making a genuine attempt to resolve the shortage. The external vocational training system for meat processing roles is extremely small in Australia. Nearly all skilled workers in the meat industry come from the shop floor via on-the-job training. There are certainly some genuine attempts to improve training in the industry and other ways to retain workers, such job rotation between tasks to stave off boredom and injury (Norton and Rafferty 2010, 18; Jerrard et al. 2020). But as the AMIEU suggests,

> No employer who was interested in training workers into skilled roles would fill their workforce with short-term foreign workers who will not be able to stay in the country long enough to learn skilled tasks much less deploy them in the workplace.
>
> (AMIEU 2022, 1)

The industry's arguments are not convincing on their own terms. Competition for labour from more desirable industries like mining and construction is legitimate, but this is offset by the high youth unemployment experienced in many regional areas. Further, unemployed locals are discouraged from applying to work at abattoirs when they know employers prefer visa workers (AMIEU 2015, 3; 2022, 5). Most significant in the debate is the industry's commitment to low wage competition. The systematic exploitation of visa workers and the stagnant wages for the workforce as a whole are key factors in making the industry particularly unattractive to prospective employees (AMIEU 2023, 6).

Subsidising low wage competition

By facilitating the guest worker regime, the Australian government has effectively subsidised the industry's attack on labour and provided it with a low cost, bonded workforce (AMIEU 2022, 8). But it needn't. Facing a similar problem, Germany has restricted meatworks to engage up to only eight per cent of their workforce from temporary agencies, and subcontracting has been entirely banned (Quinlan and Underhill 2021; Erol 2021). Various reforms have been floated by stakeholders in the multiple inquiries. Requiring labour hire firms to hold licences is a common proposal, one taken up and trialled by the Victorian and Queensland state governments. The AMIEU (2023, 13) proposes that criminal sanctions are required for serious breaches of labour standards. Both employers and unions regard the current onus on employers to undertake 'labour market testing' as a condition for a labour agreement with the Federal Government as farcical, for different reasons. Employers consider it excessively burdensome, whilst the union does not recognise such testing as genuine attempts to recruit local labour. AMIC, for their part, want to see longer, 5-year visas with lower English language requirements, lower minimum wage requirements (down to the federal minimum wage, i.e. the award), less red tape and the expansion of MILA to unskilled process and packer occupations (AMIC 2020; 2022). AMIC has also voluntarily adopted a code of conduct for its members on labour standards for temporary migrant workers (ibid.).

But the issues have persisted throughout the multiple inquiries and commitments to changing practices. From 1 July 2019 to 30 June 2023, the FWO initiated 162 investigations into the PALM scheme and recovered $383,205 for 1,473 workers (Moolchand and Marshall 2025, 42). In 2023 portability reforms were introduced into the PALM scheme, allowing workers to change employers during their visa, but the changes have been criticised as unpractical (ibid. 44). Another reform is the creation of workplace justice visas (subclass 408) that allows workers to extend their stay to pursue a workplace exploitation claim (Department of Home Affairs 2025). The most significant change has been the 'same job, same pay' provisions of the Closing Loopholes Bill passed in 2023. Now workers engaged by labour hire firms cannot legally be paid at a lower rate than those doing the same role employed directly a company. The AMIEU (2025) celebrated the win as a major step forward in stamping out employers' attempts to avoid enterprise agreements, and in the last year they have made several applications to the Fair Work Commission to enforce the new rule.

The problems with the contemporary meat labour regime extend beyond contract-based wage differentials. Whilst labour hire firms have exploited their ability to underpay unskilled workers on backpacker and PALM visas by engaging them as employees on award wages (avoiding enterprise agreements) or as independent contractors (avoiding award wages), there have been several cases citing the exploitation of temporary migrant workers on skilled 457 (or 482) visas who are direct employees of processors (Baker 2022b; 2021a; Baker and Kuang 2021b; Dao et al. 2021). Engaged by labour hire syndicates to work in the meat processing industry under the MILA program, such workers are sponsored and directly employed by the processors. Nevertheless, the scandals that plagued the use of 457 visas in the meat industry in the middle of the 2000s have continued throughout the 2010s. They include the predatory recruitment of Chinese workers, fraudulent visa applications (false claims about English language proficiency and industry experience), workers paying thousands of dollars to labour syndicates for their visa and remaining indebted to them, and the confiscation of passports. In this context, the power differential between capital and labour is manifest on the shop floor. In reference to the difficult working conditions and perceived lack of autonomy, one worker suggested that '[t]hey let the factories use us like slaves' (quoted in Baker and Kuang 2021).

The problems thus appear to be rooted in the use of temporary migrant labour, not just the particular contract of engagement. The nature of temporary visas means that workers are inherently vulnerable to excessive control and other forms of financial abuse by labour hire syndicates. This is concerning because the Australian government is showing no sign of abandoning the guest worker regime.

7.3 Conclusion

This chapter has explored two key features of the new industrial settlement between labour and capital in the meat industry.

The first is wage suppression in the period of enterprise bargaining after this decentralised form of wage setting was institutionalised in 1991. From the late 1980s onwards, employers in the red meat industry went on the front foot against workers in wage negotiations. Amidst favourable microeconomic reform and the removal of the tally system from federal awards, meat bosses pushed enterprise agreement wage increases below the national average. Poultry workers fared better than red meat

workers, however both now struggle to impart industrial control in the new industrial settlement.

The second key feature is the division of the workforce according to visa status. In this chapter, I showed how the engagement of migrant workers on temporary visas constitutes a new form of low wage competition in the meat industry. Such workers have faced systemic wage theft and they have also been used to limit firms' exposure to union-negotiated conditions. The result is widespread avoidance of minimum labour standards and considerable downward pressure on wages across the industry.

Chapter 8 – Fast lines and dark factories

> Everywhere we can reduce the labour skill component, we've been able to engineer that out of it [the processing line]. That makes it a lot easier to train a bigger group of workers.
>
> (Gilbert Cabral, Managing Director of AMG, in Doak 2023)

In their analysis of the skill ecosystem in the Australian red meat industry, Norton and Rafferty (2010, 10, 14) described red meat processing as a mature industry, where a few large firms dominate the market, all firms face low profit margins, and competition is intense over product prices and cost reduction. At the time, the automation of various processes throughout the value chain was extremely limited. As such, Norton and Rafferty (ibid. 10) also identified medium capital intensity and a 'low-to-average uptake of new technology' in meat processing. There is evidence that the industry's orientation towards technology has changed over the last 15 years. Nevertheless, the perspective that competition in the industry has taken the form of a profound preoccupation with cost pressure is an enduring insight. Adding to the pressure is the presence of downstream oligopolies in the retail sector, both in Australia and abroad. As the previous chapter explored, the mounting cost pressure led firms to seek out marginal gains to achieve an edge over rivals, including obtaining new economies of scale, diversification to smooth out volatile revenue, vertical integration to limit costs from independent suppliers or distributers and attempts to either own or control the procurement of animals. Now, however, the prospect of significantly more automated processing is becoming increasingly viable.

This chapter proceeds in two parts. The first part deals with limitations to automation and productivity growth in the industry. I show that despite the technological breakthroughs of chain processing and the CanPak hydraulic system in the twentieth century, innovation in the meat industry was held back by several factors including volatility, product homogeneity, and most significantly the inherent biological variation of livestock. Labour itself was also a hindrance to productivity growth, via the tally system and because firms could simply rely on low-paid workers to lower unit costs. Without significant capacity to automate the disassembly line, employers sought instead to control it and increase its pace. I show that the limit to the pace of the disassembly line is workers' bodies. Catastrophic injuries such as lost limbs are

no longer normal in the industry, however the new normal is debilitating repetitive strain injuries and other musculoskeletal disorders.

The second part of this chapter deals with advances to innovations in the meat industry. I show that the overarching framework governing innovation is vertical integration. At the same time as processors are seeking to market the uniqueness of their products, enormous energy goes into the standardisation of livestock animals such that they can be processed by machines. Employment data shows that over the last twenty years the industry is decreasing reliance on manual labour. More than this, the composition of manual labourers employed in meat processing has changed during this time—involving a relative decline in more skilled boners, slicers and slaughterers, and a relative increase in less skilled process workers and packers. Alongside this change is an increase in labour productivity, which I argue is caused in part by automation. I finish the chapter with a discussion of the most advanced technologies used, trialled and researched in the meat industry, including early forays into a transition to what is referred to as 'industry 4.0'. The building blocks are in place for a radical shift away from manual labour in the coming years.

8.1 Limitations to automation and productivity growth

Even after the introduction conveyor technologies in the twentieth century, the meat industry remained labour intensive. One study of 25 Australian exporters reported that 'few of the abattoirs regarded much of their total operating costs as fixed', and due to the manual nature of the work it was very difficult to achieve economies of scale (Parsons and Guise 1971, 51). Even at the end of the century, the industry was not particularly advanced. The Industry Commission (1994, 40) found that most firms were operating old machinery with low written-down value. In the 1980s and 90s, minor gains were achieved through new barcode technology, hot boning, and mechanically-assisted boning technology (Caple 1994; Johnson 1983). Rarely were new plants built, but rather the large exporters upgraded their existing plants by increasing freezer capacity, removing a bottleneck in the supply chain (Rolfe and Reynolds 1999).

Hindrances to automation

The industry has long suffered a market failure in innovation. Private sector investment in research and development was very low in the early 1990s, but it was increasing (Industry Commission 1994, 132). Due to the nature of the industry, all but

the largest firms were reticent to undertake their own R&D. Volatility in livestock supply meant that every operator took on significant risk when investing in plant upgrades (Underhill and Kelly 1993). Other problems included the high level of industrial conflict, low and volatile profit margins, and long periods of low-capacity utilisation.

Moreover, innovative production methods were difficult to price into premium products. Whilst the big processors pursued product differentiation via their own brands, consumers rarely differentiated between meat products. A senior executive in the industry suggests that consumers only differentiate between animal breeds (e.g. Wagyu, Angus) and the number of days it is grain fed (personal communication, 11 June 2025). Going back to at least the 1960s, various industry bodies funded by mandatory levies on firms and matched government funding have existed to address the market failure. In 1998 the Meat Research Corporation was replaced by the Australian Meat Processing Corporation, the specialist research and development provider for the industry.

The most enduring hindrance to innovation, automation and capital investment is the difficulty associated with automating the disassembly of animals that vary in shape and size. Variation within species differs across species, with the general rule being the smaller the animal, the less variation. As such, automating poultry and even pig processing advanced much more quickly than cattle processing, and major steps forward have recently occurred in automating sheep processing (more on this below). As early as 1990, an inquiry into the chicken processing industry described the automated chain processing system whereby live birds are manually shackled to the conveyer, after which point they are taken on a journey through an electrical stunning bath and a machine that cuts their jugular vein. In this set up, a worker plays a role of quality control, slaughtering any animals that are missed by the machine (Senate Select Committee on Animal Welfare 1990, 155). Cuts from cattle vary so much that attempts to automate the packing of meat into vacuum-sealed bags, whilst possible, was limited by the amount of wastage generated (Norton and Rafferty 2010, 27). In addition to the different sizes of the animals is the hundreds of different products associated with them. Even workers performing specialised ‘one cut’ tasks must make bespoke alterations for the many different markets catered for (personal communication, 11 June 2025).

Figure 8.1 A contemporary boning room

Source: Greenham in Powell (2022).

The second enduring hindrance to automation in the meat processing industry concerns labour directly. In different ways and at different times, labour itself has been an obstacle to labour saving technology. There is no evidence to suggest there is a tradition of Luddism in the Australian meat industry, although workers were reasonably concerned about the introduction of deskilling technologies. More recently, the tally system came to be considered an outmoded work arrangement:

> The tally system provided a powerful brake on efficient operation of meatworks, as well as being a major disincentive for capital investment. It effectively set not only the rates of pay, but also the rate of productivity. Any new investment which improved productivity simply meant that workers would reach the 'minimum' tally in a shorter time period.
>
> (Rolfe and Reynolds 1999, 16)

With the tally system in place and workers in control of the pace of production, any productivity gains could be wholly captured by workers. But the scrapping of the tally coincided with the devaluation of meat work, the continued task specialisation of the labour process, and the incorporation of a cheap, foreign work force.

The industry's reliance on temporary migrant workers has a perverse result:

> Industries which come to rely on cheap labour provide a way by which inefficient producers and obsolete technologies can survive and compete. Firms become caught in low productivity traps from which they have little incentive to escape. When these firms are subjected to competition from more efficient firms, improved technology and products, their only hope of survival is to further reduce wages.
>
> (Brosnan and Wilkinson 1988, 19)

As such, low-wage competition itself is a hindrance to innovation in the meat industry, subsidised by the Federal Government's guest worker program. With ample opportunities to engage labour at below enterprise agreement and below award wage levels, the meat industry lacked a productive 'spur'—the cost pressure of a wage floor that necessitates the creation of more efficient processes (Wilkinson 1983; Buchanan and Watson 1997b; Harcourt 1997).

Control over the pace of the disassembly line

Under the compulsion to lower unit costs, and without the ability to replace labour in any significant way, the main way employers have sought efficiencies is by taking control over and increasing the pace of the disassembly line. Writing in 2010, Norton and Rafferty wrote:

> While automation has the ability to transform the nature of the work and skills required in the Australian meat-processing industry, it seems unlikely that the investment required in such machinery will generate a sufficient return to justify the risks of a large-scale shift to a totally new production process. In the main, the Australian meat-processing industry seems more likely to maintain the status quo of attempting to increase profits by reducing costs, and this includes driving real unit labour costs lower (pay relative to productivity) and increasing productivity via more efficient work practices (such as increasing the pace of production and the specialisation of tasks). These trends, however, may have the effect of making the work less attractive and the industry more susceptible to ongoing high levels of staff turnover.
>
> (Norton and Rafferty 2010, 15)

Management's control over the speed of the chain developed iteratively from the introduction of the flow-line technology, defeating the union in the offensive of the 1980s and 90s, and ultimately removing the tally from federal awards. Late into the twentieth century, the pace of production was generally set by the slaughterers, whose position granted the workforce considerable bargaining power (ibid. 14). Now, chain speed is primarily a prerogative of management, with changes considered by standard consultation requirements such as consultative committees. The JBS Dinmore 2022 enterprise agreement includes:

> 47. REGULATION OF CONVEYORS RATE OF WORK
>
> Where conveyors are used in the process of slaughtering and/or boning, the speed of the conveyors shall be regulated and controlled by the Employer so as to provide as near as practicable an even distribution of the throughput including an agreed tolerance over the ordinary hours of work. The basis for such distribution will be calculated in accordance with agreed levels of kill and may require fluctuations in speed to accommodate the differing body sizes in the Boning Room.
>
> The provisions of this clause will be implemented in accordance with clause 8 - Consultation.
>
> (JBS and AMIEU 2022)

O'Leary (2008, 236–38, 265) cites two occasions in the 1990s when management actually *slowed down* the chain after gaining control over its. Under the tally system, workers were incentivised to work quickly. By slowing the chain, managers could increase the quality of output (better yield)—which at one plant meant that workers were doing longer shifts for the same pay (ibid.). But these examples do not describe the trend. The uptake of longer ordinary hours, second shifts, and the increasing task specialisation of roles afforded managers the opportunity to progressively increase the pace of work to the limit of their workforces' capacities. As one participant interviewed by Norton and Rafferty (2010, 24) described it, '[i]t has gotten faster, but now we're going quicker for longer.'

The pace of the disassembly line is now a critical industrial issue in the meat industry. Employers seek out incremental increases in speed in exchange for wage increases

(Felton-Taylor 2012). While some workers might internalise a competitive, neoliberal mindset to work faster, for the most part management needs to monitor and police worker speed. One example is described by Mooldchand and Marshall:

> Jeremiah vividly described the unyielding demands of his work, where an alarm dictates the pace every five seconds, accompanied by a relentless flow of beef down the production line.
>
> (Moolchand and Marshall 2025, 30)

More than this, meticulous timing of toilet breaks is a common feature of the industry (Southwell 2023). In the poultry industry, enterprise agreements stipulate this militaristic control over workers' bodies and time. Multiple clauses in the Baiada Tamworth 2020 enterprise agreement cover rest and meal breaks, stipulating management control 'to meet operational requirements and to ensure continuity of work' (20.2) (Baiada and AMIEU 2020). Even when an employee is entitled to additional breaks for doing certain tasks such as hanging birds for two hours continuously or doing a 10-hour shift:

> 20.6.2 The taking of additional breaks must not cause an interruption to the flow of production on any day.
>
> 20.6.3 No person is permitted to take an additional break without direct authorisation from the relevant Supervisor/Leading Hand.
>
> (Baiada and AMIEU 2020)

Ultimately, however, '[t]he relevant Supervisor/Leading Hand is authorised to use his or her discretion in determining if and how many additional breaks are necessary' (ibid. 20.6.1).

Labouring bodies as a limit to efficiency

The main limit to maximising the efficiency of bodies on the disassembly line is workers' physical performance. Anecdotal (but not statistical) evidence suggests pharmacological stimulant use is widespread in meat processing plants (Hendrix and Dollar 2018). The Baiada enterprise agreement cited above specifically proscribes drug and alcohol use, suggesting there may be some substance to the reports.

Amphetamine use is widespread amongst manual and professional occupations that require long hours and intense concentration (Roche et al. 2008; Plumber et al. 2021) Somewhat unique to meat labour is the physical toll of work. In the absence of the tally system, '[t]here is little doubt that workloads and the pace of work are significant contributors to the rate of workplace injury in meat processing' (AMIEU 2021, 15).

New recruits must endure a 'break in' period where their bodies break down and form new muscle compositions adapted to the repetitive, heavy tasks on the line (Blanchette 2020: 185-89). Workers commonly develop repetitive strain and other musculoskeletal injuries in their hands, elbows and shoulders, including ulnar nerve damage that results in 'claw hand' (AMIEU 2021, 15; Norton and Rafferty 2010, 24). Journeaux writes that '[a]t the pace of work demanded by the meat processing industry, boners can no longer expect to see out their working lives without breaking down' (AMIEU 2021, 15). During the 2023 UWU poultry strikes at Inghams plants, one worker said '[we] are pushed to the point that our bodies hurt all day long where we can't look after our families' (Southwell 2023). The capacity of workers to absorb injuries and recover from them is thus a fundamental limit to increasing efficiency on the disassembly line. Blanchette (2020, 178) writes of the US pig meat industry: 'two hundred years of industrial refinement in slaughter has resulted in a system that is operating at the very limits of the working body.'

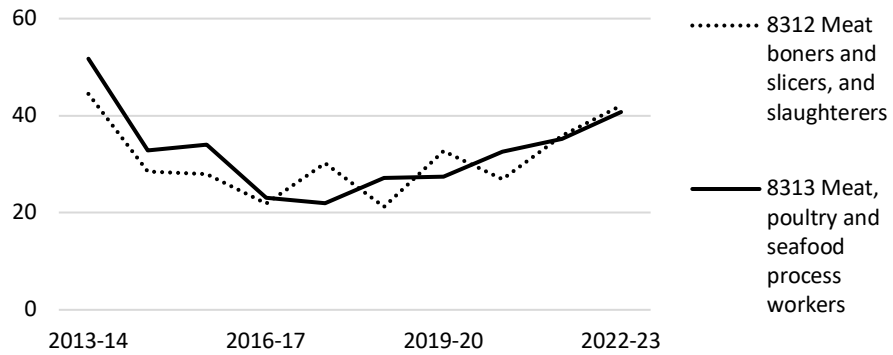
The demands on workers' bodies are uneven across firms, occupations and lines of social difference. There are some examples where companies explicitly adopt team-based methods, such as the old beef tally system, but these are in the minority (Norton and Rafferty 2010, 24). Some workers' jobs have been made easier by the introduction of new technologies such as air knives (ibid. 26). Little has changed for boners in beef abattoirs, however slicers and packers are now under more pressure to increase their speed (ibid.). Some Pacific Islanders on the PALM scheme reported that their occupational assignment is the result of racial discrimination because they are regularly offered jobs involving more onerous lifting (Mooldchand and Marshall 2025). There is also evidence from the US that women are more prone to injury in the poultry industry due to male-centred ergonomics and the added toll of additional unpaid work outside the factory (Sokol 2016). Unsafe working conditions in the US poultry industry 'threaten the health and safety of all workers, there is increasing realization that they may pose more dangers to women than to men' (Sokol 2016). Sharif (1997) found that female injuries in the meat industry were concentrated in

hand packing roles, and that the meat processing industry class 'presents particular problems for women workers.' These insights fit with other analyses of female factory workers. Women's labour is not just devalued—it is also considered disposable (Livingston 2004; Taylor 2010; Mezzadri 2016).

The meat industry continues to have one of the highest rates of injury across the economy (Industry Commission 1994, 197; AMIEU 2003; Tappin et al. 2006; Horowitz 2008; McKell and Booth 2018; Human Rights Watch 2019; Safe Work Australia 2020; Donovan et al. 2020; Donovan 2021; Queensland 2021; Schreiber 2025). Of the 421 four-digit occupation unit groups in the ANZSCO categories, meat, poultry and seafood process workers (8313) and meat boners and slicers, and slaughterers (8312) have the 32nd and 35th highest rates of injury per million hours of work for the five-year period prior to 2022-23 (SafeWork Australia 2024). The rate of injury for meat workers in these occupations is less than paramedics, police, and shearers, but more than livestock farm workers, roof tilers, and sportspersons (ibid.). Meat work is not the most dangerous or the lowest paid, however it is clearly *both low paid and dangerous*.

In the United States, line speed is regulated at a federal level. In 2025, President Trump allowed meat processors to increase line speeds to reduce unit costs. The meat workers' union in the US argues the move will increase injuries—which are already high in the industry—however the USDA disputes the evidence (Polansek and Douglas 2025). Whilst amputations and lacerations are less common in the industry today, SafeWork Australia statistics suggest that the rate of injury overall has increased over the period six years prior to 2023 amongst meat workers, suggesting a worrying shift towards increasing musculoskeletal injuries (see Figure 8.2).

Figure 8.2 Rate of injury per million hours worked, 2013-14 to 2022-23



Data: SafeWork Australia (2024).

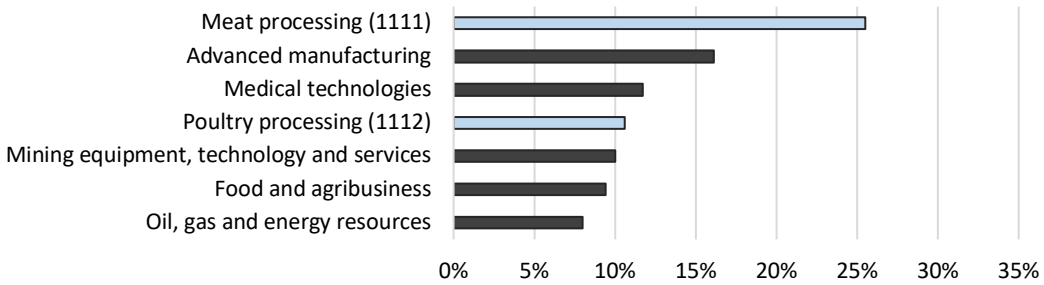
In addition to musculoskeletal injuries, new studies investigate the potential harmful psychological effects of the repeated killing of animals, although the evidence base is currently limited (Slade and Alleyne 2023).

8.2 Advances in innovation, productivity and automation

Meat processors have recently stepped up investment in processing technologies. In Chapter 5 I analysed data which indicates that, amidst a sector-wide decline, capital purchases in the meat industry have increased in real terms over the last fifteen years. Figures 8.3 and 8.4 show responses from meat and poultry processing firms to an ABS survey into selected growth industries in 2013-14. The growth areas covered by the survey are advanced manufacturing, medical technologies, mining equipment, technology and services, food and agribusiness, and oil, gas and energy resources. Meat and poultry processing were captured as a part of the food and agribusiness sector. I have presented these industries separately to compare them with average outcomes in other sectors.

Figure 8.3 Businesses that introduced any new or significantly improved methods of manufacturing or producing goods or services, 2013-14

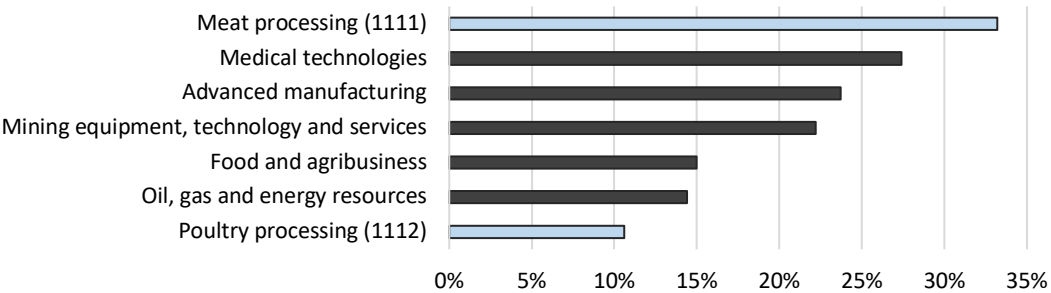
Meat processing = ANZSIC 1111, poultry processing = ANZSIC 1112.



Data: Characteristics of businesses in selected growth sectors (ABS 2014).

