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**A Monetary Explanation of Distribution
in a Gold Money Economy**

by

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Abstract

A monetary explanation of distribution consists of the conception that the distribution of *income between wages and profits is primarily determined* by the money rate of interest on the basis as an institutionally determined policy variable, it systematically governs the rate of profit, which, for a given technique of production, determines the real wage as a residual of net income. This paper shows that consistent with a Sraffa model in which the real wage is not determined by the 'subsistence' of workers, a monetary explanation of distribution is as historically plausible in a gold money economy of 'old' nineteenth century capitalism as it is in a fiat money economy of 'modern' twentieth century capitalism. It is shown that such a explanation is logically different in a gold money economy to that which is proposed in a fiat money economy mainly because of the different manner in which the real wage (or price-wage ratio) is residually determined. The paper then examines the implications of this fundamental difference for the relationship between the interest rate, money wage bargaining and the price level in the two different kinds of monetary systems.

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A MONETARY EXPLANATION OF DISTRIBUTION IN A GOLD MONEY ECONOMY*

1. Introduction

In a review of Pivetti(1991) in the March 1993 issue of the *Contributions to Political Economy*, Serrano questioned the plausibility of a monetary explanation of distribution in a gold (or produced-commodity) money economy. According to Serrano(1993, pp. 120-1), Pivetti's explanation was only applicable to a fiat money economy. The reasoning given for this view proceeds as follows. Suppose the economy is described by a Sraffa (circulating capital) model in which the technique of production and the money wage are exogeneously given. In a fiat money economy both the money wage and rate of profit can be taken as independent variables in the determination of the real wage (or price-wage ratio) and normal money (relative) prices. While money prices of commodities are normalised by the money wage, importantly, the money wage is set independently of the price-wage ratio such that the real wage can be residually determined (along with relative prices) on the basis of a given technique and the rate of profit. The model of such an economy can therefore be closed by an independent rate of profit determined by the money rate of interest along the lines postulated by Pivetti(1991). However, in a gold money economy the rate of profit cannot be taken as the independent variable to close the model. This is because the money wage cannot be given independently of the price-wage ratio. Once the money wage is given in terms of gold (at its official money value), then, on the basis of the technique of production, the (relative) gold money prices of commodities and the real wage will be known, leaving the rate of profit

* I should like to thank Peter Groenewegen for some useful comments on an earlier draft of this paper without thereby implicating him in the product presented here.

determined as a residual. It therefore follows that this model economy must be closed by the gold money wage independent of whether or not workers earn above subsistence wages and share in the surplus. On the basis of this reasoning Serrano (1993, p.120) argues that the choice of the independent distributive variable depends on "the type of monetary system that is being assumed" rather than, as Sraffa(1960, p. 33) and Pivetti(1991, p. 4) have claimed, on whether or not the real wage is determined by the subsistence requirements of workers.

In his book Pivetti(1991, pp. 36-7) makes it clear that the monetary explanation of distribution is *most* relevant to "modern capitalism" in which "a produced money-commodity is not assumed". Nearly all the historical evidence which he brings to bear in support of an autonomous money rate of interest which 'sets the pace' for the normal rate of profit relates (dates) to a fiat money economy. There are however two historical references which relate to a gold money economy. The first is a reference to the influence of external forces on the determination of interest rates in Great Britain "in the days when Great Britain was the dominant capitalist economy"(1991, p.15); and the second, refers to the dear-money policy followed by the British authorities in the early 1920's to restore the pound to the gold standard at its pre-war parity. These two historical references suggest Pivetti believes his explanation of distribution is applicable to a gold money economy such as pre-1914 Britain - when the real wage is not determined by subsistence - notwithstanding he is aware that there would be a 'perfect correspondence' between the determination of the gold money wage and the real wage. Nevertheless, Pivetti does not attempt to show how a monetary explanation of distribution could historically be applied to a gold money economy.

This paper shows that a monetary explanation of distribution is historically relevant to the kind of gold money economy which prevailed in nineteenth

century Britain. The main purpose of this paper is to outline the *form* which this explanation could plausibly take. Before proceeding to this positive task, it is appropriate here to deal briefly with Serrano's objections. Firstly, his claim that the "choice of whether we take the real wage or rate of profits as the independent variable has nothing to do with the level reached by the real wage(1993, p. 120)" cannot be accepted since a monetary explanation is hardly feasible unless the real wage is normally determined at levels above subsistence even in its acknowledged application to a fiat money economy. Secondly, Serrano's reasoning above is based on the assumption that the money wage is exogenously 'given'. This assumption immediately rules out any explanation of distribution which takes the rate of profit as the exogeneous variable in a gold money economy. Yet, in theory, a Sraffa model economy can be closed either by taking the gold money wage (the real wage) or the rate of profit as exogeneous. Once the real wage is seen not to be determined by subsistence there is no compelling reason why it *has* to be the gold money wage. In fact the weight of historical evidence would seem to favour an explanation of distribution in a gold money economy in which the rate of profit rather than the gold money wage should be regarded as the exogenous variable.

The present argument proceeds from the contention that the historical relevance of a monetary explanation of distribution to a gold money economy such as pre-1914 Britain is based on the plausibility of three propositions: firstly, the real wage is not determined by the necessary subsistence of the workers, but, instead, should be conceived to be normally determined at levels at which wages share in the surplus along with profits; secondly, the normal rate of profit is governed by an 'autonomous' money rate of interest; and thirdly, that capitalists hold the balance of power over workers in the determination of the long-run normal (gold) money wage. The first proposition is dealt with in section 2 of the paper. In support of the second proposition, section 3 examines the main kind of

circumstances which are capable of explaining in terms of 'policy objectives and constraints' the rate of interest of gold money economies of the nineteenth century without resort to the prior determination of the rate of profit. In affirmation of the third proposition, section 4 shows how the money wage can be conceived to be residually determined in a gold money economy according to the superior bargaining power of capitalists. Section 5 is concerned with the implications of this explanation of distribution in a gold money economy for the relationship between wage-bargaining, the price level and the interest rate in comparison to the case in a fiat money economy. This involves an historical consideration of the relationship between the manner in which distribution is resolved and the institutional nature of an economies monetary system. In the concluding section 6 the demise of the gold money system in the twentieth century is briefly examined in the light of the previous analysis.