Figure 8.4 Businesses that introduced any new or significantly improved any operational process (production, logistics, delivery, distribution, maintenance, accounting, computing, etc.), 2013-14

Meat processing = ANZSIC 1111, poultry processing = ANZSIC 1112.



Data: Characteristics of businesses in selected growth sectors (ABS 2014).

A quarter of meat processing businesses introduced new and improved production methods and a third introduced new operational processes in 2013-14, considerably more than the average for each of the growth sectors that year. An average number of poultry processing businesses, by contrast, introduced new production methods and a below average number introduced new processes that year. Given the timing of the ABS survey, it is possible that it captured the red meat industry at a time of high profitability, when slaughter numbers were at a 50-year peak and processors had capital available for reinvestment.

Other evidence of increasing innovation in the meat industry includes JBS' acquisitions of automation technology companies, including the mining and warehousing technology company, Scott Technology, purchased in 2016 (IBISWorld 2023b). The Federal Government continues to support innovation in the red meat industry through the MLA Donor Company co-investment scheme, which provides some public funding for commercial projects across breeding, farming and processors (MLA 2025)

Traceability and standardisation

The overarching framework governing innovation in the meat industry is vertical integration. As the previous chapter articulated, a core component of vertical integration is the ability to find new sources of value in animals' bodies. All by-products of the initial processing stage are further processed into commodities (as in the case of tallow and bone meal) or inputs into other parts of the firm (as in the case of biofuel).

Because vertical integration offers a new level of control over all parts of the production process, it also offers a new level of knowledge, specifically knowledge that can be harnessed to create new value: 'control—even if only partial—was emerging as a key source of distinction and value' (Blanchette 2020, 23). The National Livestock Identification System (NLIS) in Australia tracks all cattle, sheep and goats individually from farm to slaughter using chipped ear-tags to manage biosecurity and food safety concerns. The NLIS system is touted as providing Australia a competitive advantage globally. After processing, a different system is used to track meat products to retail. Barcodes were first applied to boxed meat in Australian abattoirs in the 1980s to improve stock management and product tracking. Barcodes have multiple uses. They allow firms to tell their 'story' to the customer about the specific conditions animals lived through prior to slaughter (ibid.). They can also be

used to ensure product integrity. When China banned imports of Australian meat in 2021, one of the reasons offered was labelling errors on packaged meat from the Chinese-owned Australian processor Kilcoy Global Foods (Daly 2021). In response, Kilcoy introduced a new system to ensure the labels and contents of each box match. The system uses radio frequency identification to scan boxes and machine learning to analyse photos of each product to improve the system's ability to spot errors.

Labour saving technologies produce major efficiency gains. Given animal variation is an obstacle to the automation of processing, reducing variation by standardising animals is necessary. The framework of vertical integration is helpful in this regard, as it brings together the two sides of the problem: the need to produce a uniform animal and the need to more efficiently process this animal. Individually mastering each side and then connecting the dual processes of standardisation and automation is a key enduring dilemma in the meat industry. As Blanchette writes,

> At a moment when profit margins of meat are very low [...] the corporation is dedicated to increasing the value of the (industrial) porcine species through the unending pursuit of more bodily uniformity relative to its industrial competitors. [...] The goal of this ambivalent project—which is at once its source of current profit, ground for future competitive advantage, a source of interspecies violence, and an ecological threat—is to realize a capitalist species more homogenous than any other in history and one that is capable of becoming unendingly more uniform over time.
>
> (Blanchette 2020, 17)

As articulated in the previous chapter, the standardisation of chickens has been incredibly successful. Now, just two strands dominate the global supply of genetics to the chicken meat industry. A chicken breeding consultant who has now sought to develop niche varieties said,

> I still recall the day I walked into that first breeder shed and was presented with 11 or 12,000 birds in a 130-metre long shed. They all looked almost identical.
>
> (Michael Sommerland in Fazal 2022)

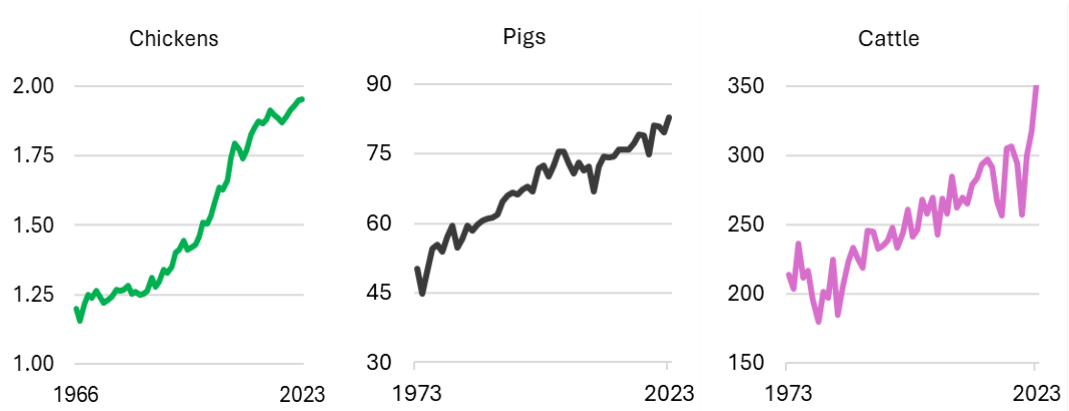
When birds are of a consistent size, the speed of the disassembly line can remain high (Mock 2020).

The relationship runs in both directions. When disassembly technologies were brought over from the US and Europe to Australia, local processors were required to adopt the genetic breeds that best worked with the new machinery. In this way, 'the trend towards a global chicken is dictated by the technology' (Dixon and Burgess 1998). On the animal side of the equation, an enormous resources go into the production of scientific knowledge about genetics, feeding and behaviour. Key innovations take place in the nucleus of stock farms: 'They operate like scientific laboratories, breeding into the grandparent stock qualities such as disease resistance, efficient meat to feed conversion ratios and survivability' (Dixon 2002, 91). Aggressive behaviour is bred out and docility is bred in (Mock 2020).

Since the overarching goal is to increase the yield from each animal processed, their bodies are designed to rapidly gain muscle mass. The average weight of animals processed for meat in Australia has increased markedly over the last fifty years (Figure 8.5).

Figure 8.5 Average weight of processed animals (kilograms)

Created by dividing total slaughter weight by slaughter number.



Data: ABS 7215.0 Livestock Products, Australia (ABS 2024).

Over the last five decades, the average weight of chickens processed for meat has increased from 1.25 to 2 kilograms, pigs from about 50 to 80 kilograms, and cattle from about 200 to 300 kilograms (with significant differences between cows and steers). The combined effect of an increase in the number of birds slaughtered and the weight of these birds on the total volume of meat produced is enormous. Between 1966 and 2023, annual chicken slaughter has grown by a factor of 12 from 61 million

birds to 725 million and the annual total weight of chickens processed has grown by a factor of 19 from 73 kilotonnes to 1,413 kilotonnes.

The standardised animal is heavier. In the case of broiler chickens, rapid growth is associated with increased prevalence of lameness, dermatitis, cardiovascular disorders and other health problems (Riber and Wurtz 2024). In the case of cattle, the increasing use of feedlots for finishing is an important explanation. Around half of Australia's cattle turn-off now come from feedlots (MLA 2025). Recent consumption trends are also tending to favour heavier cattle with muscles 'marbled' with fat, longer grain-feeding periods. Since feedlot turn-off is less susceptible to seasonal variation than extensive farm turn-off, feedlots function in an additional way to standardise livestock supply.

Decreasing reliance on skilled labour

The other side of standardisation is automating the processing line. Together, the two provide a seamless integrated chain. As Grimshaw et al. (2002) argue, organisational form (such as vertical integration) have an important bearing on how new technologies effect the labour process.

When Australian Meat Group invested $300 million to upgrade their Cootamundra beef and sheep abattoir in 2023, they estimated the plant would process 1,000 cattle and 7,500 sheep per day at full capacity. It would also rely on a large labour force of 1,000 workers to operate. Nevertheless, a key principle in the upgrade was to automate as much of the labour process as possible. The opening quote of this chapter is worth repeating as its message is highly significant. AMG Managing Director Gilbert Cabral said:

> Everywhere we can reduce the labour skill component, we've been able to engineer that out of it [the processing line]. That makes it a lot easier to train a bigger group of workers.
>
> (Gilbert Cabral in Doak 2023)

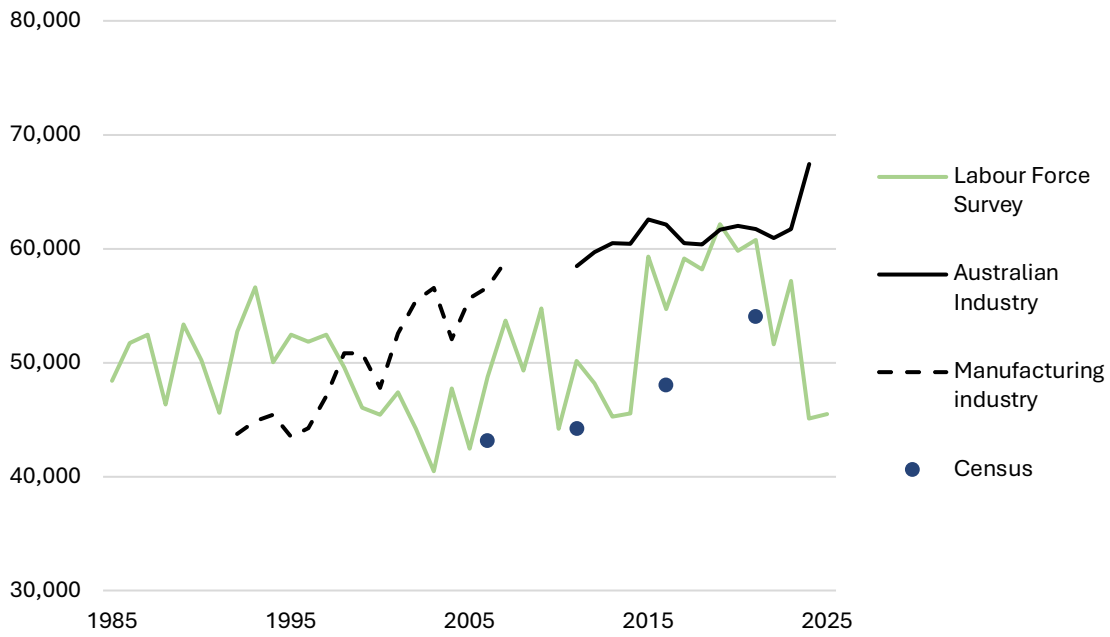
Cabral also said that workers would not simply be displaced but would be deployed in different areas of the plant. The Cootamundra upgrade is emblematic of three employment trends in the industry over the last two decades: (1) an increased

demand for labour; (2) a relative decreasing demand for manual labour, and (2) a relative and absolute increasing demand for lower-skilled manual labour.

Figures 8.6 shows the demand for labour in the meat and meat product industry group (ANZSIC 111).

Figure 8.6 Employment in the meat industry (ANZSIC 111), 1985 to 2025

Different lines indicate different datasets. All estimate employment in the same population: workers in the meat industry.



Data: ABS (2006; 2007; 2011; 2016; 2021; 2024; 2025).

The ABS measures industry employment in different ways. The most frequent is the Labour Force Survey, a monthly survey of approximately 24,000 households. With considerable variation, employment moved around about 50,000 over this four-decade period, with an increase to around 60,000 over the years 2015 to 2021.

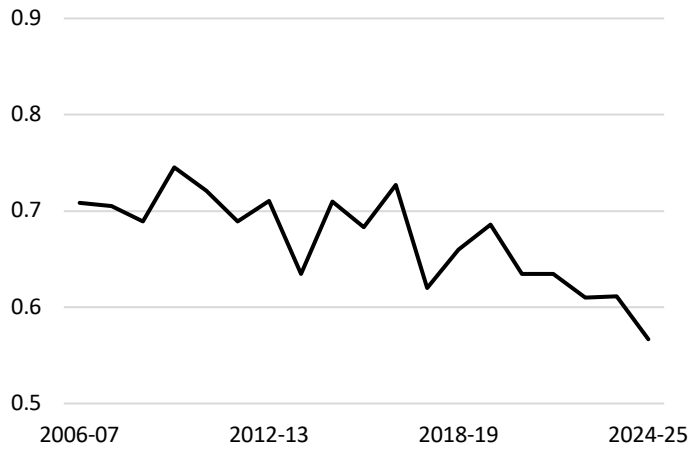
Census data is collected from individuals every five years and shows an increasing trend over 2006 to 2021. Both the Manufacturing Industry (8221.0) and the Australian Industry (8155.0) are derived from the ABS's Economic Activity Survey, a yearly census of all businesses on the ABS Business Register that incorporates data from the Australian Tax Office. The employment trend of these two datasets is clearly increasing, from 43,700 in 1991-92 to 67,400 in 2023-24.

The Manufacturing Industry and Australian Industry datasets can be used to identify a change in the composition of employment between industry classes. Poultry processing doubled employment from 9,700 in 1991-92 to 18,100 in 2006-07 and plateaued at this level since, increasing to just 19,300 in 2023-24. The smallgoods industry followed a similar but less dramatic trajectory, now sitting at 9,600 workers. Employment in the red meat industry is naturally more volatile but increased from around 29,000 in the early 1990s to a peak of 36,800 in 2014-15 and now 38,500 in 2023-24.

A part of the increasing demand for labour is a relative decrease in the demand for manual labour. Figure 8.7 shows the proportion of workers who are defined as labourers at the ANZSCO 1-digit level between 2006-07 and 2024-25.

Figure 8.7 Proportion of workers in the meat industry who are labourers, 2006-7 to 2024-25

Derived as the number employed in Major Group 8 – Labourers, divided by the number employed in the meat and meat product industry group (ANZSIC 111).



Data: Labour Force Survey, 2006 to 2025, TableBuilder (ABS 2025).
Note: Average of four quarters in each financial year.

The proportion of workers in the meat industry who are manual labourers has declined from more than 70 per cent in 2006-07 to less than 60 per cent in 2024-25. Census data shows a similar change in the composition of employment (Table 8.1).

Table 8.1 Employment in the meat industry (column percentages), 2006 and 2021

Occupation	2006	2021	Percentage point change
Managers	8.0	9.5	1.6
Professionals	2.8	3.6	0.8
Technicians and Trades Workers	9.2	8.5	-0.7
Community and Personal Service Workers	0.4	0.5	0.0
Clerical and Administrative Workers	5.5	5.0	-0.5
Sales Workers	2.1	1.6	-0.5
Machinery Operators and Drivers	6.2	7.3	1.1
Labourers	65.8	64.1	-1.8
Total	**100.0**	**100.0**	

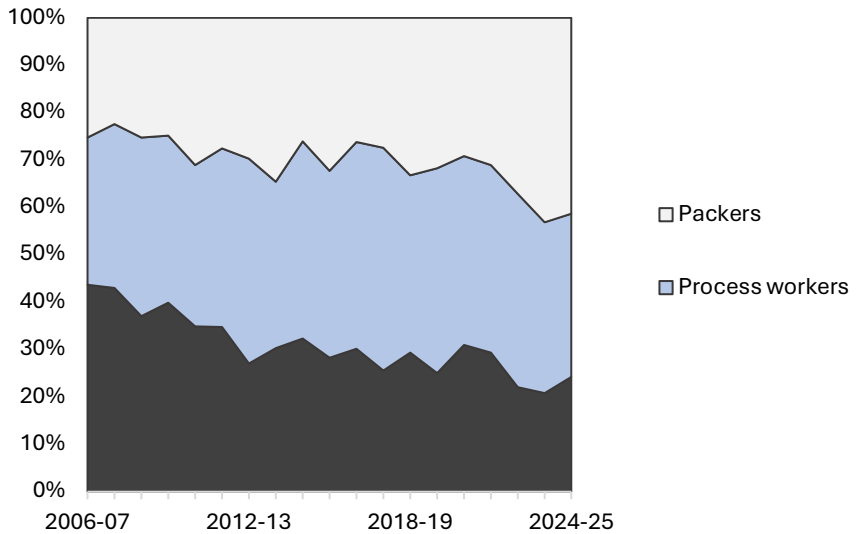
Data: Census of Population and Housing, 2006 and 2021, TableBuilder (ABS 2006; 2021).
Note: all employed in the meat and meat product industry (ANZSIC 111).

Table 8.1 shows that between 2006 and 2021 the proportion of meat workers who are labourers declined, whilst the proportion of meat workers who are managers, professionals and machine operators and drivers all increased.

Given that labourers still make up almost two thirds of workers within the industry, it is helpful to consider the changes in composition of employment demand for labourers at a lower level of aggregation. Figure 8.8 shows the relative shares of employment in the meat industry between the three core factory process occupations: (1) boners, slicers and slaughterers, (2) process workers, and (3) packers.

Figure 8.8 Share of factory process workers in the meat industry, 2006-07 to 2024-25

ANZSIC 111, occupations at the 4-digit ANZSCO level.



Data: Labour Force Survey, 2006 to 2025, TableBuilder ABS (2025).
Average of four quarters in each financial year. Note that several of the quarterly employment estimates for each of these occupations have relative standard errors higher than 25 per cent and as such should be used with caution.

Figure 8.8 shows a relative decline in the demand for boners, slicers and slaughters—higher-skilled workers at the start of the disassembly line—from more than 40 per cent of the group to around 20 per cent; and it shows a relative increase in the demand for process workers and packers, particularly the latter, over 2006-07 to 2024-25. Census data indicates the same trend (Table 8.2).

Table 8.2 Employment of factory process workers in the meat industry, 2006 and 2021

	2006		2021		Contribution to growth
ANZSCO 4-digit occupation	n	%	n	%	(pp)
Meat Boners and Slicers, and Slaughterers	6,718	29.0%	6,721	23.2%	0.0
Meat, Poultry and Seafood Process Workers	10,737	46.3%	13,645	47.1%	12.5
Packers	5,742	24.8%	8,607	29.7%	12.4
Total	**23,197**	**100.0%**	**28,973**	**100.0%**	**24.9**

Data: Census of Population and Housing, 2006 and 2021, TableBuilder (ABS 2006, 2021).
Note: all are employed in the meat and meat product industry (ANZSIC 111).

Table 8.2 shows that the employment of factory process workers in the meat industry increased by 24.9 per cent between 2006 and 2021, however the entirety of this increase was the result of increases of process workers and packers—about 3,000 new positions in each occupation. By contrast, the number of boners, slicers and slaughterers stagnated at a little more than 6,700 over this period.

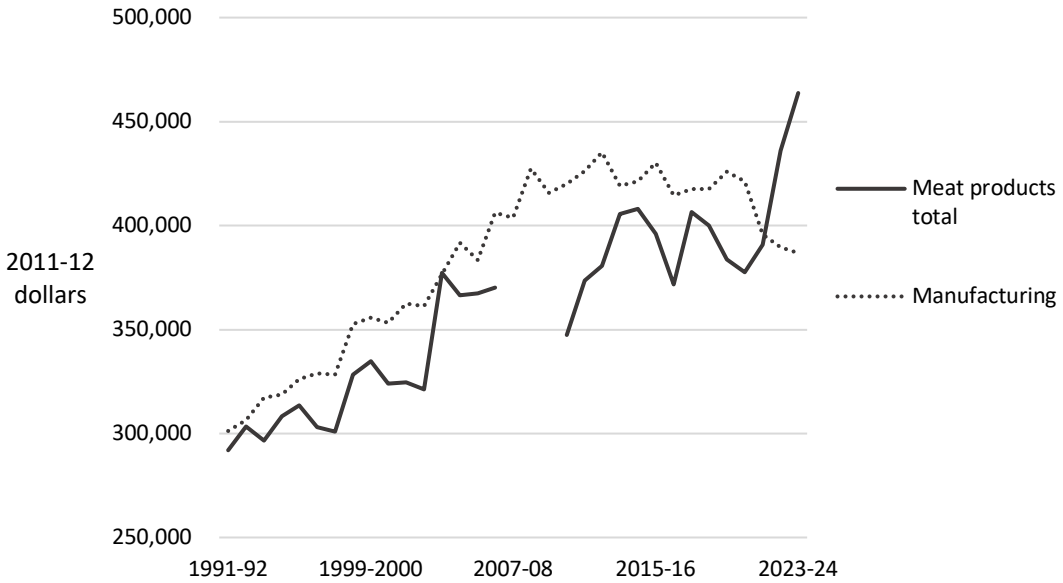
The change in the composition of factory process workers in the meat industry is explained by two factors. The first is that meat processors are performing more work in the supply chain, adding more value through the processing and packaging of products for sale in supermarket fridge shelves (Wong 2023; Kandel and Parrado 2005, 453–54). As such, the demand for lower-skilled process workers and packers increases. The second factor is the introduction of technologies that increase the demand for lower-skilled workers more than the demand for higher-skilled workers. As AMG Managing Director Gilbert Cabral (in Doak 2023) suggested, the point is to 'engineer' or reduce the skilled component of the labour process. Both factors are clearly relevant.[6]

[6] The occupation composition change is unlikely caused by industry composition change. Poultry processing employs fewer boners, slicers and slaughterers than in the red meat industry. However, employment in the red meat industry increased more than employment in poultry processing.

Two pieces of evidence support hypothesis that deskilling continues in the twenty-first century. One is that as the workforce has changed labour productivity has increased. Figure 8.9 shows real turnover per employee between 1991-92 and 2023-24.

Figure 8.9 Real industry turnover per employee, 1991-92 to 2023-24

Meat products total = ANZSIC 111
Manufacturing = sector average



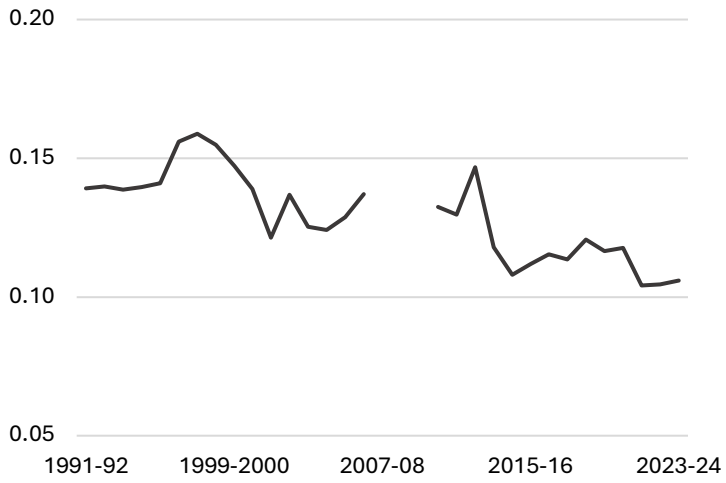
Sources: ABS 8221.0, 8155.0, and 6427.0 (2007; 2024; 2025).
Real turnover calculated by dividing current prices by output price indexes (ABS 6427). The output price indexes are the average of four quarters in a financial year.

Figure 8.9 shows that labour productivity has increased in the meat industry in the previous three decades in a volatile fashion characteristic of the (red meat) industry. Whilst average labour productivity in the manufacturing sector as a whole stagnated throughout the 2010s and declined for the first years of the 2020s, the trend in the meat industry was towards more output per person each year. From the 2020s onwards, labour productivity in the meat industry is above average for the manufacturing sector. This trend is replicated when calculating real turnover per hour worked in the industry (using the estimated hours worked available in the Labour Force Survey), indicating that there may not be a difference between employment and hours worked trends.

Whilst output, employment and labour productivity have increased, the wage to turnover ratio has declined in the meat industry over this period (Figure 8.10).

Figure 8.10 Wage to turnover ratio in the meat industry, 1991-92 to 2023-24

Calculated as the wages and salaries divided by total sales and service income. ANZSIC 111.



Data: 8221.0 and 8155.0 (ABS 2007; 2024).
Note the missing data between the two datasets.

Between 1991-92 and 2023-24, the wage to turnover ratio for the meat and meat product industry group (ANZSIC 111) declined from around 15 per cent to around 11 per cent. This indicates that meat processors are spending a smaller proportion of total income on wages.

There are multiple factors at play here. Increasing labour productivity is in value terms, not physical terms. A contributing factor to increasing value labour productivity is a compositional change in meat products—there is a clear trend towards producing more expensive, younger lamb meat over cheaper, older mutton (ABS 2024). Whilst a trend towards increasing physical productivity is not clear in the red meat industry, it is in poultry. Since the year 2000, the amount of chicken processed per person has increased from around 40 tonnes per year to almost 80 tonnes per year (ibid.)—clear signs of increasing efficiency and pace in the production line.

Dark factories, intelligent automation and competition between humans and machines

Recent technological interventions in the meat industry aim not just to replace labour but to generate efficiencies from new levels of interconnectedness between the robotic, the biological and digital spheres of production. This process has been described as the fourth industrial revolution or industry 4.0 (Echegaray et al. 2022). Research has moved beyond the use of robots that are pre-programmed to do a

particular task in isolated parts of the disassembly line, to the introduction of 'intelligent automation' or 'automation with human intelligence and human touch' (Bab-Hadiashar and Nama 2018, 10).

The 'intelligent' aspect of the automation is the ability to make decisions independently of human supervisors or programmers. The more complex the decision-making is, the smarter the system. Intelligent automation use varies from image analysis and machine learning to make refined adjustments to cuts on individual carcasses, to interconnection of a firm's entire fixed capital, IT infrastructure, HR, finance, customer relations and management systems (ibid. 13). The primary technologies used combine imaging sensors, machine learning image analysis and advanced robotics. As of 2018, the Australian Meat Processor Corporation reported that intelligent automation penetration in the meat industry was limited but 'heading in the right direction', with some advances in carcass cutting and deboning, animal body composition detection, employee safety and smart warehousing (ibid. 10). Seven years later, what is the state of the industry now?

New technologies are increasingly adopted by livestock producers and integrated processors. Innovations here generally pertain to livestock management, animal welfare, cleaning, feeding and watering. Drones are used by graziers to locate stock and monitor their welfare during critical times such as birthing (Department of Energy, Environment and Climate Action 2023; Singer undated). Cameras and microphones are used in conjunction with automated analysis to detect lameness, respiratory distress, and other abnormal behaviours (Bab-Hadiashar and Nama 2018, 13). One company has developed an automated cleaning bay that hoses down individual animals (ibid.). Automated feeding, watering and temperature control systems are an integral part of new chicken and pig breeding barns, including the new 'fully-automated' breeding sheds built by Baiada in New South Wales (Baiada Poultry cracks on to R&D and automation 2023). The most striking intervention in this space is Roomba-like mobile robots that move randomly throughout poultry sheds, stimulating chickens to move around them and avoid the sedentary behaviours caused by their heavy bodies (Amelinckx 2020). These autonomous robots reduce the need for growers to regularly walk the sheds.

At the other end of the production line is packing and warehousing, where there is considerable scope for full automation. The AMPC has developed several successful prototypes of product identification, picking, bagging, sealing and boxing

technologies (Hankins and Aplin 2023; Hopkins et al. 2015). The above showed that demand for human meat packers has outpaced other factory process workers in the meat industry over the last twenty years. This suggests that firms have not widely adopted the recent advances in this space. Kilcoy, however, introduced a box label error detection system and several automated guided vehicles (AGVs) in their warehouse since 2017 (Condon 2018; Daly 2021). AGVs effectively replace forklifts operated by humans (another growing but precarious workforce in the industry); they can operate at any time of the day, return to their own charging station, and they can operate in complete darkness, allowing firms to save on lighting costs. Combined with automated palletisers and container loaders, present warehousing technology is able to establish a fully integrated packing and warehousing system, where communication between each operating unit allows for deliveries to be prepared just-in-time for inbound trucks.

Figure 8.11 Robotic palletising

Source: Scott Automation (2025b).

With respect to the supply chain taken as a whole, new technologies have contributed primarily to traceability and efficiency. The National Livestock Identification System has been in place in Australia for cattle, sheep and goats for more than two decades, however variations of this have recently been developed. In the pig meat industry, a database of biomarkers allows firms to identify and trace meat from unlabelled packages (Bab-Hadiashar and Nama 2018, 20). The key innovation in this space, however, is blockchain. The technology used to secure crypto-currency transactions can now provide very detailed levels of traceability in the meat industry, providing unique information on individual animals (ibid. 18-19; Wang 2020).

Within processing plants, industry 4.0 can provide a distinct cost advantage. In 2024, the John Dee meatworks in Warwick, Queensland, completed the first stage of an enterprise-wide overhaul of its IT systems, physical IT infrastructure, some processing technologies, product management and finance systems in line with industry 4.0 principles (Fern 2024). Author of the AMPC report on the transformation, Andrew Fern, indicated:

> A change in thinking may be warranted to allow processors to move quickly to take advantage of technology opportunities. Viewing IT as a source of strategic competitive advantage, rather than necessary cost, is the starting point. There are some unique challenges in the industry, but they are not unique to meat processing. Rather, they are the same challenges as any raw materials manufacturer and in fact many manufacturers more generally. [...] It is often said that 'Meat processing is different!'; it isn't different.
>
> (Fern 2024, 4)

Within processing plants, technical innovations allow limited capacity to automate the disassembly line. Electrical stunning baths are a highly automated method for stunning birds prior to slaughter that have existed for at least three decades, and in 2021 electrical stunning methods have been successfully installed to stun cattle in a less manually-intensive way (AMPC 2021). Automated slaughter technology (cutting machines) have existed in the poultry industry for some time, however it is debatable whether such methods meet Halal criteria. Objective grading methods continue to be adopted by large plants (e.g. Teys in Rockhampton in 2018). These systems use X-rays to scan individual carcasses to objectively measure animal fat, muscle and bone

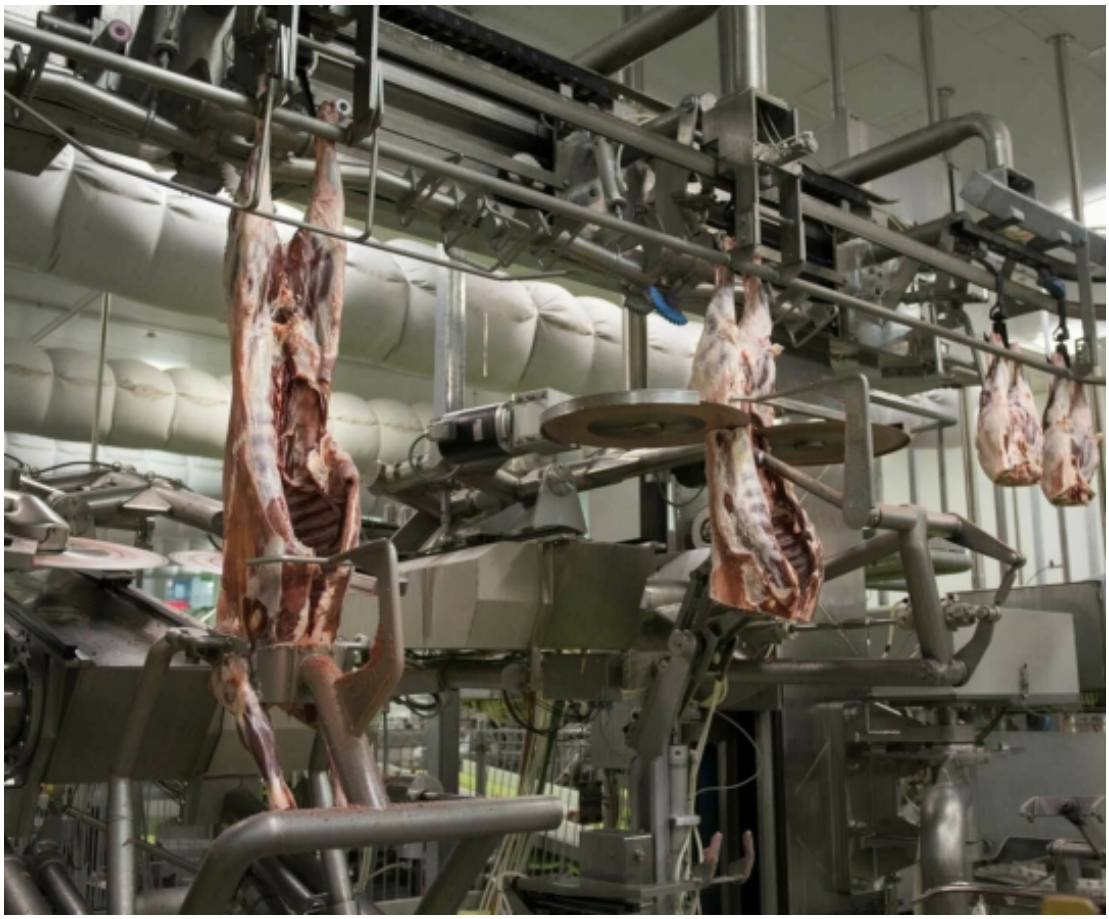
composition to provide a basis for pricing and feedback for producers (Carbone 2024). Predictive maintenance remains a goal for the industry, where sensors monitor machine wear and anticipate problems before they arise. Likewise, 3D printing for unique spare parts generation on site is not widely adopted, but provides some potential for cost minimisation.

The holy grail in the industry is to considerably reduce the cost of labour. At this stage, innovative technologies allow for some labour displacement, but they are generally deployed to improve accuracy (increasing yield) and safety. The core technology developed for carcass cutting is a system integrating imaging, analysis and circular saws attached to robotic arms (see Mayekawa in Japan and BANNS in Germany). An early intervention was made to the JBS processing plant in Bordertown, which uses X-ray and CT scanners to image lamb carcasses and independently make cuts to produce bone-in lamb products without human intervention (Scott 2025). Cuts applied to create these bone-in products are simpler than those that remove bones.

Elsewhere, Kilcoy and JBS use similar technology for beef rib cutting and scribing—the latter are preliminary cuts made to a carcass that can provide a guide for further disassembly by human boners down the line. In each of these technologies, machine learning is used to continually improve the system's accuracy. Currently, more complex processes when meat is deboned or pulled from the bone—the job of manual meat boners—remain in prototype phase and are not widely used in the industry.

The 'leap 4 beef' project, a collaboration between the AMPC, MLA, Scott Technology and JBS is the most sophisticated holistic project to automating cattle disassembly (AMPC 2024b). The project takes a modular approach (essentially Taylorisation or task specialisation) and seeks out solutions to each of the various stages of cutting from whole sides, separating each side, bone in cuts, leg deboning, and further processing. Several of these stages are currently being trialled in plants.

Figure 8.12 Automated boning room



Source: Scott Technology (2025a).

Whilst human process workers still exist in their thousands in the industry, the interface between humans and advanced technologies is increasing. In prototype stage are wearable technologies including augmented reality devices. The AMPC has conducted successful trials of 'collaborative robots' that perform the same duties as human workers and work next to them on the same line. The ideological underpinnings of these kinds of projects sometimes rise to the surface in the language used. Consider this sentence from a report on the trial of a packing robot:

> The Robot can work right next to Human Workers performing the same task and it reduces the workload on the Humans when there are not enough Human Resources available.
>
> (TME Systems Pty Ltd 2022, 3, capitalisation original)

Other areas identified for successful adoption of collaborative robots include deboning, vacuum sealing products, and carton stacking (ibid.).

Safety is the primary concern when introducing such technologies, as the interaction between humans and the smart machines cannot be simply anticipated. Injury minimisation and reduction is also a major area of concern and innovation in the industry, due to the high costs involved of workers compensation premiums. BladeStop technology—which stops a band saw within 9 milliseconds when it makes contact with a hand—has been adopted by several meat processors (Bab-Hadiashar and Nama 2018, 20). The AMPC is working on a similar GloveStop technology. The AMPC has also funded research into other wearable technologies such as those providing employee tracking and wearable cameras that allow for performance management, but it appears that this has not amounted to any trials or industry adoption (Cox 2016).

Another human/machine interface currently in the prototyping and trialling stage is shadow robotics, robots that are controlled remotely by human operators. The AMPC describes its interest in the area:

> The primary motivation for implementing shadow robotics was to remove operational staff from potentially dangerous devices or tasks. The ultimate goal would be to have operational staff remote from the processing facility, thus creating a safer working environment. Additional benefits to using shadow robotic systems would be the added precision of industrial robots and the potential for yield increases due to sub-millimetre accuracy and machine learning integration, and the robot can be used to remove the physical demands of some tasks.
>
> (Fitzpatrick et al. 2024, 4)

In 2023 JBS trialled a shadow robotics system in their Scone plant, where users operated a robot remotely via a website on a tablet device. The robot's task was to pick lamb cuts from a conveyor and pack them into cartons. The trial was successful, although the performance did not yet match human pace. Most interesting is the analysts' suggestion that remote operation can even be conducted internationally, since all that is required is an internet connection (ibid. 3). The technology is seen as a stepping stone towards labour saving (should the system increase in speed), can be used for training machine learning algorithms and ultimately is a step towards the full automation of packing tasks (ibid. 6).

Whilst removing the main physical nature of a packer's role (lifting, standing, moving), shadow robotics technologies, insofar as they are still operated by humans, do not remove the repetitive nature of the tasks. The industry's solution is the gamification of remote operations. A semi-automated, remote operated beef scribing system was trialled in 2022—a user operates a mouse and keyboard to essentially double-check whether the X-ray-located cut lines are in the right spot. Their work is 'gamified' by a test-mode where they are trained to accurately identify cut locations, and a timer on the screen which provides feedback as to their pace of work, 'as well as subconsciously providing stimulus and positive-reinforcement for fast operation without overwhelming them and distracting from the content' (Cook 2022, 9).

8.3 Conclusion

Despite several major issues hindering the adoption of new technologies in the meat industry, recent evidence suggests this is changing. Labour productivity has increased steadily over the previous three decades, and in relative terms the industry is coming to rely less on the labour of workers doing manual tasks. The meat industry, however, has clearly not transitioned to an industry with minimal labour requirements. Between 2006 and 2021, the highest growth occupations in the industry were process workers and meat packers—workers doing the core business of meat processing in the age of deskilled task specialisation. It is reasonable to suggest that this workforce, whilst performing the primary dextrous work of meat processing, is precarious in the long term. Even if they are permanent residents, and even if their bodies are not broken down by the work, meat workers collectively face the looming changes associated with an increasing penetration of automated processing technologies.

The potential effects on the demand for labour resulting from the introduction of intelligent automated technologies are several. This thesis has argued that automation is not a bad thing *per se.* Certainly the introduction of band saw safety devices is an important step towards eliminating disfiguring injuries from the meat industry. Further, where technology can be deployed to replace labour doing difficult and repetitive tasks, such as manually sorting products and lifting heavy boxes, it should be deployed.

In their report for AMPC in 2018, Bab-Hadiashar and Nama are particularly optimistic:

> Jobs will become more valuable as IA [intelligent automation] technologies will take over the least productive tasks. Through a shift from repetitive tasks to more advanced tasks requiring creativity and interpersonal skills there is the potential to increase job satisfaction for every worker. This improvement will be strongest for low-skilled workers who perform automatable activities leading to 62% of these workers in Australia becoming happier in their roles by 2030. If low-skilled workers would be trained to perform unique tasks that are not automatable, real wages could increase by 10% in the same period (Alphabeta 2017).
>
> (Bab-Hadiashar and Nama 2018, 25)

Alternatively, low-skilled workers could just be sent home. The meat industry could permanently resolve its labour problem by ceasing its requests for temporary labour agreements and relying almost exclusively on a smaller programming and maintenance workforce. It is unlikely the industry would require as many workers trained in electrical controls and programming as it has previously required in meat processing and packing, and it will not necessarily draw the former workers from a pool of the latter.

Botwinick provides some insight into the effect on wages from rapid technical change:

> [W]ithin the classical Marxist framework, rapid productivity growth and vigorous levels of capitalist competition do not generally have a positive effect on the wages and working conditions of the working class. On the contrary, the free and unregulated forces of accumulation and competition tend to have disastrous consequences for the working class unless workers are able to organise some form of collective resistance to capital's continuing onslaught. [...] Indeed, in periods like the last three decades when workers' resistance is extremely weak, the constant pressures of competition and the reserve army of labour will often allow increases in the productivity of labour to be accompanied by *declining real wages*.

(Botwinick 2018, 293)

In the absence of considerable organisation, there is little chance workers will be able to secure any of the potential gains made in the meat industry's transition to industry 4.0.

As I have shown in this thesis, in the context of capitalist competition, technology can be deployed to deskill, devalue and disconnect workers from control over the labour process. Whether employers invest in capital to replace cheap labour, or whether they continue on with sizeable process and packing workforces depends primarily on the price of automated technologies. After deskilling, perhaps, comes displacement.

Chapter 9 – Taking wages out of competition

> Cities and fields have long been siblings, bound by another timeless imperative: cheap food for the urban poor. Everyone from Cicero to the imperial Chinese has understood the importance of making sure that city dwellers are sufficiently well fed to prevent urban discontent.
>
> (Patel and Moore 2017, 140)

Rapidly increasing food prices have been a central feature of the cost-of-living crisis in Australia since 2022, when the price of grocery staples increased more than most other commodities (Schneiders 2025). In the crosshairs of public ire were the two big supermarket chains, Coles and Woolworths, that together make up two thirds of the market. Profit margins for the two companies increased persistently between 2018 and 2023, a period that includes the COVID-19 pandemic and the onset of high inflation (Barrett 2023a). Amidst mortgage and rental stress (Hanmer and Marquardt 2023; Agarwal et al. 2023; Touma 2023) and real wage decline (Read 2022), critics suggest the grocery oligopolies took advantage of expectations that prices were increasing everywhere (Barrett 2023a; 2023b). The discontent led to two inquiries into price setting and the market power of the major supermarkets (Select Committee on Supermarket Prices 2024; Australian Competition & Consumer Commission 2025).

As Patel and Moore (2017, 140) suggest, the provision of affordable food is central to social cohesion. It is also central to the reproduction of capitalist social relations. In addition to paid and unpaid reproductive labour, institutions such as the family and kinship networks, and commodities such as clothing and housing, food is an essential component in reproducing the working class. The price of food is a key factor in the cost of reproducing labour power—the general wage level (Marx 1990, 275). The provision of cheap food thus works as a subsidy to all capitalists as it 'lowered the minimum-wage threshold: workers could be paid less and not starve' (Patel and Moore 2017, 143). Capitalist agriculture, with its expansive monocultures and heavily mechanised harvests, generates food surpluses with declining prices that underwrite cheap labour. The result is lower wage bills, wider profit margins, expanded reproduction and accumulation. The wage suppression of food labourers, then, is of great consequence in the reproduction of class society.

If there was an emblem of this global cheapening of labour it would be the industrial chicken—highly homogenous animals grown in predominantly enclosed spaces. Since the 1960s, significant changes to feeding, genetics, environmental control and processing have increased the efficiency of the industry enormously. The result is a significant decline in the price of chicken meat and massively increased production and consumption—dynamics that also appear in the pig meat industry. Arguably, innovations in these two meat industries are making their way into the rest of the red meat industry, which has previously relied on extensive production methods yet is becoming increasingly intensive. Feedlots now account for half of all cattle turnoff, and enclosed production methods are increasingly used in the adjacent dairy industry. Efficiencies in the disassembly line in all meat processing industries are continually introduced.

A key part of the production of cheap food is the exploitation of food workers. Chicken processing workers may have fared better than red meat workers recently in terms of wage growth, but they started from a lower base and their pay is still a significant step below the Australian median. The analysis of wage data presented in Chapter 2 shows that workers in all meat processing industries face wage suppression. There, I identified five dimensions of wage suppression in the meat industry: across workers as a whole, across methods of pay setting, across occupations and industries, and across visa status. I showed there is a high chance that the real employment earnings of factory process workers in the meat industry are stagnant, entailing an increasing gap between these relatively low-paid workers and the rest of the Australian workforce. I analysed data that suggests around half of meat workers are low paid, a worrying proportion are at risk of poverty wages, and this risk is unevenly distributed across the workforce.

As I have considered here, all capitalists have an interest in the wage suppression of food labourers. But in the 1970s, red meat workers in particular were at the height of their industrial strength. So how was their wage suppression achieved? What drove this change and how can an analysis of capitalist competition aid in the explanation?

The drivers of wage suppression

In chapters 3 and 4 I developed a theoretical framework for answering the research question. In Chapter 3 I found that a socio-economic understanding of labour

markets is helpful to making sense of the valuation of labour in the meat industry. There, I identified that labour market outcomes are the result of: the structuring of jobs, the allocation of workers to jobs, institutions for wage setting and work valuation, and control in the workplace.

Chapter 4 bolstered the socio-economic approach to labour markets by providing a critical analysis of the dynamics of capitalist competition. Building on the work of Anwar Shaikh, I worked through Howard Botwinick's intervention to consider the terrain of possibilities for wage growth. I showed how this terrain depends on the relative efficiency of firms, firm and industry capital-intensity, surplus profits or monopoly rents derived from unique conditions of production, the supply of labour and product demand. In the context of an increasingly important financial sector and massive employment shift towards the service sector, I showed that the theoretical approach developed in this chapter is applicable to the meat industry insofar as the latter is a clear instantiation of what Alex Blanchette (2020) terms 'hyperindustrialization': an industry overwhelmingly concerned with minimising unit costs, increasing labour productivity, and maximising physical output.

Chapter 5 provided historical background to later chapters and analysed changes in the meat industry in the context of the development of the manufacturing sector. I showed that after the Second World War the meat industry emerged as a major exporter and became central to the Australian economy's embeddedness in the extraction and processing of primary products. With reference to the works of Cutler (1976), Jerrard (2001; 1999; 2006) and O'Leary (2008), I showed that fixed capital investment took the form of increased plant capacity and, in the beef export sector, it took the form of conveyor technology similar to the chain system in sheep processing. Within this new, expanded terrain of possibility, two institutions were important to the regulation of wages and work: the award system managed by the industrial courts, and the tally system. The AMIEU preferred direct negotiation with employers over mediation in the courts and were able to wield the tally to their advantage. Up until the 1980s, employers had limited success curtailing the ambitions of the meat union through the regulation of work. As such, the post-war meat boom resulted in the high point of labour's gains in the wage-profit share as employers, reticent to cease production, acquiesced to wage increases.

By the end of the twentieth century, meat workers no longer had seniority rights, control over the pace of work, control over the length of the working day, and even

union access to worksites. In addition, low pay was increasingly common in the industry. In chapters 6, 7 and 8 I showed that wage suppression since the mid-1980s was the result of:

- the consolidation of capital and the increasing resources of large firms;
- increasing employer militancy amidst favourable microeconomic reform;
- the provision of a cheap, vulnerable workforce; and
- increasing employer control over the labour process.

In Chapter 6, I explored the rationalisation of the meat industry, product demand, and the organisational structure of meat processors and their competitive strategies. The concentration of capital in poultry processing occurred through mergers and acquisitions in the context of intense price cutting competition, technological change, and the stable growth of production and consumption. By contrast, consolidation in the red meat export sector occurred in the context of significant overcapacity resulting from shocks to overseas demand and local livestock supply in the 1980s. The global concentration of agribusiness and meat processing multinationals is associated with reduced profit margins amidst rising international competition (Kandel and Parrado 2005, 455). In this chapter, I show that Australian processors charted a unique path to consolidation involving continued expansion into domestic and overseas markets. Volatile livestock supply remains an intractable feature of the beef and lamb industries, however now export markets are considerably more diverse and thus resistant to demand shocks.

The classical Marxist theory of competition is helpful to understanding the different dynamics in the concentration of capital. Industry concentration does not indicate a lack of competition, rather a different form of it wherein temporary surpluses (‘rents’) can be gained from barriers to entry, new or unique production methods, and exclusive access to land. This is particularly relevant to the red meat exporters that defended against lower-cost competitions in part due to Australia’s competitive advantage in livestock production. I argue that processors appropriate ground rent externally by monopsonistic control over upstream suppliers and internally by vertical integration. Thus far, such rents have protected them in competition with rivals in low-wage countries.

Increased fixed capital investment, labour productivity, production, consumption, export value and a declining the wage-to-turnover ratio indicate increasing capacity

to pay wages in the meat industry, but they also mean increased resources for obstructing workers' demands. Such resources were necessary as employers became increasingly militant in bargaining from the late 1980s and throughout the 1990s. The importance of this historical juncture has been explored at length in several excellent theses and articles that describe the transition to a new industrial settlement marked by striking the tally system from federal awards, the transition to hourly wages, longer hours of work, and reduced industrial conflict (Jerrard 2005; 2006; 2015; O'Leary 2008; Norton and Rafferty 2010). In Chapter 7, my principal contribution to this literature is a novel analysis of the Workplace Agreement Database to show that below-average negotiated wage increases are a central component of the new arrangement between capital and labour. While meat workers had previously backed themselves in disputes with employers—preferring direct negotiation over mediation by the industrial courts—the institutionalisation of enterprise bargaining in the 1990s proved a disaster for workers in the meat industry.

It wasn't just large firms that got the upper hand against unionised workers. From the late 2000s, low-wage competition became a core feature of the meat industry as all firms turned to migrant labour on temporary work visas. These workers have faced egregious forms of labour standards avoidance and financial abuse. Through an analysis of union and industry group submissions to federal inquiries on migrant worker exploitation, in Chapter 7 I showed that employers came to depend on temporary labour to contain their wage bills. While framed as the failings of 'bad actors'—whether predatory labour hire syndicates or unscrupulous meat processors—I showed that the employment of visa workers constituted a widespread, institutionalisation of competition premised upon labour standards avoidance and wage theft. This insight adds to the literature connecting competition between firms and the form of employment relationships (see for instance Grimshaw and Rubery 2005). Moreover, the provision of a cheap, vulnerable workforce underwrites profits in the meat industry and thus functions as a 'subsidy' provided by the Australian state.

The role of temporary migrant workers in the division of labour entails reflection on a line of thinking that cuts through each of the chapters: the segmentation of the workforce according to social differences. In the recent era of temporary migrant worker exploitation, wage differentials were not just the product of differences in method of pay setting (enterprise agreement, award, informal cash payments), nor of differences in visa status. They were also instituted through racialised

constructions of skill that assigned Pacific Islanders to heavier, simpler and more monotonous tasks (Moolchand and Marshall 2025). My contribution to this debate is a historicisation of different periods of segmentation. As Jerrard (1999; 2005) explored, twentieth-century divisions of labour between meat industries and on the disassembly line were heavily influenced by gendered constructions of skill. In Chapter 2, analysis of the Australian Census of Population and Housing between 2006 and 2021 revealed that poultry processing is no longer highly feminised, however migrant women are now primarily clustered in meat packing roles across the sector. These are the lowest paid jobs in the meat industry and arguably the most susceptible to displacement by automation. Since 2021, however, Pacific Islander workers are the most common temporary migrant workers in the industry and, although data on gender composition cannot be broken down by industry, PALM workers are overwhelmingly male. A consideration of these developments provides nuance to the global trend of migrant labour employment in food production (Böhm et al. 2020), and invites dialogue between studies of the devaluation of feminised factory work (Livingston 2004; Taylor 2010; Mezzadri 2016), guest worker regimes (Petrou and Connell 2023; Withers 2024), and the literature on uneven development and global commodity chains (Bair 2005; Suwandi 2019).

In Chapter 8, I explored the hypothesis that the system of vertical integration has allowed larger firms to entrench their control over the labour process. I found that as animals are increasingly standardised and their disassembly is more automated, the industry's reliance on manual workers has declined. But factory process workers remain the bulk of the workforce and employment of lower-skilled process workers and packers is in increasing. These employment changes are explained by two trends: (1) increasing processing and packaging work done to meat products, which results in an increased demand for these workers; and (2) the continued task specialisation of the meat workforce, which results in a change in the division of labour. The latter suggests that new technologies have a variegated effect on the skill requirements of the industry: necessitating both upskilling and deskilling (Böhm et al. 2020, 204). It also suggests a shift in the site of knowledge about the production process—a shift away from manual workers on the disassembly line and towards managers and engineers. One of the outcomes of this change in the division of labour is employer prerogative over the speed of the processing line, a factor directly connected to worker effort and injury.

Increasing employer control over the labour process is intimately connected to the devaluation of labour in the meat industry. An important consequence is a re-evaluation of preconceptions about contemporary labour markets in industrial sectors. Images of deindustrialisation and the global stagnation of manufacturing capital are often simplistic. Rather, industrialisation is 'a process that continues to unfold in novel ways' (Blanchette 2020, 5), albeit one that remains uneven, transnational, and concentrated. A classical Marxist theory of competition, which is particularly suited to the dynamics of industrial capital (Watson 2002, 105), remains highly relevant. This approach is well suited to economic analysis of countries that rely on the export of processed primary products (Argentina, Brazil, Canada, Chile, Indonesia, New Zealand, Norway, Russia), countries with large manufacturing workforces (China, India, Mexico, Taiwan, Vietnam), and the supply chains connecting these. Another important consequence is that an analysis of the labour process within factories remains a pressing concern. The homogenisation of labour, machine pacing, and the intensification of work remain contemporary problems.

Taking wages out of competition

The meat industry's obsession with labour costs reaches an apogee in the oft-cited Heilbron report (2018) when the authors model a hypothetical reduction in wages and on-costs to levels found in the United States, home of the most efficient processors. A dramatic reduction in the Australian minimum wage, the idea is considered 'a longer term means to reduce beef processing operating costs' (ibid. 22). It would result in a $638.8 million saving to the industry, nearly half of the $1.4 billion gross operating surplus beef processors generated in 2015-16. Short term, such a radical devaluation of labour would have a negative effect on employment (estimated at 3,640 jobs); however, long term, the increased surplus is expected to positively effect investment, industry returns and future demand for labour. Tactfully, the authors note that '[t]his is not to suggest that Australia should necessarily follow the same labour policies as the US' (ibid. 26). Except they do suggest employers require more flexibility, citing two areas of onerous rigidity: the protection of employees against dismissal and regulations on the use of temporary forms of employment such as daily hire.

The development of the Australian meat industry already mirrors the development of the US meat industry (Kandel and Parrado 2005; Wright 2012; Patel and Moore 2017, 156–57; O'Leary 2020; Warren 2021). After several mergers and acquisitions,

US meatpackers went on the offensive against labour in the 1980s. Alongside deskilling and relocation to non-unionised rural towns, processors came to rely on the exploitation of African Americans and migrant labour, predominantly Hispanics and Caribbeans. While temporary migrant workers in Australia are vulnerable to exploitation due to the ever-present threat of visa cancellation, the concern for undocumented migrants in the US is that they will be reported to immigration authorities (AMIEU 2022, 6). The forms of meatpacker exploitation in the US are similar to those described in Chapter 7, including militaristic control inside the workplace and the provision of substandard living conditions (Human Rights Watch 2004; Warren 2021). A Haitian migrant working at a North American JBS plant described his experience as 'worse than being in jail' (Thomas 2024).

Federal Secretary of the Australian meat workers' union, Matt Journeaux, offers an unflinching perspective:

> The AMIEU has little doubt that the generation of the industry's interest in overseas labour was associated with a conscious attempt by industry to emulate the success of meat and poultry processors in the United States in using foreign, non-English speaking migrants as a means of suppressing wage growth, union organisation, and collective bargaining in their industries. This was achieved by deliberately recruiting workforces from migrant populations that were vulnerable to exploitation.
>
> (AMIEU 2022, 2)

Corporate connections substantiate this idea. As Australian Meat Holdings continued its offensive against labour in the 1990s, it was bought out by US food giant ConAgra. AMH was subsequently owned by US firm Swift and the Brazilian multinational JBS (which now also dominates the US market). Further, as of 2011, Australia's third-largest red meat processor Teys joined with US-based multinational Cargill, forming a cross-Pacific partnership. Since June of 2025, Cargill now wholly owns the Teys Australia business. However, a key difference between the two meat processing labour markets is the amount of working poverty and the related wage inequality across each economy. Whilst 'poverty has become endemic' (AMIEU 2013, 8) in the United States due to the very low minimum wage, hostile environment for unions and weak transfer payments, the Australian employment and welfare systems have not

broken down to the same extent. Howard tried to Americanise Australian labour laws, but in 2007 his vision for this country was rejected and he was voted out of office.

On the other hand, the Australian landscape for wage determination is hardly a paragon of industrial harmony. Wage inequality in Australia is entrenched and increasing (Watson 2016). In 2022, the minimum wage was 53 per cent of the median wage for full-time workers, which is below the OECD average (55 per cent) and below other countries such as the UK (58 per cent), France (61 per cent), and New Zealand (65 per cent) (Hamilton 2022, 40). And as I showed in Chapter 7, payment below minimum wage was pervasive in the meat industry as it became a central feature of competition between meat processors. The 'same job, same pay' legislation will go some way to stamping out intra-firm wage differentials in the meat industry, however employers will now be even more interested in suppressing negotiated wage outcomes. In this environment, firms with outdated enterprise agreements, or no agreement at all, will have a cost advantage over firms with all employees on stronger agreements.

Referencing an argument made by economist John R. Commons, Botwinick (2018, 219) wrote that 'one of the primary purposes of unionism is to try to take wages out of the competition of capitals.' One way to do this is to organise all regulating capitals right across an industry and ensure each one accepts the union's proposed wage increase. Provisions in Australian labour standards currently allow multi-employer bargaining for low-paid workers, but eligibility criteria for this stream of bargaining are very stringent (Fair Work Commission 2025b; Marin-Guzman 2022). An expansion of sector-wide bargaining to more workers would allow unions to better mitigate against the harmful effect of low-wage competition. But as with any labour market reform, nothing will be achieved unless changes are accompanied by the elimination of restrictions on the workers' freedom of association *and* significant steps forward in workers' self-organisation.

In a hypothetical world where worker organisation is prospering, another way to take wages out of competition is to significantly increase the minimum wage. Provisions in the *Fair Work Act 2009 (Cth)* could be used for this purpose. Section 284 (1)(b) and (2)(b) stipulate that adjustments to the minimum wage should take into account the need to eliminate wage differentials premised on historical gender-based undervaluations of work, and (1)(c) stipulates that the relative living standards and needs of the low paid should also be considered. Given the twentieth-century

perception that poultry processing was women's work, and also given the deskilling of workers right across the meat sector, both provisions could be used to support increases to the federal meat and poultry processing awards. The needs of the low paid are in fact taken into consideration in the Fair Work Commission's annual review of the minimum wage (FWC 2023; 2023; 2024; 2025a), as they have been sporadically over the last 125 years of industrial court activity (Beggs 2021). Causing outrage amongst the Australian business elite, the Commission increased the minimum wage by 3.5 per cent in 2025, a whole 1 per cent above headline inflation (Marin-Guzman and McIlroy 2025). In reality, the wage increase will make an insignificant dent in the capital share of income and will not relieve cost-of-living pressure faced by the working poor.

An ambitious minimum wage increase is in the order of 23 per cent—the increase required to reach the same level of wage equality (the proportion of the minimum wage to the median) as New Zealand (using the figures in Hamilton 2022, 40). What effects might this have? A cursory look at demand and supply curves would suggest a negative effect on employment, which is already artificially depressed by the minimum wage floor. But what if the opposite was the case? What if wage increases were associated with productivity growth, accumulation, and even full employment? Part of this idea was hinted at in Chapter 8, where I indicated that low pay functions as a low-productivity trap for backward, inefficient firms.

Cambridge economist Frank Wilkinson (1983) developed the idea of the productivity 'spur', where raising the minimum wage can, as described by Peter Brosnan (2003, 198), 'serve a useful purpose in forcing inefficient productive systems to compete on a different basis than the wage level' (see also Brosnan and Wilkinson 1988). A similar idea was developed earlier by another Cambridge economist, Wilfred Salter, who considered productivity at an industry and aggregate level. For Salter (1966, 153), the '[a]rtificial support of declining industries … retards the growth of productivity.' He continues:

> The argument that an industry cannot 'afford' higher wages is, in the long run, extremely dangerous. If it were accepted and wages were based on the 'capacity to pay', employment would be perpetuated (unless labour deserted them) in industries which should properly decline to make way for more vigorous industries.

(Salter 1966, 153)

On this line of thinking, a centralised wage policy that eliminates low pay (but also high pay) would effectively increase the pace of structural change as backward industries decline faster and ascendant industries are not held back by very high wage growth. Taking wages out of competition can as such spur a 'virtuous, cumulative, reinforcing process' of capitalist dynamism that, in an environment of high investment, will lead to productivity growth and accumulation (Harcourt 1997, 83). It will also lead to increased consumption (Brosnan 2003). By way of a conclusion, I consider one obvious problem with this analysis.

Contradictions in the reversal of cheap nature

The meat industry is a good example of the failure of flexible wages policy and the need to take wages out of competition between capitals. But whether wages are tied to an industry or firm's capacity to pay, or whether they are set centrally and adjusted according to aggregate measures of productivity growth, in each case workers' interests are aligned with capitals' on the question of accumulation. A bigger pie means a bigger slice for each without adjusting the relative sizes of portions. This is not a problem of wages policy, but rather a problem with the capitalist organisation of work. The problem presents itself when the plausible shape of structural change of the meat industry is considered.

In response to a significant wage increase, firms would first pursue the least disruptive changes to production to recoup some of the increased labour costs. While attempts might be made to refine the division of labour through further task specialisation, most likely this would result in simply increasing the pace of production. Since the disassembly line is already operating at the limits of workers' bodies, efficiencies could be gained in further reducing non-productive time. That is, clamping down further on bathroom breaks and other time away from the line. Efficiency gains in this area are likely minimal. For firms that are unable to finance technological changes to the labour process, many will simply cease operating and sell their assets to competitors.

Employment will not necessarily be reduced, but will instead be reallocated to larger, more productive firms (Dustmann et al. 2021). The loss of some small and medium-sized firms means an increase in industry concentration, which is already high in the

meat industry. Such a change presents an opportunity for labour insofar as it is easier to organise a small number of large firms than many small firms. But larger firms with increasing market shares also means greater resources in the hands of employers, and potentially a more unified lobbying front in Canberra (Hambur 2023). In *Persistent Inequalities*, Botwinick (2018, 34, 47, 58) fastidiously showed that concentration is inconsistently associated with wage premiums in studies of industry wage differentials. There is no automatic link between monopoly and wages.

The effect on prices, and hence inflation, is indeterminate. Higher labour costs will not necessarily manifest in higher retail prices. In the case of local processors, the cost may be shared between processors, retailers and consumers in the form of lower profit margins and higher prices. In the case of multinationals, local cost increases may be cross-subsidised by operations overseas. But neither prices nor profit margins need be affected if labour productivity increases. Rising productivity means lower labour requirements per unit of output, which puts downward pressure on unit costs. A change in the relative costs of labour and capital will cause some firms to increase investment in fixed capital. Increasing use of BladeStop safety technology, carcass imaging, automated beef scribing (carcass preparation), and smart warehousing will generate new efficiencies that will bring down unit labour costs (and workers' compensation payments). Presently, the Australian Meat Processor Corporation is seeking to achieve exactly this dispersion of automated processing technologies. Uptake of these technologies will increase the demand for skilled labour in the meat industry. In the short term, a negative effect on the demand for unskilled labour is unlikely, however this likelihood changes as the time horizon extends.

Depending on the penetration of new processing technologies, three possible futures present themselves for the meat industry. The first is the most radical: the successful automation of manual processing tasks on the disassembly line. The need for manual labour would be drastically reduced, but some more workers would be required in programming and maintenance jobs. In this scenario, increasing automation will most likely be aided by increasing standardisation, the other side of the vertical integration problem. The result is an increasingly homogenous livestock and 'the direct antagonism between animals and fixed capital' (Wadiwel 2023, 19).

The second scenario is the partial penetration of new processing technologies. Increases in labour productivity would be enough to offset increased wages, meaning

the continued employment of the local manual workforce. Here, increased industry concentration will exacerbate existing trends, including the transition to more intensive production methods.

The third scenario involves a minimal penetration of new technologies across the industry. Now, labour cost increases could be worked into the cost structure of the supply chains in the red meat and poultry processors supplying the domestic market, however international competition may push the export sector into various states of partial offshoring. Arguably, the offshoring of the bulk of processing work is already a risk in the red meat industry (AMPC 2016). As the live sheep export industry is being phased out, the live cattle export industry is booming on the back of trade with Indonesia. But a more significant pathway is the partial offshoring of Australian meat exporters, where carcasses are prepared in Australia (by methods that are already automated) and processed further overseas where wage costs are lower. As Brazilian beef is now recognised as foot and mouth disease free without vaccination, Japan and South Korea are expected to accept imports from the South American country for the first time (Walendorff 2025). In March of 2025, JBS committed USD 100 million to build two new plants in Vietnam, designed primarily to process the 'raw material' of cattle, pig and chicken carcasses imported from Brazil and Australia (Beef Central 2025). The facilities will supply the Vietnamese market and others in Southeast Asia. The partial offshoring of the Australian meat processing industry would dramatically reduce the local demand for manual labour, however it would amount to geographical displacement as opposed to replacement by automation.

In different ways, each scenario exacerbates the meat industry's problematic relationship to the environment. As Patel and Moore argue:

> Climate change represents something much more than a closing frontier—it is something akin to an implosion of the cheap nature model, bringing not the end of easy and cheap natures but a dramatic reversal.
>
> (Patel and Moore 2017, 159)

Scenario one exacerbates climate risk because it represents a disconnection between the production and consumption of food. It is obviously senseless to romanticise the exploitation of deskilled workers on the disassembly line, but their replacement by fixed capital marks a culmination in the scientific management of animal

disassembly and thereby a total technocratic control over animal life. In such a future, the limits to the mass production of animal meat will be imposed not by social or democratic institutions but by ecological collapse. An example of this is the increasing risks associated with the standardisation of animals. A contradiction of employer control in the meat industry is that the reduction of genetic strains that allows for faster, automated disassembly also facilitates the spread of viruses between genetically identical hosts. Viruses such as foot and mouth disease, avian influenza and African swine fever, are highly contagious, fatal, and have shaped the landscape of the global meat trade for decades. Their transmission is also aided by another trend associated with the expansion of the meat industry—considered above in scenario two—the increasing use of enclosed and confined production methods. Millions of pigs have been culled in China in recent years due to the spread of African swine fever in hog barns (Swine fever's huge economic toll in China 2021). These have decimated the local pig industry and, incidentally, increased China's reliance on Australian meat. Zoonotic diseases such as COVID-19 are an enormous social and economic risk. Increasing standardisation and intensification makes them more likely.

Last, the partial offshoring of the Australian meat processing industry will result in a cheapening of total costs in the global meat commodity chain, as multinationals take advantage of low-paid Vietnamese labour. With a growing middle class in Asia, downward pressures on the price of meat will be associated with increased demand. So long as Australian feedlots can supply shipping containers, export volumes will grow. Expanded production means more methane output, more water use, and more transport. Meat exports would adopt a similar position to coal exports—extracted raw materials that are minimally processed before transport overseas. The displacement of processing overseas will diffuse responsibility for negative externalities within the commodity chain.

The negative externalities are truly extreme. The Australian Government's recently published National Climate Risk Assessment warns of 'cascading and compounding hazards' including extreme drought, heatwaves, rainfall and cold snaps, and shorter periods between these events (Australian Climate Service 2025, iii). Climate change will adversely affect Australian land values, agricultural output and the entire financial system. The effect on primary industry will be profound. Evidence already points to the suppression of global agricultural productivity due to the effects of anthropogenetic climate change (Patel and Moore 2017, 159). In this new reality,

exposure to climate risk cannot be minimised by increased control over the supply chain. Factory farming is less prone to volatility issues resulting from periods of drought and rain, however the industry remains reliant on stock feed grains which are all produced extensively. The Australian stock feed industry is booming. An estimated 40 per cent of the country's total grain production is directed towards intensive animal producing industries: cattle feedlots, pig and chicken meat industries, milk, egg and even aquaculture industries (Nason 2020). But the meat industry's increasing dependence on the grain industry is equally a source of fragility and the possible site of collapse or, as Patel and Moore describe above, an 'implosion' or 'dramatic reversal' of the cheap nature model.

The effects of such an implosion would be felt unevenly across the global meat industry depending on a firm's exposure to climate risks. Likely, the most successful business model would be diversification or horizontal integration across both space and products. Australia is a large country. In 2025 the meat industry was impacted by drought in South Australia and Victoria and flooding in Queensland. In this increasingly normal environment, geographically dispersed processors such as Inghams and Baiada, the two oligopolies that dominate the local chicken meat industry, will have an advantage over smaller operators. Even more so, however, multinationals will be best placed to absorb exposure to local climate hazards. The largest food companies such as JBS and Cargill will only further entrench their dominance in global markets.

In the meantime

Climate-induced volatility will increase costs in the meat industry and thereby intensify pressure to reduce labour costs, even after these costs have already been reduced by deskilling, the employment of temporary workers, and even after processors have relocated to low-wage countries. This realisation prompts necessary reflection on the foundations of wage policy. Wages should be taken out of competition between capitals, but they should also be decoupled from capitalist processes of extraction and expanded reproduction. Meeting social needs cannot be left to the rise and fall of industries in the constantly differentiating process of capitalist competition. Nor can they be left to the whims of a rich country's guest worker regime or a multinational firm's accounting department. Domestically, climate change demands highly conscious industry policy. It also demands for the protection of workers who are vulnerable to the 'friction' of structural change. Over

the course of nine decades of labour process transformation most meat processing jobs have been so thoroughly deskilled that now few in the industry positively identify with their work. The elimination of hard, ugly, dangerous and repetitive work is a good thing, so long as a just transition is in place.

Appendices

Appendix Table 2.1 Comparing the wages of meatworkers to the Australian average

Dataset (source)	Measure	Population	Population estimate	Australian estimate for this dataset	Proportion
Survey of Income and Housing 2015-16 (TableBuilder)	Weighted median of current weekly cash employee income from main job	Factory process workers (ANZSCO 83) in the meat industry (ANZSIC 111), full-time employees	$900	$1269	70.9%
–2017-18			$932.90	$1342.50	69.5%
Survey of Employee Earnings and Hours, May 2023 (Jobs and Skills Australia)	Median hourly wage	Boners and slicers, and slaughterers (ANZSCO 8312)	$31	$43	72.1%
		Meat, poultry and seafood process workers (ANZSCO 8313)	$30	$43	69.8%
		Packers (ANZSCO 8321)	$30	$43	69.8%
Survey of Employee Earnings and Hours, 2018 (TableBuilder)	Weighted mean of weekly total cash earnings	Factory process workers (ANZSCO 83) in the food product subdivision (ANZSIC 11), full-time	$1,259.80	$1,699.40	74.1%
–2021			$1,333.10	$1,835.50	72.6%
–2023			$1,439.8	$1,973.3	73.0%
Survey of Employee Earnings and Hours, 2023 (TableBuilder)	Weighted mean hourly wage	Factory process workers (ANZSCO 83) in the food product subdivision (ANZSIC 11), full-time non-managerial employees paid at the adult rate	$34.3	$48.7	70.4%
6337.0 Employee Earnings, August 2024 (ABS 6337.0)	Median weekly earnings	Factory process workers (ANZSCO 83), full-time	$1,200	$1,700	70.6%

References

ACIL Allen Consulting. 2020. *A Roadmap for the Red Meat Processing Sector*. Australian Meat Processor Corporation.

Adreskelas, Irene. 1984. 'Earnings Differentials in Australian Manufacturing 1972-73 to 1980-81'. University of Sydney.

Agarwal, Nalini, Robert Gao, and Megan Garner. 2023. 'Renters, Rent Inflation and Renter Stress'. *Reserve Bank of Australia Bulletin*, no. March. Australia. http://www.rba.gov.au/publications/bulletin/2023/mar/renters-rent-inflation-and-renter-stress.html.

AgriBusiness Futures Alliance. 2023. 'Signature Beef'. *Agtech Hub*. https://greaterwhitsundayagtechhub.com.au/case-study/signature-beef/.

Ahsan, Tasnim. 2022. 'What's the Sudden Beef with Red and Processed Meat? A Critical Analysis of the Potential Implementation of a Red and Processed Meat Tax in Australia'. *University of New South Wales Law Journal Student Series*. https://www.austlii.edu.au/cgi-bin/viewdoc/au/journals/UNSWLawJlStuS/2022/1.html.

Akerlof, George A. 1982. 'Labor Contracts as Partial Gift Exchange'. *The Quarterly Journal of Economics* 97 (4): 543–69.

Akerlof, George A, and Janet L Yellen. 1986. *Efficiency Wage Models of the Labor Market*. Cambridge University Press.

Albanese, Anthony. 2024. 'Sustaining the Future of Beef | Prime Minister of Australia'. May 7. https://www.pm.gov.au/media/sustaining-future-beef.

Amelinckx, Andrew. 2020. 'Autonomous Robotics for the Poultry Shed'. *The Poultry Site*, August 7. https://www.thepoultrysite.com/articles/autonomous-robotics-for-the-poultry-shed.

Atteridge, Aaron, and Claudia Strambo. 2021. *Closure of Steelworks in Newcastle, Australia: Lessons from Industrial Transitions*. Stockholm Environment Institute.

Australasian Meat Industry Employees Union. 2003. 'AMIEU Submission to Productivity Commission Review on Workplace Injury'.

Australasian Meat Industry Employees Union. 2013. 'The National Meatworker August 2013 Edition'.

Australasian Meat Industry Employees Union. 2014. 'Industrial Action Secures Pay Rises For Beef Workers Across Northern NSW'. *AMIEU Newcastle, Northern & Tasmanian*. https://newcastle.amieu.asn.au/victories/beef-workers-win/.

Australasian Meat Industry Employees Union. 2015. 'Submission 52 to the Senate Inquiry into Temporary Work Visas'.

Australasian Meat Industry Employees Union. 2016. 'Submission to the Queensland Inquiry into the Labour Hire Industry'.

Australasian Meat Industry Employees Union. 2018. ‘AMIEU Submission to the Inquiry into the Effectiveness of the Current Temporary Skilled Visa System in Targeting Genuine Skills Shortages, Submission 17’.

Australasian Meat Industry Employees Union. 2021. ‘Submission 222 to the Select Committee on Job Security’.

Australasian Meat Industry Employees Union. 2022. ‘AMIEU Submission to “A Migration System For Australia’s Future”’. https://www.homeaffairs.gov.au/reports-and-pubs/files/migration-system-aust-future-submissions/a-f/Australasian_Meat_Industry_Employees_Union.pdf.

Australasian Meat Industry Employees Union. 2023a. ‘Review of C14 Rates (Low Paid Workers on Award)’. https://www.fwc.gov.au/documents/sites/rates-c14-review/c20195259-sub-ws-amieu-101123.pdf.

Australasian Meat Industry Employees Union. 2023b. ‘Submission 41 to the Closing Loopholes Bill’.

Australasian Meat Industry Employees Union. 2024a. ‘Annexure 10 to Submission - Award History’. https://www.fwc.gov.au/work-conditions/awards/create-or-change-award/applications-create-or-change-award/meat-industry-0.

Australasian Meat Industry Employees Union. 2024b. ‘Submission to the Select Committee on Supermarket Prices’.

Australasian Meat Industry Employees Union. 2025. 'Long, hard AMIEU campaign wins meat workers same job, same pay outcome', *Newcastle Herald*, April 26.

Australasian Meat Industry Employees Union New South Wales Branch. 2020. ‘Submission 57 to the Select Committee on Temporary Migration’.

Australian Bureau of Agricultural and Resource Economics and Sciences. 2024a. ‘Agricultural Commodity Statistics’. Department of Agriculture, Fisheries and Forestry, Canberra. https://doi.org/10.25814/4qkr-xr04.

Australian Bureau of Agricultural and Resource Economics and Sciences. 2024b. *Land Use*. https://www.agriculture.gov.au/abares/aclump/land-use.

Australian Bureau of Agricultural and Resource Economics and Sciences. 2025. *Australian Chicken Meat Industry Review 2025: Issues Paper*. Department of Agriculture, Fisheries and Forestry. https://daff.ent.sirsidynix.net.au/client/en_AU/ABARES/search/detailnonmodal/ent:$002f$002fSD_ASSET$002f0$002fSD_ASSET:1036881/one.

Australian Bureau of Statistics. 2006. ‘Census of Population and Housing’. TableBuilder.

Australian Bureau of Statistics. 2007. ‘8221.0 - Manufacturing Industry, Australia, 2006-07’. https://www.abs.gov.au/ausstats/abs@.nsf/mf/8221.0.

Australian Bureau of Statistics. 2011. ‘Census of Population and Housing (TableBuilder)’.

Australian Bureau of Statistics. 2014. 'Characteristics of Businesses in Selected Growth Sectors, Australia'. https://www.abs.gov.au/statistics/economy/business-indicators/characteristics-businesses-selected-growth-sectors-australia/latest-release.

Australian Bureau of Statistics. 2016. 'Census of Population and Housing (TableBuilder)'.

Australian Bureau of Statistics. 2021a. 'Australian Census and Temporary Entrants'. TableBuilder.

Australian Bureau of Statistics. 2021b. 'Census of Population and Housing'. TableBuilder.

Australian Bureau of Statistics. 2022a. 'ANZSCO - Australian and New Zealand Standard Classification of Occupations'. https://www.abs.gov.au/statistics/classifications/anzsco-australian-and-new-zealand-standard-classification-occupations/2022#cite-window1.

Australian Bureau of Statistics. 2022b. 'Jobs and Income of Employed Persons, 2021-22'. TableBuilder.

Australian Bureau of Statistics. 2023a. '6306.0 Employee Earnings and Hours, Australia, May 2023'.

Australian Bureau of Statistics. 2023b. 'Employee Earnings and Hours, Australia'. ABS Website, May. https://www.abs.gov.au/statistics/labour/earnings-and-working-conditions/employee-earnings-and-hours-australia/latest-release#data-downloads.

Australian Bureau of Statistics. 2024a. '7215.0 Livestock Products, Australia Tables 1-4'.

Australian Bureau of Statistics. 2024b. '7218.0 Livestock and Meat, Australia'.

Australian Bureau of Statistics. 2024c. 'Australian Industry 2023-24'. https://www.abs.gov.au/statistics/industry/industry-overview/australian-industry/latest-release.

Australian Bureau of Statistics. 2024d. 'Characteristics of Employment, 2014 to 2024, TableBuilder'.

Australian Bureau of Statistics. 2024e. 'Employee Earnings, August 2024'. https://www.abs.gov.au/statistics/labour/earnings-and-working-conditions/employee-earnings/latest-release.

Australian Bureau of Statistics. 2024f. 'Insights into Australian Exports of Meat'. https://www.abs.gov.au/articles/insights-australian-exports-meat.

Australian Bureau of Statistics. 2025a. '5625.0 Private New Capital Expenditure and Expected Expenditure, Australia'. https://www.abs.gov.au/statistics/economy/business-indicators/private-new-capital-expenditure-and-expected-expenditure-australia/latest-release#data-downloads.

Australian Bureau of Statistics. 2025b. '6401.0 Consumer Price Index, Australia'.

Australian Bureau of Statistics. 2025c. '6427.0 Producer Price Indexes, Australia'. https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/producer-price-indexes-australia/latest-release#data-downloads.

Australian Bureau of Statistics. 2025d. 'Businesses in Australia (BLADE), 2001-02 to 2023-24'. TableBuilder.

Australian Bureau of Statistics. 2025e. 'Labour Force, Australia, Detailed'. https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia-detailed/latest-release.

Australian Bureau of Statistics. 2025f. 'Labour Force Survey 2006 to 2025'. TableBuilder.

Australian Centre for Industrial Relations Research and Training. 1999. *Australia at Work: Just Managing?* Prentice Hall.

Australian Chicken Growers' Council. 2024. 'Submission to ACCC Supermarkets Inquiry'. March 21. https://www.accc.gov.au/system/files/Australian-Chicken-Growers%27-Council_Redacted.pdf.

Australian Chicken Meat Federation. 2025. 'Industry History'. *Australian Chicken Meat Federation Ltd*. https://chicken.org.au/our-industry/industry-overview/.

Australian Climate Service. 2025. *Australia's National Climate Risk Assessment Report 2025*. Australian Government.

Australian Competition & Consumer Commission. 2007. *Examination of the Prices Paid to Farmers for Livestock and the Prices Paid by Australian Consumers for Red Meat*. https://www.accc.gov.au/system/files/Examination%20of%20livestock.pdf.

Australian Competition & Consumer Commission. 2009. 'Public Competition Assessment: Baiada Poultry Pty Ltd - Proposed Acquisition of Bartter Enterprises Pty Ltd'.

Australian Competition & Consumer Commission. 2017. *Cattle and Beef Market Study: Final Report*. https://www.accc.gov.au/system/files/ACCC%20Cattle%20and%20beef%20market%20studyFinal%20report.pdf.

Australian Competition & Consumer Commission. 2020. *Perishable Agricultural Goods Inquiry: Final Report*. https://www.accc.gov.au/system/files/Perishable%20Agricultural%20Goods%20Inquiry%20-%20Final%20Report%20-%20December%202020.pdf.

Australian Competition & Consumer Commission. 2021. 'JBS' Proposed Acquisition of Rivalea – Statement of Issues.Pdf'.

Australian Competition & Consumer Commission. 2025. *Supermarkets Inquiry: Final Report*. Australian Competition & Consumer Commission.

Australian Farm Institute. 2014. ‘Optimising Australian Agriculture’s Comparative Advantages’. *Australian Farm Institute*, July 3. https://www.farminstitute.org.au/optimising-australian-agricultures-comparative-advantages/.

Australian Food Sovereignty Alliance. 2025. ‘Government Asleep at the Wheel as National Abattoir Crisis Deepens’. January 15. https://afsa.org.au/media-release-government-asleep-at-the-wheel-as-national-abattoir-crisis-deepens/.

Australian Industry Group. 2019. *Australian Manufacturing in 2019: Local and Global Opportunities*. https://cdn.aigroup.com.au/Economic_Indicators/Economic_Outlook/Australian_Manufacturing_in_2019.pdf.

Australian Meat Holdings, and Australasian Meat Industry Employees Union. 2007. ‘Dinmore Collective Agreement 2007’.

Australian Meat Industry Council. 2020. ‘Submission 84 on Senate Select Committee on Temporary Migration.Pdf’.

Australian Meat Industry Council. 2022. ‘Submission 9 to Fair Work Legislation Amendment (Secure Jobs, Better Pay) Bill 2022’.

Australian Meat Industry Council. 2023. ‘Submission 65 to Fair Work Legislation Amendment (Closing the Loopholes) Bill 2023’.

Australian Meat Industry Council. 2024. ‘Submission to ACCC Supermarkets Inquiry’. https://amic.org.au/wp-content/uploads/2024/05/AMIC-Submission-ACCC-Supermarkets-Inquiry-2024-25-2-February-20024.pdf.

Australian Meat Processor Corporation. 2016. ‘Strategic Risks’. https://ampc.com.au/.

Australian Meat Processor Corporation. 2021. ‘Electrical Stunning Report 2021’. https://ampc.com.au/.

Australian Meat Processor Corporation. 2024a. *Industry Insights April 2024*. https://www.ampc.com.au/getmedia/48c166a0-e752-4856-9f38-71b3dd25b442/AMPC-Industry-insights-April-2024.pdf.

Australian Meat Processor Corporation. 2024b. ‘Leap4Beef Project 0 Stage 1’. https://ampc.com.au/.

Australian Parliamentary Library. 2001. ‘Workplace Relations Amendment Tallies and Picnic Days) Bill 2000’. *Bills Digest* 22. https://www.austlii.edu.au/cgi-bin/viewdoc/au/legis/cth/digest/wraapdb2000490/wraapdb2000490.html.

Australian Pork. 2020. ‘Submission to Inquiry into Diversifying Australia’s Trade & Investment Profile’.

Australian Taxation Office. 2022a. ‘Company Financial Ratios, 2021-22 Income Year’.

Australian Taxation Office. 2022b. 'Taxation Statistics 2021–22 Companies: Key Items, by Fine Industry, 2009–10 to 2021–22 Income Years'.

Avery, Nicholas, and Elizabeth Hill. 2023. 'The Informal Economy, by Colin C. Williams (Agenda Publishing, Newcastle upon Tyne, 2019), Pp. 160.' *Economic Record* 99 (324): 126–28. https://doi.org/10.1111/1475-4932.12727.

Bab-Hadiashar, Ali, and Alireza Tayeb Nama. 2018. *Roadmap Development for a Meat Processing Intelligent Automation Centre*. Australian Meat Processor Corporation.

Bahçe, Serdal, and Benan Eres. 2012. 'Competing Paradigms of Competition: Evidence from the Turkish Manufacturing Industry'. *Review of Radical Political Economics* 45 (2): 201–24. https://doi.org/10.1177/0486613412458650.

Baiada. 2025. 'Poultry Operations'. Baiada. https://www.baiada.com.au/poultry-operations.

Baiada, and Australasian Meat Industry Employees Union. 2020. 'Baiada Tamworth Enterprise Agreement 2020-24'.

Baiada Poultry cracks on to R&D and automation. 2023. 'Baiada Poultry Cracks on to R&D and Automation'. *Australian Manufacturing Forum*, August 8. https://www.aumanufacturing.com.au/baiada-poultry-cracks-on-to-rd-and-automation.

Bair, Jennifer. 2005. 'Global Capitalism and Commodity Chains: Looking Back, Going Forward'. *Competition & Change* 9 (2): 153–80. https://doi.org/10.1179/102452905X45382.

Baker, Richard. 2021a. 'Abattoir Boss Threatens Chinese Workers' Visa Status in Abusive Tirade'. Workplace. *The Sydney Morning Herald*, June 28.

Baker, Richard. 2021b. 'Pacific Island Meat Workers on $9 per Hour after Wage Deductions'. Workplace. *The Sydney Morning Herald*, September 12.

Baker, Richard. 2022a. 'Dying Sheep, Cattle Unable to Stand: Vets Identify Cruelty in Meat Industry'. National. *The Sydney Morning Herald*, January 30.

Baker, Richard. 2022b. 'Pacific Workers Face Deportation despite Probe into Their Employer'. Workplace. *The Sydney Morning Herald*, February 14.

Baker, Richard, and Wing Kuang. 2021a. 'Lies, Bribes and Prostitutes: The Recruitment of the Australian Meat Industry's Foreign Workforce'. Workplace. *The Sydney Morning Herald*, August 31.

Baker, Richard, and Wing Kuang. 2021b. '"These People Are Properties": The Plight of Chinese Meat Workers'. Workplace. *The Sydney Morning Herald*, May 22.

Balen, Clancy. 2025a. 'How Many Salmon Farms Are There in Tasmania — and Who Owns Them?' *ABC News*, March 27.

Balen, Clancy. 2025b. 'Prime Minister Promises Law Change to Protect Salmon Farms'. *ABC News*, February 15.

Baran, Paul, and Paul Sweezy. 1966. *Monopoly Capital: An Essay on the American Economic and Social Order*. Monthly Review Press.

Barber, Felix, and Michael Goold. 2007. 'The Strategic Secret of Private Equity'. *Harvard Business Review*. https://hbr.org/2007/09/the-strategic-secret-of-private-equity.

Barker, Eric. 2025. 'Teys's Feedlot Shed Proving Successful after Three Years'. *Beef Central*, September 22. https://www.beefcentral.com/lotfeeding/teyss-feedlot-shed-proving-successful-after-three-years/.

Barlow, Karen. 2010. 'Poultry Firm under Review after Man Decapitated'. *ABC News*, December 3.

Barnes, Tom, and Sally A. Weller. 2020. 'Becoming Precarious? Precarious Work and Life Trajectories After Retrenchment'. *Critical Sociology* 46 (4–5): 527–41. https://doi.org/10.1177/0896920519896822.

Barrett, Jonathan. 2023a. 'Australia's Big Supermarkets Increased Profit Margins through Pandemic and Cost-of-Living Crisis, Analysis Reveals'. Business. *The Guardian*, May 21.

Barrett, Jonathan. 2023b. 'Australia's Supermarket Prices up 10% over Year, Report Says'. Australia News. *The Guardian*, May 22.

Barrier Miner. 1915. 'The Opening of the Newcastle Steelworks'. *Barrier Miner* (Broken Hill, NSW), May 22. https://trove.nla.gov.au/newspaper/article/45369387.

Bearup, Greg. 2025. 'The Drover and the Telephone Operator Who Built a $1.4b Fortune'. Richlist. *Australian Financial Review*, May 29.

Becker, Gary. 1962. 'Investment in Human Capital: A Theoretical Analysis'. *Journal of Political Economy* 70 (5): 9–49.

Becker, Gary. 1975. *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. Second Edition. National Bureau of Economic Research.

Beechey, V. 1988. 'Rethinking the Definition of Work: Gender and Work''. In *Feminization of the Labour Force: Paradoxes and Promises*, edited by J Jenson, E Hagen, and C Reddy. Polity Press.

Beef Central. 2013. 'Teys Holds Talks with AMIEU, as Workers Call for Close to Dispute'. *Beef Central*, June 11. https://www.beefcentral.com/processing/teys-holds-talks-with-amieu-as-workers-call-for-close-to-dispute/.

Beef Central. 2023. 'Top 25 Lotfeeders List - 2023'. *Beef Central*. https://www.beefcentral.com/top-25-lotfeeders-list-2023/.

Beef Central. 2024a. 'Beef Swaps Hedging Tool Launched for Australian Market'. Beef Central, March 15. https://www.beefcentral.com/news/beef-swaps-hedging-tool-launched-for-australian-market/.

Beef Central. 2024b. ‘JBS Dinmore Aims to Return to Full Capacity by January - Beef Central’. Beef Central, September 17. https://www.beefcentral.com/processing/jbs-dinmore-aims-to-return-to-full-capacity-by-january/.

Beef Central. 2025a. ‘JBS Formalises Plans for Dual Listing on New York SX’. *Beef Central*, April 24. https://www.beefcentral.com/news/jbs-formalises-plans-for-dual-listing-on-new-york-sx/.

Beef Central. 2025b. ‘JBS to Pay US$83.5m in Class Action with US Producers’. *Beef Central*, February 5. https://www.beefcentral.com/news/jbs-to-pay-us83-5m-in-class-action-with-us-producers/.

Beef Central. 2025c. ‘Vietnam Becomes Hot-Spot for Offshore Red Meat Processing Investment - Beef Central’. Beef Central. https://www.beefcentral.com/processing/vietnam-becomes-hot-spot-for-offshore-red-meat-processing-investment/.

Beggs, Michael. 2021. ‘Labour in the Technocratic Frame: Macroeconomic Policy and Wages in 1950s Australia’. *Labour History*, no. 121 (November): 129–54. https://doi.org/10.3316/informit.184740242461371.

Benanav, Aaron. 2020. *Automation and the Future of Work*. Verso.

Bertram, Geoff, and Bill Rosenberg. 2021. ‘The Shares of Wages, Profit, and Rent in New Zealand: Two Decompositions’. Paper presented at Annual Conference of the New Zealand Association of Economists, Wellington, New Zealand.

Bill, Anthea, Bill Mitchell, and Riccardo Welters. 2007. ‘Job Mobility and Segmentation in Australian City Labour Markets’. *International Journal of Environment, Workplace and Employment* 3 (3–4): 212–29.

Black, John, Nigar Hashimzade, and Gareth Myles, eds. 2013. *Dictionary of Economics*. Fourth. Oxford University Press. https://www.oxfordreference.com/display/10.1093/acref/9780199696321.001.0001/acref-9780199696321-e-2882.

Blanchette, Alex. 2020. *Porkopolis: American Animality, Standardized Life, and the Factory Farm*. Duke University Press.

Blaug, Mark. 1976. ‘The Empirical Status of Human Capital Theory: A Slightly Jaundiced Survey’. *Journal of Economic Literature* 14 (3): 827–55.

Blaug, Mark. 1997. *Economic Theory in Retrospect*. Cambridge University Press.

Böhm, Steffen, Marja Spierenburg, and Tim Lang. 2020. ‘Fruits of Our Labour: Work and Organisation in the Global Food System’. *Organization* 27 (2): 195–212. https://doi.org/10.1177/1350508419888901.

Bolt, Cathy. 1990. ‘Much at Stake in Bid for Peace in Meat Industry’. Politics. *Australian Financial Review*, December 10.

Bolton, Sue. 2011. ‘Striking Baiada Workers Win’. *Green Left*, November 18. https://www.greenleft.org.au/2011/904/news/updated-striking-baiada-workers-win.

Booz, Allen, and Hamilton. 1993. 'International Comparisons in the Beef Processing Industry'. *Meat Research Corporation, Canberra*.

Borland, Jeff. 1999. 'Earnings Inequality in Australia: Changes, Causes and Consequences'. *Economic Record* 75 (2): 177–202. https://doi.org/10.1111/j.1475-4932.1999.tb02448.x.

Borland, Jeff, and Anthony Suen. 1990. 'The Determinants of Individual Wages in Australia: Competitive and Non-Competitive Influences'. *Australian Economic Review* 23 (4): 33–44. https://doi.org/10.1111/j.1467-8462.1990.tb00369.x.

Bosworth, Derek L, Peter J Dawkins, and Thorsten Stromback. 1996. *The Economics of the Labour Market*. Addison Wesley Longman.

Botwinick, Howard. 2018. *Persistent Inequalities: Wage Disparity under Capitalist Competition*. Second Edition. Haymarket Books.

Bowles, S, and H Gintis. 1976. *Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life*. Routledge & Kagan Paul.

Bowles, Samuel, and Herbert Gintis. 1990. 'Contested Exchange: New Microfoundations for the Political Economy of Capitalism'. *Politics & Society* 18 (2): 165–222. https://doi.org/10.1177/003232929001800202.

Bowles, Samuel, and Herbert Gintis. 1993. 'The Revenge of Homo Economicus: Contested Exchange and the Revival of Political Economy'. *Journal of Economic Perspectives* 7 (1): 83–102.

Braverman, Harry. 1974. *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century*. Monthly Review Press.

Bray, Mark, and Andrew Stewart. 2013. 'From the Arbitration System to the "Fair Work Act": The Changing Approach in Australia to Voice and Representation at Work'. *The Adelaide Law Review* 34 (1): 21–41.

Brenner, Robert. 1998. 'The Looming Crisis of World Capitalism'. *Against the Current* 77. https://againstthecurrent.org/atc077/p871/.

Brian, Bernie. 1999. 'The Mudginberri Abattoir Dispute of 1985'. *Labour History*, no. 76 (May): 107–24. https://doi.org/10.3828/27516631.

Brosnan, Peter. 2003. 'The Political Economy of the Minimum Wage'. In *Systems of Production: Markets, Organisations and Performance*, edited by Brendan Burchell, Simon Deakin, Jonathan Michie, and Jill Rubery.

Brosnan, Peter, and Frank Wilkinson. 1988. 'A National Statutory Minimum Wage and Economic Efficiency'. *Contributions to Political Economy* 7 (1): 1–48. https://doi.org/10.1093/oxfordjournals.cpe.a035722.

Brown, William, John Haylest, Barry Hughest, and Lyndon Rowe. 1984. 'Product and Labour Markets in Wage Determination: Some Australian Evidence'. *British Journal of Industrial Relations* 22 (2): 169–76. https://doi.org/10.1111/j.1467-8543.1984.tb00160.x.

Bryan, Dick, and Mike Rafferty. 2018. *Risking Together: How Finance Is Dominating Everyday Life in Australia*. Sydney University Press.

Bryan, Richard. 1985. 'Monopoly in Marxist Method'. *Capital & Class* 9 (2): 72–92. https://doi.org/10.1177/030981688502600105.

Buchanan, John. 2000. 'Beyond Fragmented Flexibility? The Restructuring of Labour Management in the Australian Metal Industry since the Mid 1980s'. University of Sydney.

Buchanan, John, and Ian Watson. 1997a. *A Profile of Low Wage Employees*. Australian Centre for Industrial Relations Research and Teaching.

Buchanan, John, and Ian Watson. 1997b. 'The Living Wage and the Working Poor'. In *Poverty in Australia: Dimensions and Policies*. Social Policy Research Centre.

Bulow, Jeremy, and Lawrence Summers. 1986. 'A Theory of Dual Labor Markets with Application to Industrial Policy, Discrimination, and Keynesian Unemployment'. *Journal of Labor Economics* 4 (3, Part 1): 376–414.

Burawoy, Michael. 1978. 'Toward a Marxist Theory of the Labor Process: Braverman and Beyond'. *Politics & Society* 8 (3–4): 247–312. https://doi.org/10.1177/003232927800800301.

Bureau of Industry Economics. 2012. *Development of Manufacturing Industries in Australia*. 1301.0 - Year Book Australia, 1988. Australian Bueau of Statistics. https://www.abs.gov.au/Ausstats/abs@.nsf/0/33bb7a8977192473ca2569de0027ced7#.

Butler, Ben. 2012. 'Behind the Closed Doors of Poultry Processing'. Business. *The Sydney Morning Herald*, February 18.

Butlin, Matthew, Robert Dixon, and Peter J. Lloyd. 2014. 'A Statistical Narrative: Australia, 1800–2010'. In *The Cambridge Economic History of Australia*, edited by Simon Ville and Glenn Withers. Cambridge University Press. https://doi.org/10.1017/CHO9781107445222.029.

Callinicos, Alex. 1995. *Theories and Narratives: Reflections on the Philosophy of History*. Duke University Press.

Campbell, Iain, Martina Boese, and Joo-Cheong Tham. 2016. 'Inhospitable Workplaces? International Students and Paid Work in Food Services'. *Australian Journal of Social Issues* 51 (3): 279–98.

Campbell, Joshua. 2025. *Fast Food and Takeaway Food Services in Australia*. No. H4512. IBISWorld. https://www.ibisworld.com/australia/industry/fast-food-and-takeaway-food-services/2005/.

Caple, David. 1994. *Evaluation of Mechanically Assisted Boning Technology*. Meat Research Corporation.

Carbone, Remo. 2024. *Hot Carcase Grading: Driving Quality Assurance and Processing Efficiency*. Australian Meat Processor Corporation. https://ampc.com.au/media/rwcffgbq/ampc_final_report_2020-1040.pdf.

Cartter, Allan Murray. 1959. *Theory of Wages and Employment*. Irwin Homewood, Ill.

Chan, Gabrielle. 2024. ‘The Chicken Came First: How Australia’s Most Popular Protein Can Explain the Supermarket Duopoly’. Australia News. *The Guardian*, February 26.

Charlesworth, Sara, and Linda Isherwood. 2021. ‘Migrant Aged-Care Workers in Australia: Do They Have Poorer-Quality Jobs than Their Locally Born Counterparts?’ *Ageing & Society* 41 (12): 2702–22.

Chenoweth, Neil. 2022. ‘How PwC Got Tangled in a Fight between ATO and the Boys from Brazil’. Financialservices. *Australian Financial Review*, October 7.

Christodoulopoulos, George. 1996. *International Competition and Industrial Rates of Return*. New School for Social Research.

Clifton, JA. 1977. ‘Competition and the Evolution of the Capitalist Mode of Production’. *Cambridge Journal of Economics* 1 (2): 137–51.

Cockayne, James, Sophia Kagan, and Fiona Ng. 2024. *Be Our Guests: Addressing Urgent Modern Slavery Risks for Temporary Migrant Workers in Rural and Regional New South Wales*. Office of the NSW Anti-slavery Commissioner.

Colic-Peisker, Val, and Farida Tilbury. 2006. ‘Employment Niches for Recent Refugees: Segmented Labour Market in Twenty-First Century Australia’. *Journal of Refugee Studies* 19: 2.

Collins, Jock. 1984. ‘Marx’s Reserve Army: Still Relevant 100 Years On’. *Journal of Australian Political Economy*, no. 16: 51–65. https://doi.org/10.3316/ielapa.840907832.

Collins, Joe. 2022. ‘Reversing Australia’s Resource Curse? No Such Luck …’ *Journal of Australian Political Economy* 89: 7–31.

Collins, John. 1975. ‘The Political Economy of Post-War Immigration’. In *Essays in the Political Economy of Australian Capitalism*, vol. 1. Australia and New Zealand Book Company.

Collins, John. 1978. ‘Fragmentation of the Working Class’. In *Essays in the Political Economy of Australian Capitalism*, vol. 3. Australia and New Zealand Book Company.

Condon, Jon. 2018. ‘$120m Upgrade Arms Kilcoy Plant for Global Beef Opportunity + VIDEO - Beef Central’. *Beef Central*, June 15. https://www.beefcentral.com/processing/120-million-upgrade-arms-kilcoy-plant-for-global-beef-opportunity-video/.

Condon, Jon. 2021. ‘Beef’s Boom Times Are Evident in Australian Top 250 Rich List’. *Beef Central*, March 22. https://www.beefcentral.com/news/beefs-boom-times-are-evident-in-australian-top-250-rich-list/.

Condon, Jon. 2025a. ‘Booming Beef Exports Hit Another Monthly Record, above 150,000t for the First Time in History’. *Beef Central*, August 4. https://www.beefcentral.com/trade/booming-beef-exports-hit-another-monthly-record-above-150000t-for-the-first-time-in-history/.

Condon, Jon. 2025b. ‘No 17: JBS Carriers’. *Beef Central*, March 27. https://www.beefcentral.com/features/top-25/top-25-livestock-transporters-2025/no-18-jbs-carriers/.

Connolly, Ellis, and Christine Lewis. 2010. *Structural Change in the Australian Economy*. September Bulletin. Reserve Bank of Australia.

Conway, Paul. 2024. ‘Statement of Paul Conway Re. Reclassification of the Meat Processing Award 2020’. https://www.fwc.gov.au/work-conditions/awards/create-or-change-award/applications-create-or-change-award/meat-industry-0.

Cook, Jonathan. 2022. *Remote Operations (Gamification) - Stage 1: Semi-Automated Beef Scribing User Interface*. Australian Meat Processor Corporation. https://ampc.com.au/.

Cooney, Richard, Marjorie Jerrard, Ross Donohue, and Nell Kimberley. 2010. ‘Exploring Skill Ecosystems in the Australian Meat Processing Industry: Unions, Employers and Institutional Change’. *The Economic and Labour Relations Review* 21 (2): 121–38. https://doi.org/10.1177/103530461002100208.

Coorey, Phillip. 2024. ‘End of Sanctions as China Lifts Bans on Beef’. Federal. *Australian Financial Review*, December 3.

Cottle, Drew, and Joe Collins. 2015. ‘From Client State to Rentier State? New Compradors, Transnational Capital, and the Internalization of Globalizing Dynamics in Australia, 1990-2013’. In *Globalization and Transnational Capitalism in Asia and Oceania*, edited by Jeb Sprague. Routledge. https://doi.org/10.4324/9781315708447.

Cox, Mark. 2016. *Final Report: Wearable Technology for the Red Meat Processing Industry*. Australian Meat Processor Corporation. https://ampc.com.au/research-development/advanced-manufacturing/wearable-technology-for-the-red-meat-processing-industry/.

Craig, Christine, Jill Rubery, Roger Tarling, and Frank Wilkinson. 1982. *Labour Market Structure, Industrial Organisation, and Low Pay*. Cambridge University Press.

Cummins, Carolyn. 2014. ‘“Once in a Generation”: TPG in Massive $650m Selloff of Inghams Properties’. Companies. *The Sydney Morning Herald*, March 10.

Cutler, Terrence Austin. 1976. ‘The History of the Australasian Meat Industry Employees’ Union : A Study of the Internal Dynamics of a Labour Organisation’. UNSW Sydney. https://doi.org/10.26190/UNSWORKS/19351.

Daly, A, P Lewis, M Corliss, and T Heaslip. 2015. ‘The Private Rate of Return to a University Degree in Australia’. *Australian Journal of Education* 59 (1): 97–112.

Daly, John. 2021. ‘Chinese-Banned Beef Exporter Uses Machine Learning to Fix Labelling Issues’. *ABC News*, April 30.

Dao, Andre, Michael Green, and Sherry Huang. 2021. 'On the chain'. *The Monthly*, July. https://www.themonthly.com.au/issue/2021/july/1625061600/andr-dao-michael-green-and-sherry-huang/chain.

Davis, Jess. 2019. 'Killing Animals: The Inevitable but Largely Unseen Part of Our Meat-Eating Society'. *ABC News*, June 29.

Dean, Lucy, and Les Hewitt. 2023. 'Six Maps That Show Where You Can Buy a Home on Your Income'. Personalfinance. *Australian Financial Review*, December 12.

Deloitte Access Economics. 2016. *Estimating the Public and Private Benefits of Higher Education*. https://www.education.gov.au/higher-education-reviews-and-consultations/resources/estimating-public-and-private-benefits-higher-education.

Department of Agriculture, Fisheries and Forestry. 2024a. 'Export Meat Modernisation'. https://www.agriculture.gov.au/biosecurity-trade/export/meat-modernisation.

Department of Agriculture, Fisheries and Forestry. 2024b. 'Phase out of Live Sheep Exports by Sea'. December 20. https://www.agriculture.gov.au/biosecurity-trade/export/controlled-goods/live-animals/livestock/live-sheep-exports-phase-out.

Department of Agriculture, Fisheries and Forestry. 2024c. 'Red Meat Export Statistics 2024'. https://www.agriculture.gov.au/biosecurity-trade/export/controlled-goods/meat/statistics/red-meat-stats-2024#december.

Department of Agriculture, Fisheries and Forestry, and Meat & Livestock Australia. 2014. 'National Livestock Methane Program: Fact Sheet'. https://www.mla.com.au/globalassets/mla-corporate/blocks/research-and-development/01200075-program-fact-sheet_nlmp_final.pdf.

Department of Employment and Workplace Relations. 2016. 'Migrant Workers' Taskforce'. https://www.dewr.gov.au/migrant-workers-taskforce.

Department of Employment and Workplace Relations. 2025. 'Workplace Agreement Dataset'. Unit record data.

Department of Energy, Environment and Climate Action. 2023. 'Drones for Monitoring Sheep Welfare at Lambing'. Agriculture Victoria, February 3. Victoria. https://agriculture.vic.gov.au/support-and-resources/funds-grants-programs/on-farm-demonstrations-program/drones-for-monitoring-sheep-welfare-at-lambing.

Department of Foreign Affairs and Trade. 2017. 'Agricultural Trade'. https://www.dfat.gov.au/trade/organisations/wto/Pages/agricultural-trade.

Department of Foreign Affairs and Trade. 2023. 'Australia's Trade through Time'. https://www.dfat.gov.au/publications/minisite/tradethroughtimegovau/site/index.html.

Department of Foreign Affairs and Trade. 2024a. 'Australia's Merchandise Exports and Imports, 2005-06 to 2022-23'. https://www.dfat.gov.au/trade/trade-

and-investment-data-information-and-publications/trade-statistics/trade-statistical-pivot-tables.

Department of Foreign Affairs and Trade. 2024b. *TRIEC - Trade Import and Export Classification*. https://www.dfat.gov.au/trade/trade-and-investment-data-information-and-publications/trade-statistics/trade-statistical-pivot-tables.

Department of Foreign Affairs and Trade (DFAT). 2024. 'Country and TRIEC Pivot Table 1990 to 2024'. https://www.dfat.gov.au/trade/trade-and-investment-data-information-and-publications/trade-statistics/trade-statistical-pivot-tables.

Department of Home Affairs. 2025. 'Temporary Activity Visa (Subclass 408) Australian Government Endorsed Events (Workplace Justice Pilot)'. Immigration and Citizenship Website. https://immi.homeaffairs.gov.au.

Dickens, W, and K Lang. 1985. 'A Test of Dual Market Theory'. *American Economy Review* 74: 792–805.

Dixon, Jane. 2002. *The Changing Chicken: Chooks, Cooks and Culinary Culture*. UNSW Press.

Dixon, Jane, and John Burgess. 1998. 'The Political Economy of Microeconomic Reform in the Australian Chicken Meat Industry'. *Journal of Australian Political Economy* 41.

Do Carmo, Marcelo José, Mário Sacomano Neto, and Julio Cesar Donadone. 2022. *Financialisation in the Automotive Industry: Capital and Labour in Contemporary Society*. Routledge.

Doak, Emily. 2023. '"Cutting-Edge" Automation Has This Abattoir Back in Business, but Will There Be Jobs for Skilled Workers?' *ABC News*, December 4.

Doak, Emily. 2024. 'More of Australia's Milk Will Soon Be Coming from a Cow That Doesn't Eat Grass'. *ABC News*, October 8.

Doeringer, Peter B., and Michael J. Piore. 1985. *Internal Labor Markets and Manpower Analysis*. Routledge. https://doi.org/10.4324/9781003069720.

Donovan, Michael. 2021. 'Addressing Work-Related Musculoskeletal Disorders in the Queensland Poultry Meat Processing Industry: A Company's Journey to Identify an Optimal Injury and Disability Prevention Program'. PhD Thesis, The University of Queensland. https://doi.org/10.14264/f5bff7d.

Donovan, Michael, Asaduzzaman Khan, and Venerina Johnston. 2020. 'Exploring Associations of Employee Reports on Safety Climate, Disability Management and Labour Management with Work Characteristics and Injury at an Australian Poultry Meat Processing Plant'. *Safety Science* 126 (June): 104659. https://doi.org/10.1016/j.ssci.2020.104659.

Drago, Robert. 1995. 'Divide and Conquer Australia: A Study of Labor Segmentation'. *Review of Radical Political Economics* 27 (1): 25–70.

Dunlop, John T. 1957. ‘The Task of Contemporary Wage Theory’. In *The Theory of Wage Determination*, edited by John T. Dunlop. Palgrave Macmillan UK. https://doi.org/10.1007/978-1-349-15205-6_1.

Dustmann, Christian, Attila Lindner, Uta Schönberg, Matthias Umkehrer, and Philipp Vom Berge. 2021. ‘Reallocation Effects of the Minimum Wage’. *The Quarterly Journal of Economics* 137 (1): 267–328. https://doi.org/10.1093/qje/qjab028.

Echegaray, Noemí, Abdo Hassoun, Sandeep Jagtap, et al. 2022. ‘Meat 4.0: Principles and Applications of Industry 4.0 Technologies in the Meat Industry’. *Applied Sciences* 12 (14): 6986. https://doi.org/10.3390/app12146986.

Edwards, Jean. 2016. ‘Jobs to Go as Poultry Producer Closes Melbourne Factory’. *ABC News*, October 18.

Ehrenberg, Ronald G., Robert S. Smith, and Kevin F. Hallock. 2023. *Modern Labor Economics: Theory and Public Policy*. 14th edn. Routledge.

Environmental Protection Authority South Australia. 2023. ‘Ridge Road Lobethal Facility’. Engage EPA. https://engage.epa.sa.gov.au/thomas-foods-international/news_feed/lobethal-facility.

Erol, Serife. 2021. *Renewing Labour Relations in the German Meat Industry: An End to ‘Rganised Irresponsibility’?* 61. WSI Institute of Economic and Social Research.

ETC Group. 2022. ‘Food Barons: Crisis Profiteering, Digitization and Shifting Power’. https://www.etcgroup.org/content/food-barons-2022.

Fahey, Charles, and André Sammartino. 2013. ‘Work and Wages at a Melbourne Factory, the Guest Biscuit Works 1870–1921’. *Australian Economic History Review* 53 (1): 22–46. https://doi.org/10.1111/aehr.12003.

Fair Work Commission. 2022. *Annual Wage Review 2021-22*. https://www.fwc.gov.au/hearings-decisions/major-cases/annual-wage-reviews.

Fair Work Commission. 2023. ‘Annual Wage Review 2022-23’. https://www.fwc.gov.au/hearings-decisions/major-cases/annual-wage-reviews.

Fair Work Commission. 2024. *Annual Wage Review 2023-24*. https://www.fwc.gov.au/hearings-decisions/major-cases/annual-wage-reviews/.

Fair Work Commission. 2025a. *Annual Wage Review 2024-25*. https://www.fwc.gov.au/hearings-decisions/major-cases/annual-wage-reviews/.

Fair Work Commission. 2025b. ‘Low-Paid Authorisations’. https://www.fwc.gov.au/low-paid-authorisations.

Fair Work Ombudsman. 2015. *Inquiry into Baiada*. https://oia.pmc.gov.au/sites/default/files/posts/2017/03/fair_work_ombudsman_report_into_baiada_group.pdf.

Fair Work Ombudsman. 2024a. 'Meat Industry Award Pay Guide'. https://calculate.fairwork.gov.au/payguides/fairwork/ma000059/pdf.

Fair Work Ombudsman. 2024b. 'Poultry Processing Award Pay Guide'. https://calculate.fairwork.gov.au/payguides/fairwork/ma000074/pdf.

Fazal, Mahmood. 2022. 'Small-Scale Chicken Producers Claim Regulation Preventing New Entrants to Market'. *ABC News*, July 15.

Fell, James. 2022. 'Australia's Future Agricultural Trade Advantage'. *ABARES Insights*, no. 2. https://www.agriculture.gov.au/abares/products/insights/australias-future-agricultural-trading-advantage.

Felton-Taylor, Arlie. 2012. 'Oakey Abattoir Strike Rolls On'. *ABC News*, May 7.

Fern, Andrew. 2024. *Digital Transformation Program - Industry 4.0 (Stage 1)*. Australian Meat Processor Corporation.

Finance and Administration Committee. 2016. *Inquiry into the Practices of the Labour Hire Industry in Queensland*. Queensland Parliament. https://www.parliament.qld.gov.au/Work-of-Committees/Committees/Committee-Details?cid=187&id=3349.

Fine, Ben. 1998. *Labour Market Theory: A Constructive Reassessment*. Routledge.

Fine, Ben. 2016. *Microeconomics: A Critical Companion*. Pluto Press.

Fine, Ben, and Alfredo Saad-Filho. 2016. *Marx's 'Capital' Sixth Edition*. Pluto Press.

Finlayson, John R M. 2018. *Successful Models of Vertical Integration in the Beef Industry: Rewards, Risks and Opportunities for Value Chain Creation in the Australian Beef Industry*. Nuffield Australia Farming Scholars.

Fitzgerald, Shirley. 2008. 'Royal Commission into Noxious and Offensive Trades 1882 | The Dictionary of Sydney'. https://dictionaryofsydney.org/entry/royal_commission_into_noxious_and_offensive_trades_1882#ref-uuid=46e2516e-4be5-d286-ca37-1505494592b4.

Fitzpatrick, A, B Webster, and C Eatwell. 2024. *Shadow Robotics*. Australian Meat Processor Corporation.

Flatau, Paul R., and Philip E. T. Lewis. 1993. 'Segmented Labour Markets in Australia'. *Applied Economics* 25 (3): 285–94. https://doi.org/10.1080/00036849300000034.

Fleetwood, Steve. 2006. 'Rethinking Labour Markets: A Critical-Realist-Socioeconomic Perspective'. *Capital & Class* 30 (2): 59–89.

Fleetwood, Steve. 2011. 'Sketching a Socio-Economic Model of Labour Markets'. *Cambridge Journal of Economics* 35 (1): 15–38.

Fletcher International Group. 2025. 'Fletcher International Group'. https://fletchint.com.au.

Foster, Arthur E. 1920. 'The Homebush Saleyards, c. 1920'. https://www.strathfield.nsw.gov.au/Council/Local-Studies-Blog/The-Homebush-Saleyards.

Four Corners. 2015. 'Labour Hire Contract Worries in Ag Industry'. *ABC News*, May 5.

Fritzche, Tom. 2013. *Unsafe at These Speeds: Alabama's Poultry Industry and Its Disposable Workers*. Southern Poverty Law Center and Alabama Appleseed.

Funk, Josh. 2022. 'Are You Paying Too Much for Bacon? One of the Big Meat Producers Just Settled a Price-Fixing Lawsuit for $20 Million'. *Fortune*, September 22. https://fortune.com/2022/09/20/why-meat-prices-high-bacon-pork-jbs-price-fixing-settlement/.

Funk, Josh. 2025. 'Labor Department Puts Spotlight on Child Labor in Slaughterhouses with 3 Settlements This Week'. AP News, January 16. https://apnews.com/article/slaughterhouses-child-labor-qsi-jbs-perdue-46d0193545ed2a5aaad8ea7643edbc8a.

Galbraith, James K. 1998. *Created Unequal: The Crisis in American Pay*. The Free Press.

Gardiner, Sam. 2024. 'Blood, Sweat and Tears: The Sinews of Profit'. Honours thesis, University of Sydney.

Gindin, Sam. 2021. 'A "Fatiguing Climb": Capitalist Competition and Working-Class Formation'. *Socialist Project: The Bullet*. https://socialistproject.ca/2021/07/fatiguing-climb-working-class-formation/.

Global Witness. 2025. 'JBS Listing Approval Reveals Deep Failure in US Financial Regulation'. Global Witness, April 23. https://globalwitness.org/en/press-releases/jbs-listing-approval-reveals-deep-failure-in-us-financial-regulation/.

Golden Cockerel. 2020. 'About - Golden Cockerel'. https://www.goldencockerel.com.au/1.html.

Gonzalez, Kathrina. 2025. *Meat Processing in Australia*. No. C1111. IBISWorld.

Gordon, David M., Richard Edwards, and Michael Reich. 1982. *Segmented Work, Divided Workers: The Historical Transformation of Labor in the United States*. Cambridge University Press.

Graber, Roy. 2021. 'BGH Capital Purchases Majority of Hazeldene's'. *WATTPoultry.Com*. https://www.wattagnet.com/home/article/15534634/bgh-capital-purchases-majority-of-hazeldenes.

Graber, Roy. 2025. 'Baiada Poultry Plant on Schedule for 2026 Completion'. *WATTPoultry.Com*. https://www.wattagnet.com/broilers-turkeys/processing-slaughter/news/15745047/baiada-poultry-plant-on-schedule-for-2026-completion.

Green Left. 1996. *Mudginberri Revisited: A Case Study of a Secondary Boycott*. December 4. https://www.greenleft.org.au/content/mudginberri-revisited-case-study-secondary-boycott.

Greenwald, Bruce C, and Joseph E Stiglitz. 1990. 'Asymmetric Information and the New Theory of the Firm: Financial Constraints and Risk Behavior'. National Bureau of Economic Research Cambridge, Mass., USA.

Gregory, Robert G. 1976. 'Some Implications of the Growth of the Mineral Sector*'. *Australian Journal of Agricultural Economics* 20 (2): 71–91. https://doi.org/10.1111/j.1467-8489.1976.tb00178.x.

Gregory, Robert G. 2011. 'Then and Now: Reflections on Two Australian Mining Booms'. *SSRN Electronic Journal*, ahead of print. https://doi.org/10.2139/ssrn.1929669.

Gregory, Robert, and Denis James. 1973. 'Do New Factories Embody Best Practice Technology?' *Economic Journal* 83: 1133–55. https://doi.org/10.2307/2230845.

Grimshaw, Damian, Fang Lee Cooke, Irena Grugulis, and Steve Vincent. 2002. 'New Technology and Changing Organisational Forms: Implications for Managerial Control and Skills'. *New Technology, Work and Employment* 17 (3). https://onlinelibrary.wiley.com/doi/epdf/10.1111/1468-005X.00104.

Grimshaw, Damian, and Jill Rubery. 2005. 'Inter-Capital Relations and the Network Organisation: Redefining the Work and Employment Nexus'. *Cambridge Journal of Economics* 29 (6): 1027–51.

Hambur, Jonathan. 2023. *Did Labour Market Concentration Lower Wages Growth Pre-COVID?* RBA Research Discussion Papers. Reserve Bank of Australia. https://doi.org/10.47688/rdp2023-02.

Hamilton, Reg. 2022. *The History of the Australian Minimum Wage*. https://www.fwc.gov.au/documents/resources/history-of-australian-minimum-wage.pdf.

Hankins, Daniel, and Richard Aplin. 2023. *In Plant Trial of Robotic Picking and Packing System*. Australian Meat Processor Corporation. https://ampc.com.au/media/rmnnve30/ampc_final_report_-2018-1050.pdf.

Hanmer, Fred, and Michelle Marquardt. 2023. 'New Insights into the Rental Market'. *RBA Bulletin*, no. June. Australia. http://www.rba.gov.au/publications/bulletin/2023/jun/new-insights-into-the-rental-market.html.

Hannan, Ewin. 2015. 'Exploited Overseas Workers Paid No Wages for Months'. Economy. *Australian Financial Review*, April 19.

Harcourt, Geoffrey C. 1997. 'Pay Policy, Accumulation and Productivity'. *The Economic and Labour Relations Review* 8 (1): 78–89. https://doi.org/10.1177/103530469700800106.

Harvard Growth Lab. 2025. 'The Atlas of Economic Complexity'. https://atlas.hks.harvard.edu/rankings.

Harvey, David. 2019. *Reading Marx's Capital Volume 1, Class 11, Chapter 25*. May 4. https://davidharvey.org/reading-capital/#capital-v1-2019.

Hayek, Matthew N. 2022. 'The Infectious Disease Trap of Animal Agriculture'. *Science Advances* 8 (44): eadd6681. https://doi.org/10.1126/sciadv.add6681.

Hayenga, Marvin L. 1998. 'Cost Structures of Pork Slaughter and Processing Firms: Behavioral and Performance Implications'. *Applied Economic Perspectives and Policy* 20 (2): 574–83. https://doi.org/10.2307/1350009.

Hazeldenes Chicken. 2025. 'Premium Quality Chicken | Australian Chicken | Since 1938'. Hazeldenes Chicken. https://hazeldenes.com.au/.

Hendrix, Joshua A., and Cindy Brooks Dollar. 2018. 'American Slaughterhouses and the Need for Speed: An Examination of the Meatpacking-Methamphetamine Hypothesis'. *Organization & Environment* 31 (2): 133–51. https://doi.org/10.1177/1086026617697038.

Hicks, John. 1963. *The Theory of Wages*. Springer.

Hopkins, David, Benjamin Holman, and Joseph Kerry. 2015. *Innovations in Meat Packaging Technology: A Review*. Australian Meat Processor Corporation.

Horowitz, Roger. 2008. '"That Was a Dirty Job!" Technology and Workplace Hazards in Meatpacking Over the Long Twentieth Century'. *Labor* 5 (2): 13–25. https://doi.org/10.1215/15476715-2007-075.

Howard, M. C., and J. E. King. 1985. *The Political Economy of Marx*. 2nd edn. New York University Press.

Howard, Philip H. 2017. 'Corporate Concentration in Global Meat Processing: The Role of Government Subsidies'. Paper presented at Global Meat Industry and its Implications, Georgia Tech, School of History and Sociology.

Howes, Stephen. 2024. 'How Many PALM Workers Are in Australia?' *Devpolicy Blog from the Development Policy Centre*, July 1. https://devpolicy.org/how-many-palm-workers-are-in-australia/.

Human Rights Watch. 2019. *As Line Speeds Increase, Meatpacking Workers Are in Ever More Danger*. September 18. https://www.hrw.org/news/2019/09/18/line-speeds-increase-meatpacking-workers-are-ever-more-danger.

Human Rights Watch (Organization), ed. 2004. *Blood, Sweat, and Fear: Workers' Rights in U.S. Meat and Poultry Plants*. Human Rights Watch.

Hutchinson, Diane. 2014. 'Manufacturing'. In *The Cambridge Economic History of Australia*, 1st edn, edited by Simon Ville and Glenn Withers. Cambridge University Press. https://doi.org/10.1017/CHO9781107445222.019.

IBISWorld. 2023a. *Company Profile: Industry Park Pty Ltd*. https://my.ibisworld.com/download/au/en/company-reports/441543/1/0/pdf.

IBISWorld. 2023b. *JBS*. Company profile. https://my.ibisworld.com/download/au/en/company-reports/441543/1/0/pdf.

IBISWorld. 2023c. *Turosi Pty Ltd*. Company profile. https://my.ibisworld.com/download/au/en/company-reports/450855/1/0/pdf.

IBISWorld. 2024a. *Baiada Pty Ltd*. Company profile. https://my.ibisworld.com/download/au/en/company-reports/512533/1/0/pdf.

IBISWorld. 2024b. *Business Environment Profile - F3112 Domestic Price of Coarse Grains - MyIBISWorld*. https://my.ibisworld.com/au/en/business-environment-profiles/f3112/business-environment-profile.

IBISWorld. 2024c. *Golden Cockerel Pty Ltd*. Company profile. https://my.ibisworld.com/download/au/en/company-reports/4601/1/0/pdf.

IBISWorld. 2024d. *HCF Holdco Pty Limited*. Company profile. https://my.ibisworld.com/download/au/en/company-reports/561628/1/0/pdf.

IBISWorld. 2024e. *Ingham's Goup Limited*. Company profile. https://my.ibisworld.com/download/au/en/company-reports/437996/1/0/pdf.

IBISWorld. 2024f. *Teys Australia Pty Ltd*. Company profile. https://my.ibisworld.com/download/au/en/company-reports/3439/1/0/pdf.

IBISWorld. 2024g. *Thomas Foods International Consolidated Pty Limited*. Company profile. https://my.ibisworld.com/download/au/en/company-reports/12561/1/0/pdf.

ILOSTAT. 2025. 'Wages and Working Time Statistics (COND Database)'. *ILOSTAT*. https://ilostat.ilo.org/methods/concepts-and-definitions/description-wages-and-working-time-statistics/.

Industry Commission. 1994. *Meat Processing Volume 1: Report*. No. 38. https://www.pc.gov.au/inquiries/completed/meat/38meatpr.pdf.

Ingham Property. 2019. 'History'. *Ingham Property*. https://inghamproperty.com.au/history/.

Inghams. 2023. 'Inghams-Hatchery-Scheme-26-July-23.Pdf'.

Ingham's Group Limited. 2016. 'Ingham's Marks Public Milestone | ASX Listing Announcement'. Ingham's. https://inghams.com.au/inghams-marks-public-milestone/.

Ingham's Group Limited. 2023. 'Submission 137 to House of Representatives Standing Committee on Agriculture Inquiry into Food Security'. https://www.aph.gov.au/foodsecurity.

Ingham's Group Limited. 2024. 'Annual Report'. https://investors.inghams.com.au/Investor-Centre/.

Iotti, Mattia, and Giuseppe Bonazzi. 2013. 'Assessment of Return on Investment and Sustainability of the Business Cycle in the Meat Processing Sector in Italy'. *African Journal of Agricultural Research* 8 (40): 5051–63.

Jahan, Nilufar, Perry Smith, and Gil Rodriguez. 2003. 'An Analysis of the Growth of the Australian Dairy and Meat Processing Sectors'. *Australasian Agribusiness Review*, Volume 11. https://doi.org/10.22004/ag.econ.132536.

James, Natalie. 2015. 'Statement of Findings – Baiada Group - Fair Work Ombudsman'. June 18. https://www.fairwork.gov.au/newsroom/media-releases/2015-media-releases/june-2015/20150618-baiada-group-statement-of-findings.

JBS. 2024. 'JBS Dinmore Welcomes a Strong Local Workforce to Commence Its Second Shift — JBS Foods'. https://jbsfoodsgroup.com/articles/jbs-dinmore-welcomes-a-strong-local-workforce-to-commence-its-second-shift.

JBS. 2025. 'Facilities and Locations'. *JBS USA | Sustainability Report*. https://sustainability.jbsfoodsgroup.com/chapters/who-we-are/facilities-locations/.

JBS, and Australasian Meat Industry Employees Union. 2022. 'JBS Dinmore Enterprise Agreement 2022'.

Jerrard, Marjorie A. 1999. 'A Surprising Struggle? The AMIEU (Qld) and the Fight for Equal Wages in the Meat Processing and Export Industry in the 1950s and 1960s'. *Labour History*, no. 77: 140–59. https://doi.org/10.2307/27516674.

Jerrard, Marjorie A. 2001. 'The Introduction of the Chain System: An "Heroic Defeat" for the AMIEU (Vic)'. Australian Society for the Study of Labour History. https://labourhistorycanberra.org/2014/12/2001-conference-the-introduction-of-the-chain-system-an-heroic-defeat-for-the-amieu-vic/.

Jerrard, Marjorie A. 2005. '"Victims of Their Past?": A Comparison of the Strategy of the Queensland and Victorian Branches of the AMIEU'. Monash University.

Jerrard, Marjorie A. 2006. 'Meat Industry Unions, Industry Restructuring, and Employment Relations Change in New Zealand and Australia'. *New Zealand Journal of Employment Relations* (Auckland, New Zealand) 31 (1): 37–59.

Jerrard, Marjorie A. 2015. 'The G & K O'Connor Lockout (1999) and Its Aftermath: A Case Study of a Union Avoidance Campaign in the Australian Meat Processing Industry'. *Labour History*, no. 109 (November): 131–48. https://doi.org/10.3828/labourhistory.109.0131.

Jerrard, Marjorie A. 2020. 'The Live Animal Export Industry: A Case Study of the Role Played by an Australian Blue-Collar Union in the Animal Welfare and Rights Movement'. *Labor History* 61 (5–6): 677–91. https://doi.org/10.1080/0023656X.2020.1813266.

Jerrard, Marjorie, Ross Donohue, Nell Kimberley, and Richard Cooney. 2020. 'Reinventing Meatworkers: Old Skills but New Careers for the Twenty-First Century?' *Employment Relations Record* 8 (1): 51–67. https://doi.org/10.3316/informit.811068326455557.

Johnson, B Y. 1983. 'New Developments in the Australian Meat Industry'. *CSIRO Food Research Quarterly* 43 (1).

Jones, Evan. 1978. *An Examination of Earnigs Differentials in Australian Manufacturing Industry*. Vol. 26. Working Papers in Economics. University of Sydney, Department of Economics.

Jones, Evan. 1983. 'Industrial Structure and Labor Force Segmentation'. *Review of Radical Political Economics* 15 (4): 24–44.

Jones, Evan. 2002. 'Post-World War Two Industry Policy: Opportunities and Constraints'. *Australian Economic History Review* 42 (3).

Kalleberg, Arne L. 2011. *Good Jobs, Bad Jobs: The Rise of Polarized and Precarious Employment Systems in the United States, 1970s-2000s*. Russell Sage Foundation.

Kandel, William, and Emilio A. Parrado. 2005. 'Restructuring of the US Meat Processing Industry and New Hispanic Migrant Destinations'. *Population and Development Review* 31 (3): 447–71. https://doi.org/10.1111/j.1728-4457.2005.00079.x.

Katz, Lawrence F. 1986. 'Efficiency Wage Theories: A Partial Evaluation'. *NBER Macroeconomics Annual* 1: 235–76.

Keating, Michael. 1983. 'Relative Wages and the Changing Industrial Distribution of Employment in Australia'. *Economic Record* 59 (4): 384–97. https://doi.org/10.1111/j.1475-4932.1983.tb00828.x.

Kerr, Clark. 1977. *Labor Markets and Wage Determination: The Balkanization of Labor Markets and Other Essays*. Univ of California Press.

Kettle, Jeff. 2021. 'The Internet Consumes Extraordinary Amounts of Energy. Here's How We Can Make It More Sustainable'. The Conversation, June 9. http://theconversation.com/the-internet-consumes-extraordinary-amounts-of-energy-heres-how-we-can-make-it-more-sustainable-160639.

Keynes, John Maynard. 1936. *The General Theory of Employment, Interest and Money*. MacMillan.

King, J. E. 1990. *Labour Economics: An Australian Perspective*. Second. MacMillan.

Kitay, Jim. 2001. '"The Mudginberri Abattoir Dispute of 1985": Response'. *Labour History: A Journal of Labour and Social History*, no. 80: 191–96.

Kitay, Jim, and Rod Powe. 1987. 'Exploitation at $1,000 per Week? The Mudginberri Dispute'. *Journal of Industrial Relations* 29 (3): 365–400. https://doi.org/10.1177/002218568702900307.

Kmenta, J. 1963. 'Inter-Industry Wage Differentials in Australia, 1947–1954'. *Australian Economic Papers* 2 (1): 85–106. https://doi.org/10.1111/j.1467-8454.1963.tb00749.x.

Koroteev, Mikhail, Ekaterina Romanova, Dmitriy Korovin, et al. 2022. 'Optimization of Food Industry Production Using the Monte Carlo Simulation Method: A Case Study of a Meat Processing Plant'. *Informatics* 9 (1): 1. https://doi.org/10.3390/informatics9010005.

Kovalchuk, N. O., M. G. Marych, L. V. Popova, and A. O. Viknianska. 2019. 'Modelling of the Optimal Structure of Meat Processing Enterprises'. *Financial and Credit Activity Problems of Theory and Practice* 4 (31): 31. https://doi.org/10.18371/fcaptp.v4i31.190916.

Kronic, Maya B. 2013. 'On Living With Cuts'. *Maya B. Kronic.* http://readthis.wtf/writing/on-living-with-cuts/.

Krueger, Alan B, and Lawrence H Summers. 1988. 'Efficiency Wages and the Inter-Industry Wage Structure'. *Econometrica: Journal of the Econometric Society* 56 (2): 259–93.

Kwan, Campbell. 2024. 'What You Need to Earn to Afford a Home in a Capital City'. Residential. *Australian Financial Review*, September 20.

Langcake, Sean. 2016. 'Conditions in the Manufacturing Sector'. *RBA Bulletin* June Quarter.

Larter, Nicholas. 2025. *Poultry Processing in Australia*. No. C1112. IBISWorld.

Lass, Inga, and Mark Wooden. 2017. 'Measurement, Prevalence and the Socio-Demographic Structure of Non-Standard Employment: The Australian Case'. *IZA Labor Statistics Workshop: The Changing Structure of Work, June*, 29–30.

Lefort, Cecile. 2025. 'Why Cattle Prices Just Hit a Two-Year High'. Commodities. *Australian Financial Review*, May 6.

Leigh, Andrew. 2008. 'Returns to Education in Australia'. *Economic Papers* 27 (3): 233–49.

Lenin, Vladimir. 1934. *Imperialism: The Highest Stage of Capitalism*. International Publishers.

Lever, John, and Paul Milbourne. 2017. 'The Structural Invisibility of Outsiders: The Role of Migrant Labour in the Meat-Processing Industry'. *Sociology* 51 (2): 306–22. https://doi.org/10.1177/0038038515616354.

Levy, Jonathan. 2014. 'Accounting for Profit and the History of Capital'. *Critical Historical Studies* 1 (2): 171–214. https://doi.org/10.1086/677977.

Linder, Marc. 1996. 'Review: Persistent Inequalities: Wage Disparity under Capitalist Competition by Howard Botwinick'. *Labour Studies Journal* 21 (1).

Livingston, Jessica. 2004. 'Murder in Juárez: Gender, Sexual Violence, and the Global Assembly Line'. *Frontiers: A Journal of Women Studies* 25 (1): 59–76.

Long, Brandon. 2024. 'Hundreds of Jobs Filled as Southern Hemisphere's Biggest Beef Abattoir Ramps up Capacity'. *ABC News*, February 28.

Lynch, Jared. 2021. 'Private Equity Firms Target Big Australian Food Producers for Investment'. *Sydney Morning Herald*, June 18. https://www.smh.com.au/business/private-equity-firms-target-big-australian-food-producers-for-investment-20140617-3abhm.html.

MacDonald, James. 2024. 'Concentration in U.S. Meatpacking Industry and How It Affects Competition and Cattle Prices'. Economic Research Service.

https://www.ers.usda.gov/amber-waves/2024/january/concentration-in-u-s-meatpacking-industry-and-how-it-affects-competition-and-cattle-prices.

MacWilliam, Scott. 2024. '*Pacific Islands Guestworkers in Australia. The New Blackbirds?* By Kirstie Petrou and John Connell. Singapore: Palgrave Macmillan, 2023.' *Journal of Contemporary Asia* 54 (1): 178–80. https://doi.org/10.1080/00472336.2023.2170265.

Mandel, Ernest. 1991. 'Introduction'. In *Capital: A Critique of Political Economy*, vol. 3. Penguin Books.

Marin-Guzman, David. 2022. 'What Is Sector-Wide Bargaining, and Why Do Unions Want It?' Workplace. *Australian Financial Review*, August 25.

Marin-Guzman, David. 2023. 'Union Membership in Private Sector Shrinks to 8pc'. *Australian Financial Review*, January 15.

Marin-Guzman, David, and Tom McIlroy. 2025. 'Employers Call for 2.5pc Minimum Wage Increase'. Workplace. *Australian Financial Review*, April 2.

Marx, Karl. 1973. *Grundrisse*. Vintage Books.

Marx, Karl. 1990. *Capital: A Critique of Political Economy*. Vol. 1. Penguin Books.

Marx, Karl. 1991. *Capital: A Critique of Political Economy*. Vol. 3. Penguin Books.

Mason, Patrick L. 1996. 'Book Reviews: Persistent Inequalities: Wage Disparity under Capitalist Competition, Howard Botwinick, Princeton: Princeton University Press, 1993'. *Review of Radical Political Economics* 28 (1): 121–28.

Mather, Joanna. 2015. 'Teys Family Fights to Stop Wealth Being Disclosed'. Taxandsuper. *Australian Financial Review*, October 6.

Matthews, Rebecca, and Tim Ryan. 2015. *The History of Australian Cattle Prices since 1970*. Meat & Livestock Australia.

McBryde, J. 1935. 'The Chain System in the Meat Industry'. *Trade Union Leader (Sydney)* 1.

McCrystal, Shae. 2010. *The Right to Strike in Australia*. Federation Press.

McCubbing, Gus. 2025. '"Worst I've Seen in My Life": Farmers Rocked by Drought in SA, Victoria'. Agriculture. *Australian Financial Review*, May 14.

McGuinness, Seamus, Elizabeth Webster, and Kostas Mavromaras. 2012. 'What Are the Characteristics of the Employers of the Low Paid in Australia?' *Australian Bulletin of Labour* 38 (1): 26–47.

McKell, Ken, and Simon Booth. 2018. *Making the Meat Industry a Safer Place*. Australian Meat Processor Corporation.

Meat & Livestock Australia. 2010. *Study of the Australian Red Meat Processing Sector and Its Contribution to National and Regional Economies*. https://www.mla.com.au/contentassets/5790db30214442c1a2bc8a74c213a4f2/a.cis.0016_final_report.pdf.

Meat & Livestock Australia. 2021. 'Trade Agreements Delivering Fresh Gains in 2021 | Meat & Livestock Australia'. MLA Corporate. https://www.mla.com.au/news-and-events/industry-news/trade-agreements-delivering-fresh-gains-in-2021/.

Meat & Livestock Australia. 2022. 'McDonald's Visits Australian Beef Businesses with a Focus on Sustainability | Meat & Livestock Australia'. *MLA Corporate*. https://www.mla.com.au/news-and-events/industry-news/mcdonalds-visits-australian-beef-businesses-with-a-focus-on-sustainability/.

Meat & Livestock Australia. 2023. 'Grainfed Cattle Account for Almost Half of Australia's Cattle Slaughter | Meat & Livestock Australia'. MLA Corporate. https://www.mla.com.au/news-and-events/industry-news/grainfed-cattle-account-for-almost-half-of-australias-cattle-slaughter/.

Meat & Livestock Australia. 2024a. 'Australian Production & Slaughter'. MLA Corporate. https://www.mla.com.au/prices-markets/statistics/aus-production-slaughter.

Meat & Livestock Australia. 2024b. *Global Beef Market Monthly Review*. 6 (5).

Meat & Livestock Australia. 2025a. 'Australian Retail Meat Prices'. MLA Corporate. https://www.mla.com.au/prices-markets/statistics/australian-retail-meat-prices/.

Meat & Livestock Australia. 2025b. 'Marketing Beef, Lamb, and Goat'. MLA Corporate. https://www.mla.com.au/marketing-beef-and-lamb/.

Meat & Livestock Australia. 2025c. 'MLA Donor Company'. MLA Corporate. https://www.mla.com.au/about-mla/what-we-do/mla-donor-company/.

Meat & Livestock Australia. 2025d. 'What's Driving Australia's Feedlot Momentum?' MLA Corporate. https://www.mla.com.au/news-and-events/industry-news/whats-driving-australias-feedlot-momentum/.

Meldrum-Hanna, Caro, Ali Russell, and Mario Christodoulo. 2015. 'Slave-like Conditions Found on Farms Supplying Big Supermarkets'. *ABC News*, May 3.

Meyers, Frederic, and Roger L. Bowlby. 1953. 'The Interindustry Wage Structure and Productivity'. *ILR Review* 7 (1): 93–102. https://doi.org/10.2307/2519016.

Mezzadri, Alessandra. 2016. 'Class, Gender and the Sweatshop: On the Nexus between Labour Commodification and Exploitation'. *Third World Quarterly* (London) 37 (10): 1877–900. https://doi.org/10.1080/01436597.2016.1180239.

Migrant Workers Taskforce. 2019. *Report of the Migrant Workers Taskforce March 2019*. Commonwealth of Australia.

Milkman, Ruth. 1980. 'Organizing the Sexual Division of Labor: Historical Perspectives on'women's Work'and the American Labor Movement'. *Socialist Review* 10 (1): 95–150.

Mill, John Stuart. 1929. *Principles of Political Economy with Some of Their Applications to Social Philosophy*. Original of 1848. Longmans, Green & Co.

Mock, Sarah. 2020. ‘From Farm to Factory: The Unstoppable Rise of American Chicken’. Environment. *The Guardian*, August 17.

Mokre, Patrick. 2021. ‘The Quantile Impacts of Real Competition on Industrial Wage Inequality in the United States, 1998-2018’. Paper presented at Ninth ECINEQ Meeting, July ECINEQ The Society for the Study of Economic Inequality.

Mokre, Patrick. 2023. *Wage Inequalities under Real Competition*. https://www.patrickmokre.com/workingpapers/.

Mokre, Patrick, and Miriam Rehm. 2020. ‘Inter-Industry Wage Inequality: Persistent Differences and Turbulent Equalisation’. *Cambridge Journal of Economics* 44 (4): 919–42. https://doi.org/10.1093/cje/bez064.

Moody, Kim. 1997. *Workers in a Lean World: Unions in the International Economy*. Verso.

Moody, Kim. 2019. ‘Competition, Inequality & Class Struggle’. *Against the Current* 202.

Moolchand, Ema, and Shelley Marshall. 2025. *Meat the Reality: Unpacking the Exploitation of PALM Scheme Workers in Australia’s Meat Industry*. RMIT Business and Human Rights Centre.

Morris, Sophie. 2006. ‘Meat Bosses Cut Visa Deal’. Economy. *Australian Financial Review*, September 7.

Morris, Sophie. 2007. ‘Abattoirs Told to Hire Locally’. *Australian Financial Review*.

Morrison, Catherine J. 1997. ‘Economic Performance, Cost Economies and Pricing Behaviour in the US and Australian Meat Products Industries’. *Australian Journal of Agricultural and Resource Economics* 41 (3): 361–83. https://doi.org/10.1111/1467-8489.t01-1-00018.

Moudud, Jamee K., Cyrus Bina, and Patrick L. Mason. 2012. *Alternative Theories of Competition: Challenges to the Orthodoxy*. Routledge.

Nason, James. 2016. ‘ACCC Must Explain Its Barnawartha Investigation Findings: O’Sullivan - Beef Central’. *Beef Central*, January 12.

Nason, James. 2020. ‘The Rise and Rise of Feed Grain’. *Beef Central*, July 24.

National Institute of Economic and Industry Research. 2024. *Red Meat Processing Socio-Economic Impact Study*. Australian Meat Processor Corporation. https://ampc.com.au/media/isvcpnrp/ampc-2024-1121-final-report.pdf.

National Poultry. 2024. ‘Australia’s Meat Chicken Industry – Part 1 - National Poultry’. *National Poultry Newspaper*, November 6. https://poultrynews.com.au/australias-meat-chicken-industry-part-1/.

Nguyen, Sang V., and Michael Ollinger. 2009. ‘Mergers and Acquisitions, Employment, Wages, and Plant Closures in the U.S. Meat Product Industries’. *Agribusiness* 25 (1): 70–89. https://doi.org/10.1002/agr.20186.

Norton, Kent, and Mike Rafferty. 2010. 'Work, Skills and Training in the Australian Red Meat Processing Sector. A National Vocational Education and Training Research and Evaluation Program Report'. In *National Centre for Vocational Education Research (NCVER)*. National Centre for Vocational Education Research Ltd. https://eric.ed.gov/?id=ED513955.

Oldfield, Jamie-Lee, and Jenny Kelly. 2018. 'Abattoir Fire Cloud on Supply'. News. *Weekly Times Now*. https://www.weeklytimesnow.com.au/news/national/thomas-foods-international-murray-bridge-abattoir-fire-cloud-on-supply/news-story/7cac36977e8d3cd9b2f3456a4a2d703e.

O'Leary, Patrick. 2008. 'Employers and Industrial Relations in the Australian Meat Processing Industry: An Historical Analysis.' UNSW Sydney. https://doi.org/10.26190/UNSWORKS/17638.

O'Leary, Patrick. 2020. 'Neoliberal Employer Industrial Relations Strategies in the US and Australian Meat Industries'. *Employment Relations Record* 13 (2): 2–15. https://doi.org/10.3316/informit.797680055112756.

Ollinger, Michael, Sang V. Nguyen, Donald P. Blayney, William Chambers, and Kenneth B. Nelson. 2006. *Food Industry Mergers and Acquisitions Lead to Higher Labor Productivity*. Economic Research Report. https://doi.org/10.22004/ag.econ.7246.

Om, Jason. 2013. 'Staff at Baiada Chicken Factory "underpaid" by Contractor'. *ABC News*, October 16.

Ombudsman, Fair Work. 2016. 'Inquiry into the Wages and Conditions of People Working under the 417 Working Holiday Visa Program'. *FWO, Melbourne*.

Organisation for Economic Co-operation and Development. 2018. *Australian Services Trade in the Global Economy*. Organisation for Economic Co-operation and Development. https://www.oecd-ilibrary.org/trade/australian-services-trade-in-the-global-economy_9789264303911-en.

Organisation for Economic Co-operation and Development. 2024. 'Incidence of Low and High Pay'. OECD. https://www.oecd.org/en/data/indicators/incidence-of-low-and-high-pay.html.

Parkinson, Martin, Joanna Howe, and John Azarius. 2023. *Review of the Migration System: Final Report*. Department of Home Affairs.

Parsons, S. A., and J. W. B. Guise. 1971. 'An Analysis of the Costs of Operation of Export Abattoirs in Australia'. *Quarterly Review of Agricultural Economics* (Canberra, Australia) 24 (1): 45–56.

Patel, Raj, and Jason W. Moore. 2017. *A History of the World in Seven Cheap Things: A Guide to Capitalism, Nature, and the Future of the Planet*. University of California Press. https://doi.org/10.1525/9780520966376.

Patty, Anna. 2015. 'Baiada Labour Hire Companies Continue to Exploit Overseas Workers despite Fair Work Ombudsman Warning'. NSW. *The Sydney Morning Herald*, October 18.

Peck, Jamie. 2000. ‘Structuring the Labour Market: A Segmentation Approach’. In *Realist Perspectives on Management and Organisations*, edited by Stephen Ackroyd and Steve Fleetwood. Routledge.

Peetz, David. 2016. ‘Industrial Action, the Right to Strike, Ballots and the Fair Work Act in International Context’. *Australian Journal of Labour Law* 29: 133–53.

Peetz, David, and Georgina Murray, eds. 2017. *Women, Labor Segmentation and Regulation*. Palgrave Macmillan US. https://doi.org/10.1057/978-1-137-55495-6.

Pennington, Alison. 2018. *On the Brink: The Erosion of Enterprise Agreement Coverage in Australia’s Private Sector*. The Centre for Future Work at the Australia Institute.

Petrou, Kirstie, and John Connell. 2023. *Pacific Islands Guestworkers in Australia: The New Blackbirds?* Springer Nature Singapore. https://doi.org/10.1007/978-981-19-5387-3.

Plumber, Noorine, Maliha Majeed, Shawn Ziff, Sneha E Thomas, Srinivasa Rao Bolla, and Vasavi Rakesh Gorantla. 2021. ‘Stimulant Usage by Medical Students for Cognitive Enhancement: A Systematic Review’. *Cureus* 13 (5): e15163. https://doi.org/10.7759/cureus.15163.

Polansek, Tom, and Leah Douglas. 2025. ‘Trump Administration Aims to Make Faster Meat Processing Permanent’. United States. *Reuters*, March 18.

Poole, Laura. 2015. ‘Restaurants Drive Trend towards Older-Aged Beef’. *ABC News*, July 16.

Powell, Sandy. 2022. *Abattoir Set to Resume Operations after COVID Shutdown*. Coronavirus. February 7. https://www.examiner.com.au/story/7610888/abattoir-set-to-resume-operations-after-covid-shutdown/.

Power, Margaret. 1975. ‘Woman’s Work Is Never Done— by Men: A Socio-Economic Model of Sex-Typing in Occupations’. *Journal of Industrial Relations* 17 (3): 225–39. https://doi.org/10.1177/002218567501700301.

Preston, Alison, and Geoff Crockett. 1999. ‘State of Pay: Female Relative Earnings in Australia’. *Labour & Industry: A Journal of the Social and Economic Relations of Work* 10 (2): 129–46.

Price, Steph. 2015. ‘Meatworkers Lose to Coles and SDA’. *Red Flag*, May 13. https://redflag.org.au/article/meatworkers-lose-coles-and-sda.

Primo Foods. 2025. ‘Primo Foods Export’. https://www.primofoods-export.com.au/.

Productivity Commission. 1998. *Work Arrangements in the Australian Meat Processing Industry*. Research Report. AusInfo. Canberra.

Productivity Commission. 2003. *Trends in Australian Manufacturing*. Commission Research Paper. AusInfo. Canberra. https://www.pc.gov.au/research/completed/manufacturing/tiam.pdf.

Productivity Commission. 2014. *Australia's Automotive Manufacturing Industry*. https://www.pc.gov.au/inquiries/completed/automotive/report/automotive.pdf.

Productivity Commission. 2021. *Things You Can't Drop on Your Feet: An Overview of Australia's Services Sector Productivity*. PC Productivity Insights. Canberra.

ProTen. 2025. 'ProTen | We Grow the Chickens'. ProTen. https://proten.com.au/.

Psacharopoulos, George, and Harry Anthony Patrinos. 2018. 'Returns to Investment in Education: A Decennial Review of the Global Literature'. *Education Economics* 26 (5): 445–58. https://doi.org/10.1080/09645292.2018.1484426.

Queensland, Workplace Health and Safety. 2021. 'Preventing injuries in poultry processing'. Text. Workplace Health and Safety Queensland, April 12. https://www.worksafe.qld.gov.au/resources/guides/preventing-injuries-in-poultry-processing.

Quinlan, Michael, and Elsa Underhill. 2021. 'Submission 2 to Senate Select Committee on Job Security'. https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Job_Security/JobSecurity.

Read, Michael. 2022. 'Australia's Falling Real Wages (in Eight Charts)'. Politics. *Australian Financial Review*, August 17.

Reeves, Matthew. 2024. *Companies - A0143 Beef Cattle Feedlots in Australia - MyIBISWorld*. IBISWorld. https://my.ibisworld.com/au/en/industry/A0143/companies.

Regional Development Victoria. 2025. 'Abattoir Expansion Boosts Stawell Jobs and Industry'. Regional Development Victoria, May 13. Victoria. https://www.rdv.vic.gov.au/news/abattoir-expansion-boosts-stawell-jobs-and-industry.

Reich, Michael, David M Gordon, and Richard C Edwards. 1973. 'A Theory of Labor Market Segmentation'. *The American Economic Review* 63 (2): 359–65.

Reid, Caitlin. 2018. 'Scone Meat Workers Walk off the Job'. Latest News. *Hunter Valley News*, July 6. https://www.huntervalleynews.net.au/story/5511799/scone-meat-workers-walk-off-the-job-photos-video/.

Revell, George. 2019. *Representative Cattle Processor Model*. Australian Meat Processor Corporation. https://www.ampc.com.au/getmedia/e9f10f28-63d7-4df8-a085-4eb0f9a83c1b/AMPC_RepresentativeCattleProcessorModel_FinalReport.pdf?ext=.pdf.

Revesz, John, and Ralph Lattimore. 1997. *Small Business Employment*. Industry Commission.

Riber, Anja B., and Kaitlin E. Wurtz. 2024. 'Impact of Growth Rate on the Welfare of Broilers'. *Animals* 14 (22): 22. https://doi.org/10.3390/ani14223330.

Rich List. 2025. ‘Rich List - The Definitive List of the Richest Men and Women in Australia’. *Australian Financial Review*, August 27.

Roche, Ann M, Ken Pidd, Petra Bywood, and Toby Freeman. 2008. ‘Methamphetamine Use among Australian Workers and Its Implications for Prevention’. *Drug and Alcohol Review* 2 (3): 334–41.

Rolfe, John, and Russ Reynolds. 1999. ‘Competition and Exit in Meat Processing: A Queensland Case Study.’ *42nd Annual Conference of the Australian Agricultural and Resource Economics Association* (Christchurch).

Ronan, Glenn, Greg Cox, and Simon Howlett. 2003. ‘The True Story of Why Chickens Cross The Road: Consumer Demand, Processor Growing Contracts and Market Regulation in the Australian Chicken Meat Industry’. Paper presented at Australian Agricultural and Resource Economics Society 47 th Annual Conference, Fremantle, Australia.

Ross, Russell, and Keith Whitfield. 2009. *The Australian Labour Market*. 3rd edn. Pearson Education Australia.

Rowe, John Wilkinson Foster. 1928. *Wages in Practice and Theory*. G. Routledge & Sons, Limited.

Rubery, Jill. 1978. ‘Structured Labour Markets, Worker Organisation and Low Pay’. *Cambridge Journal of Economics* 2 (1): 17–36.

Rubery, Jill. 1997. ‘Wages and the Labour Market’. *British Journal of Industrial Relations* 35 (3): 337–66. https://doi.org/10.1111/1467-8543.00058.

Rubery, Jill. 2017. *Why Is Women’s Work Low-Paid? Establishing a Framework for Understanding the Causes of Low Pay among Professions Traditionally Dominated by Women*. Oxfam GB. https://doi.org/10.21201/2017.1138.

Rudman, Alison, and Bradon Ellem. 2024. ‘Union Purpose and Power: Regulating the Fissured Workplace’. *Economic and Industrial Democracy* 45 (1): 200–218. https://doi.org/10.1177/0143831X221139333.

Rugitsky, Fernando. 2024. ‘The World’s Stockyard: Agribusiness and the Green Transition in Brazil’. *Phenomenal World*, August 21. https://www.phenomenalworld.org/analysis/the-worlds-stockyard/.

Russell, Cherie, Nurul Amanina Binte Hussain, Katherine Sievert, and Katherine Cullerton. 2023. ‘Who Is Donating to Political Parties in Queensland, Australia? An Analysis of Political Donations from the Food Industry’. *Public Health Nutrition* 26 (7): 1501–12. https://doi.org/10.1017/S1368980023000435.

Ryan, Lyndall. 2019. ‘Establishing a Code of Silence: Civilian and State Complicity in Genocidal Massacres on the New South Wales Frontier, 1788–1859’. In *Civilian-Driven Violence and the Genocide of Indigenous Peoples in Settler Societies*. Routledge.

Ryan, Matthew D. J. 2024. ‘“A Great Many of Them Die”: Sugar, Race and Cheapness in Colonial Queensland’. *Journal of Agrarian Change* 24 (2): e12574. https://doi.org/10.1111/joac.12574.

SafeWork Australia. 2020. ‘Meat Worker Compensation and Fatality Statistics’. https://www.safeworkaustralia.gov.au/sites/default/files/2020-07/FOI%2020-007%20-%20Meat%20worker%20compensation%20and%20fatality%20statistics.pdf.

SafeWork Australia. 2024. ‘Workers Compensation Injury Rate Data’. https://data.safeworkaustralia.gov.au/interactive-data/topic/workers-compensation-injury-frequency-rates.

Salter, W. E. G. 1966. *Productivity and Technical Change*. 1st edn. Cambridge University Press. https://doi.org/10.1017/CBO9781316530276.

Sattinger, Michael. 1994. ‘Persistent Inequalities: Wage Disparity Under Capitalist Competition’. *ILR Review* 48 (1): 168–69.

Scarcella, Mike. 2023. ‘JBS to Pay $25 Mln in Latest Beef Price-Fixing Settlement in US Court’. *Reuters*, April 17. https://www.reuters.com/legal/litigation/jbs-pay-25-mln-latest-beef-price-fixing-settlement-us-court-2023-04-17/.

Scarcella, Mike. 2025. ‘Cargill Agrees to $32 Mln Settlement in Turkey Price-Fixing Lawsuit’. Litigation. *Reuters*, January 16. https://www.reuters.com/legal/litigation/cargill-agrees-32-mln-settlement-turkey-price-fixing-lawsuit-2025-01-16/.

Schneiders, Ben. 2022. *Hard Labour: Wage Theft in the Age of Inequality*. Scribe.

Schneiders, Ben. 2025. ‘How Did the Cost of Living Get so Bad? These Graphs Show How Prices Skyrocketed’. *ABC News*, May 6.

Schneiders, Ben, Royce Millar, and Nick Toscano. 2016. ‘Coles Underpaid Workers and Cut Penalty Rates: Tribunal’. Workplace. *The Sydney Morning Herald*, May 31.

Schreiber, Melody. 2025. ‘“They’Re Killing You”: US Poultry Workers Fear Faster Lines Will Lead to More Injury’. US News. *The Guardian*, April 8.

Scott. 2025. ‘Automated Boning Room’. Scott Technology. https://scottautomation.com/en/products/meat/automated-boning-room.

Scott Automation. 2025a. *Automated Boning Room*. https://scottautomation.com/en/products/meat/automated-boning-room.

Scott Automation. 2025b. *Robotic Palletising Systems*. https://scottautomation.com/en/products/materials-handling-logistics/robotic-palletising.

Scott, Peter, Andrew Turner, Susan Bibby, and Anthony Chamings. 2009. *Structure and Dynamics of Australia’s Commercial Poultry and Ratite Industries*. Scolexia Animal and Avian Health Consultancy.

Select Committee on Supermarket Prices. 2024. *Supermarket Prices: Final Report*. The Senate, Commonwealth of Australia.

Semmler, Willi. 1981. ‘Competition, Monopoly, and Differentils of Profit Rates: Theoretical Considerations and Empirical Evidence’. *Review of Radical*

Political Economics 13 (4): 39–52. https://doi.org/10.1177/048661348201300405.

Senate Economics References Committee. 2022. *The Australian Manufacturing Industry*. Parliament of Australia.

Senate Education and Employment References Committee. 2016. *A National Disgrace: The Exploitation of Temporary Work Visa Holders*. The Senate, Commonwealth of Australia.

Senate Rural and Regional Affairs and Transport References Committee. 2016. *Effect of Market Consolidation on the Red Meat Processing Sector, Interim Report*. Parliament of Australia.

Senate Select Committee on Animal Welfare. 1990. *Intensive Livestock Production*. Parliament of Australia.

Senate Select Committee on Job Security. 2022. *Final Report Senate Select Committee on Job Security 2022*. Parliament of Australia.

Senate Select Committee on Temporary Migration. 2021. *Temporary Migration*. Parliament of Australia.

SG Heilbron Economic & Policy Consulting. 2018. *Analysis of Regulatory and Related Costs in Red Meat Processing*. Australian Meat Processor Corporation.

SG Heilbron Economic & Policy Consulting. 2025. *The Nature of Competition in the Red Meat Processing Industry 2024*. Australian Meat Processor Corporation. https://www.ampc.com.au/getmedia/22abf4ef-fc5b-4b74-b140-6243af798b2c/Nature-of-Competition-Final-Report.pdf?ext=.pdf.

Shaikh, Anwar. 2008. 'Competition and Industrial Rates of Return'. *Issues in Finance and Industry: Essays in Honour of Ajit Singh*, 167–94.

Shaikh, Anwar. 2016. *Capitalism: Competition, Conflict, Crises*. Oxford University Press.

Shaikh, Anwar. 2020. 'The Econ in Econophysics'. *The European Physical Journal Special Topics* 229 (9): 1675–84. https://doi.org/10.1140/epjst/e2020-900204-5.

Shapiro, Carl, and Joseph E Stiglitz. 1984. 'Equilibrium Unemployment as a Worker Discipline Device'. *The American Economic Review* 74 (3): 433–44.

Sharif, Rafiqul. 1997. *Occupational Health and Safety Performance Overview, Meat and Meat Product Manufacturing Industry, Australia, 1994-95*. Meat Research Corporation. https://www.safeworkaustralia.gov.au/system/files/documents/1702/meat_and_meat_product_manufacturing_industry_australia_1994-95.pdf.

Sievert, Kate, Mark Lawrence, C. Parker, and P. Baker. 2021. 'Understanding the Political Challenge of Red and Processed Meat Reduction for Healthy and Sustainable Food Systems: A Narrative Review of the Literature'. *International Journal of Health Policy Management* 10 (12).

Sievert, Katherine, and Christine Parker. 2024. 'Our Beef with "Big Meat": The Power Perpetuating Australia's Live Export Trade Is at Play Elsewhere'. The Conversation, July 29. https://doi.org/10.64628/AA.j7g7rakaq.

Sinclair, Upton. 1906. *The Jungle*. Doubleday, Page & Co.

Singer, Daliah. undated. 'The Drones Watching over Cattle Where Cowboys Cannot Reach'. *BBC Food*. https://www.bbc.com/future/bespoke/follow-the-food/drones-finding-cattle-where-cowboys-cannot-reach.html.

Slade, Jessica, and Emma Alleyne. 2023. 'The Psychological Impact of Slaughterhouse Employment: A Systematic Literature Review'. *Trauma, Violence & Abuse* 24 (2): 429–40. https://doi.org/10.1177/15248380211030243.

Smith, Adam. 1937. *The Wealth of Nations*. Original of 1776. Random House.

Sokol, Jaclyn. 2016. *Women on the Line: A Review of Workplace Gender Issues in the US Poultry Industry*. Oxfam America.

Southwell, David. 2023. 'Ingham's Has Been Accused of Kicking up a Stink over a Worker Strike'. News. *Daily Mail Australia*, September 26. https://www.dailymail.co.uk/news/article-12559895/Inghams-accused-dumping-chicken-guts-bins-disrupt-Adelaide-strike.html.

Spicker, Paul. 2012. 'Why Refer to Poverty as a Proportion of Median Income?' *Journal of Poverty and Social Justice* 20 (2). https://doi.org/10.1332/175982712X652069.

Standing, Guy. 2011. *The Precariat: The New Dangerous Class*. Bloomsbury academic.

Stanford, Jim. 2020. *A Fair Share for Australian Manufacturing*. The Centre for Future Work at the Australia Institute.

State Library of NSW. 2024a. *Clubbing Pigs at Mr D O'Connell's Pig-Killing Pens, Glebe Island Abattoirs, 1879 | The Dictionary of Sydney*. https://dictionaryofsydney.org/media/3052#ref-uuid=187acf79-82f3-c169-b307-5132380986e4.

State Library of NSW. 2024b. *Killing Cattle at Henry Macnamara's Slaughteryard, Glebe Island Abbatoir, 1879 | The Dictionary of Sydney*. https://dictionaryofsydney.org/media/3055.

Stewart, Andrew, Jim Stanford, and Tess Hardy. 2018. *The Wages Crisis in Australia: What It Is and What to Do About It*. University of Adelaide Press.

Stiglitz, Joseph E. 1985. 'Equilibrium Wage Distributions'. *The Economic Journal* 95 (379): 595–618.

Stiglitz, Joseph E. 1989. 'Imperfect Information in the Product Market'. *Handbook of Industrial Organization* 1: 769–847.

Stiglitz, Joseph E. 1993. 'Post Walrasian and Post Marxian Economics'. *Journal of Economic Perspectives* 7 (1): 109–14.

Stiglitz, Joseph E. 2000. 'The Contributions of the Economics of Information to Twentieth Century Economics'. *The Quarterly Journal of Economics* 115 (4): 1441–78.

Sullivan, Kath, Stephen Dziedzic, and Jane McNaughton. 2023. 'China Lifts Restrictions on Australian Abattoirs as Trade Tensions Ease'. *ABC News*, December 11.

Supple, James. 2021. 'Smeaton Grange Starved Back to Work—But Coles Workers Could Have Won'. *Solidarity*, March 7. https://solidarity.net.au/unions/smeaton-grange-starved-back-to-work-but-coles-workers-could-have-won/.

Suwandi, Intan. 2019. 'Labor-Value Commodity Chains: The Hidden Abode of Global Production'. *Monthly Review* 71 (3). https://monthlyreview.org/articles/labor-value-commodity-chains/.

Swine fever's huge economic toll in China. 2021. 'The $100-Billion Toll of a Pig Epidemic in China'. *Nature* 598 (7879): 11–11. https://doi.org/10.1038/d41586-021-02642-z.

Tan, Ryan. 2024. *Meat, Poultry and Smallgoods Wholesaling in Australia*. IBISWorld. https://my.ibisworld.com/au/en/industry/f3602/at-a-glance.

Tappin, D, D Moore, L Ashby, D Riley, T Bentley, and F Trevelyan. 2006. *Musculoskeletal Disorders in Meat Processing: A Review of the Literature for the New Zealand Meat Processing Industry*. https://www.acc.co.nz/assets/injury-prevention/407661887b/meat-strains-sprains-review.pdf.

Taylor, Guadalupe. 2010. 'The Abject Bodies of the Maquiladora Female Workers on a Globalized Border'. *Race, Gender & Class (Towson, Md.)* (New Orleans) 17 (3/4): 349–63.

Tescari, Stefania, and Andrea Vaona. 2014. 'Regulating Rates of Return Do Gravitate in US Manufacturing!' *Metroeconomica* 65 (3): 377–96.

Teys Australia. 2016. 'The 4 Biggest Benefits of 100% Australian Beef'. *Teys Australia*, October 14. https://au.teysgroup.com/food-info/4-benefits-of-australian-beef/.

Teys Australia. 2023. 'Teys Australia Summary Sustainability Report 2023'. https://au.teysgroup.com/wp-content/uploads/2024/05/Teys-Australia-Summary-Sustainability-Report-2023.pdf.

The Economist. 2009. 'Brazilian Group Spreads Its Wings'. Agriculture. *Australian Financial Review*, November 5.

The Midfield Group. 2025. 'Processing'. *The Midfield Group*. https://midfield.com.au/divisions/midfield-meat-international/.

The Midfield Group. undated. 'Midfield Protein Solutions'. The Midfield Group. https://midfield.com.au/divisions/midfield-co-products/.

The Royal Society for the Prevention of Cruelty to Animals. 2020. *How Are Meat Chickens Farmed in Australia? – RSPCA Knowledgebase*.

https://kb.rspca.org.au/knowledge-base/how-are-meat-chickens-farmed-in-australia/.

Thomas Foods International. 2016. 'Bourke Small Stock Abattoir - SSD 7268 Environmental Impact Statement, Volume 1'. https://thomasfoods.com/wp-content/uploads/2023/06/EIS-Bourke.pdf.

Thomas Foods International. 2020. 'Ground Breaking at Murray Bridge Site'. *Thomas Foods International*, December 20. https://thomasfoods.com/ground-breaking-at-murray-bridge-site/.

Thomas Foods International. 2025a. 'Bigger, Better, Stronger'. *Thomas Foods International*. https://thomasfoods.com/bigger-better-stronger/.

Thomas Foods International. 2025b. 'Home'. Thomas Foods International. https://thomasfoods.com/.

Thomas, Patrick. 2024. 'Life for Haitian Immigrants: Jobs Nobody Wants and Sleeping on the Floor'. The Wall Street Journal, September 24. https://www.wsj.com/business/immigrants-haitian-jobs-meatpacking-eb174d69.

Thompson, Angus. 2022. 'Recruiter Wants Border Force to Crack down on Absconding Seasonal Farm Workers'. *The Sydney Morning Herald*, February 10.

Thompson, Brad. 2018. 'Forrest to Shake up Cattle Industry with $50m Investment'. Companies. *Australian Financial Review*, December 19.

Thompson, Brad. 2021. 'JBS Takes Aim at Pork Imports with Pledge to Raise More Pigs'. *Australian Financial Review*, June 9.

Thompson, Sarah, Anthony Macdonald, and Tim Boyd. 2020. 'TPG Cashes out of Inghams; JPMorgan Nabs Block Trade'. *Australian Financial Review*, August 23.

TME Systems Pty Ltd. 2022. 'Collaborative Robots: Evaluation and Deployment, Strategy Development - Stage 2'. https://ampc.com.au/.

Tobin, Grace, Lesley Robinson, and Patrick Begley. 2022. 'What Is JBS? The Company Taking More and More Control of the Food You Eat'. *ABC News*, April 24.

Toner, Phillip. 2000. 'Manufacturing Industry in the Australian Economy Its Role and Significance'. *Journal of Australian Political Economy*, no. 45: 18–45.

Touma, Rafqa. 2023. 'Australia's Looming Mortgage Stress Crisis: What the Nine Interest Rate Rises Mean for Households'. Australia News. *The Guardian*, February 11.

Tracy, Constance Lever. 1981. 'Labour Market Segmentation and Diverging Migrant Incomes'. *The Australian and New Zealand Journal of Sociology* 17 (2): 21–30. https://doi.org/10.1177/144078338101700204.

Tsoulfidis, Lefteris, and Persefoni Tsaliki. 2005. 'Marxian Theory of Competition and the Concept of Regulating Capital: Evidence from Greek Manufacturing'. *Review of Radical Political Economics* 37 (1): 5–22.

Tsoulfidis, Lefteris, and Persefoni Tsaliki. 2012. 'Classical Competition and Regulating Capital: Theory and Empirical Evidence'. In *Alternative Theories of Competition*, edited by Jamee K. Moudud, Cyrus Bina, and Patrick L. Mason. Routledge.

Tulip, Peter. 2014. 'The Effect of the Mining Boom on the Australian Economy'. *RBA* December Bulletin. https://doi.org/10.2139/ssrn.2701080.

Turosi. 2018. *Our Capabilities – Turosi Food Solutions Group*. https://turosi.com.au/our-capabilities/.

Underhill, Elsa, and DI Kelly. 1993. 'Eliminating Traditional Employment: Troubleshooters Available in the Building and Meat Industries'. *Journal of Industrial Relations* 35 (3): 398–423. https://doi.org/10.1177/002218569303500303.

Velayutham, Selvaraj. 2013. 'Precarious Experiences of Indians in Australia on 457 Temporary Work Visas'. *The Economic and Labour Relations Review* 24 (3): 340–61.

Verley, Angus. 2021. 'Chicken Meat Producer Hazeldenes Sold to Private Equity Firm'. *ABC News*, October 28.

Victoria Trades Hall Council. 2023. 'Inghams Workers Fly Together'. *We Are Union Journal*. https://www.weareunion.org.au/inghams_workers_fly_together.

Victorian TAFE International and United Voice. 2012. *Taken to the Cleaners: Experiences of International Students Working in the Australian Retail Cleaning Industry*. Victorian TAFE International.

Villa, Paola. 1986. *The Structuring of Labour Markets: The Steel and Construction Industries in Italy*. Clarendon Press.

Vitt, Lois A. 1995. 'Persistent Inequalities: Wage Disparity under Capitalist Competition, Howard Botwinick (1993), Review'. *Work and Occupations* 22 (3): 360–62.

Vosko, Leah F. 2010. *Managing the Margins: Gender, Citizenship, and the International Regulation of Precarious Employment*. Oxford University Press.

Vosko, Leah F., Martha MacDonald, and Iain Campbell, eds. 2009. *Gender and the Contours of Precarious Employment*. Routledge IAFFE Advances in Feminist Economics 8. Routledge.

Wadiwel, Dinesh. 2023. *Animals and Capital*. Edinburgh University Press.

Walendorff, Rafael. 2025. 'Japan to send delegation to Brazil to assess potential meat imports'. Valor International, June 6. https://valorinternational.globo.com/agribusiness/news/2025/06/06/japan-to-send-delegation-to-brazil-to-assess-potential-meat-imports.ghtml.

Wang, Xiaowei. 2020. *Blockchain Chicken Farm and Other Stores of Tech in China's Countryside*. Farrar, Straus and Giroux.

Warren, Wilson J. 2021. 'The Meat Industry Goes Back to the Jungle'. *Current History* 120 (822): 21–27. https://doi.org/10.1525/curh.2021.120.822.21.

Watson, Ian. 2002. 'Wage Inequality and Underemployment: Australia in the 1990s'. *The Journal of Industrial Relations* 44 (1): 88–107.

Watson, Ian. 2011. *Education, Earnings and the Labour Market: Report for Skills Australia*. http://www.ianwatson.com.au/pubs/watson_earnings_education_report_final_30may2011.pdf.

Watson, Ian. 2016. 'Wage Inequality and Neoliberalism: The Australian Experience'. *Journal of Industrial Relations* 58 (1): 131–49.

Watson, Ian, John Buchanan, Iain Campbell, and Chris Briggs. 2003. *Fragmented Futures: New Challenges in Working Life*. Federation Press.

Weeks, John. 1981. *Capital and Exploitation*. Princeton University Press.

Weeks, John. 2012. 'The Fallacy of Competition: Markets and the Movement of Capital'. In *Alternative Theories of Competition*, edited by Jamee K. Moudud, Cyrus Bino, and Patrick L Mason. Routledge.

Weil, David. 2014. *The Fissured Workplace: Why Work Became so Bad for so Many and What Can Be Done to Improve It*. Harvard University Press.

Weller, Sally, and Phillip O'Neill. 2014. 'De-Industrialisation, Financialisation and Australia's Macro-Economic Trap'. *Cambridge Journal of Regions, Economy and Society* 7 (3): 509–26. https://doi.org/10.1093/cjres/rsu020.

Wilkins, Roger, and Federico Zilio. 2020. *Prevalence and Persistence of Low-Paid Award-Reliant Employment*. Melbourne Institute of Applied Economic and Social Research.

Wilkinson, Frank. 1983. 'Productive Systems'. *Cambridge Journal of Economics* 7 (3–4): 413–29. https://doi.org/10.1093/cje/7.3-4.413.

Williams, Colin C. 2019. *The Informal Economy*. Springer.

Wingham abattoir workers on strike. 2014. 'Hundreds of Workers from the Wingham Beef Abattoir West of Taree Are on Strike'. *ABC News*, April 16.

Withers, Matt. 2024. 'Chapter 25: Missing Wages and Mismatched Skills: Guestworker Migration and the Shortcomings of the Decent Work Agenda'. In *The Elgar Companion to Migration and the Sustainable Development Goals*, edited by Kavita Datta and Nicola Piper. https://www.elgaronline.com/edcollchap/book/9781802204513/book-part-9781802204513-33.xml.

Wong, Jonathan. 2023. '15 Update on Meat Processing Labour'. *Agricultural Commodity Statistics* (Canberra, Australia), 123–28.

Wright, Christopher. 2012. ‘Deskilling on the Disassembly Line: Technological Change and Its Consequences in Beef- Packing Since the 1960s’. *Mike Callicrate | No-Bull Food News*. https://nobull.mikecallicrate.com/2012/06/01/deskilling-on-the-disassembly-line-technological-change-and-its-consequences-in-beef-packing-since-the-1960s/.

Yates, Michael D. 1996. ‘Persistent Inequalities’. *Monthly Review* 47 (9): 5–19.

Zielińska-Chmielewska, Anna, Jerzy Kaźmierczyk, and Ireneusz Jaźwiński. 2022. ‘Quantitative Research on Profitability Measures in the Polish Meat and Poultry Industries’. *Agronomy (Basel)* (Basel) 12 (1): 92-. https://doi.org/10.3390/agronomy12010092.