2. A Surplus Wage

It is well known that in *Production of Commodities by Means of Commodities*(1960) Sraffa distinguished between two component parts of wages in an economy which produced a surplus product. The first part consisted of "the necessary subsistence of the workers(p. 9)" upon which the *maximum* surplus product (or net income) available for distribution was determined. This part could therefore be treated as an "ever-present" part of the means of production "entering the system on the same footing as the fuel for the engines or feed for the cattle(*ibid.*)". The second part of wages consisted of a surplus part in excess of the necessary subsistence of workers and which constituted a "share of the surplus product(*ibid.*)". It is this surplus part of the wage which is essentially 'variable' according to changes in the distribution of the maximum surplus product between wages and profits. In his book Sraffa followed "the usual practice of treating the whole of the wage as variable", but in order to account for

the influence of changes in the methods of production of "necessaries of life" on distribution and prices, he suggested "setting a limit below which the wage cannot fall" (*ibid.*, p. 10); a limit which would itself fall or rise according to whether there was an improvement or regression in the methods of production of necessaries. It is on the understanding the wage is normally above subsistence that Sraffa properly analyses changes in distribution between wages and profits and their effect on relative prices for a given method of production. Our contention is that Sraffa's conception here is not just relevant to explaining distribution in fiat money economies of 'modern' twentieth century capitalism, but is also historically relevant to explaining distribution in gold money economies of 'old' nineteenth century capitalism.

Central to a consideration of the historical relevance of the above conception is the interpretation which is placed on the social meaning of the lower limit of the wage and the manner in which it is determined. Among the 'old' classical economists the notion of a minimum below which the real wage could not fall is found most prominently in Adam Smith. While arguing in the *Wealth of Nations* that "in disputes with workmen masters must generally have the advantage" Smith held that "there is however a certain rate below which it seems impossible to reduce, for any considerable time, the ordinary wages of the lowest species of labour (1776, I, viii, p. 85)." This minimum real wage was defined by Smith to be "the lowest which is consistent with common humanity (*ibid.*, p.86)." By 'common humanity', Smith had in mind those social norms which govern the behaviour of individuals consistent with the maintenance of an orderly society and compatible with the normal competitive operation of its economy (cf. Garegnani, 1990, pp. 120-22). Thus, according to Smith's way of reasoning, a lower limit of the real wage will be established by what the habits and conventions of society dictate to be the socially necessary minimum standard of living.

It is of particular significance that Smith's conception of a minimum subsistence wage above which the normal real wage is determined is compatible with persistent labour unemployment in the economy - the possibility of which can be easily allowed for in classical economics.¹ Therefore, given that the minimum wage is essentially determined by what 'common humanity' regards as the lowest level to which the *standard of living* of any members of society should ever fall, the following question begs itself: In the face of persistent unemployment by what means do the unemployed subsist? For without a means of subsistence, no social sanction could prevent the unemployed from offering themselves for labour such as to undermine Smith's minimum wage.² In Smith's day the answer was parish allowances under the poor laws. The poor laws were in fact the main institutional manifestation of a socially agreed floor to living standards and therefore to the lower limit of the real wage in England until the early twentieth century.³ From this standpoint Sraffa's 'minimum' subsistence wage - as the lower limit of the real wage and upon which basis is determined that part of the social surplus which can be *freely* distributed between wages and profits - should be properly explained in terms of social welfare provision which reflect the social norms of society. It therefore seems more appropriate to refer to the lower limit of the real wage as the *social wage* which can be explained by reference to the institutionalised system of welfare and poor relief in a country at a given time. The historical relevance of Sraffa's conception of a surplus wage would then depend on the determination of the normal level of the real wage in relation to this social wage.

An appeal to history would indicate that it was with the unfolding of industrial capitalism that the wage ceased to be determined only by subsistence and workers began to share in the surplus product of society. In pre-industrial society the real wage was determined by 'subsistence' requirements at levels only marginally above the social wage. It was in fact because of the presence of

widespread poverty and the narrow margins of subsistence of the majority of the population that the poor laws were important to the stability of pre-industrial society. They provided relief not only to the impaired and able-bodied unemployed, but also to the broader population at those critical times when crop failures and high food (corn) prices would have otherwise driven the real wage below the minimum subsistence level.⁴ Thus, prior to industrial capitalism, the social wage was important because it safeguarded the subsistence of a large proportion of the population at any given time from adverse economic disturbances (i.e. technical regression in agriculture caused by poor seasonal conditions).

The relationship between the normal real wage and the social wage changed considerably with the advent of industrial capitalism. As has been readily observed by historians, the rapid industrialisation of economies of the nineteenth century was accompanied by the emergence of a significant middle class.⁵ The historic rapid growth in productivity generated an expanding surplus product (or net income) in which workers could begin to share according to their bargaining power. A key factor in this development was the considerable increase in productivity in agriculture over the second half of the nineteenth century, resulting from the greater application of more mechanised methods of farming in European countries, and, in the last quarter of the century, from the massive expansion of crop farming in North America. In combination with freer trade, the spread of the 'industrial revolution' to agriculture in turn led to a secular decline in food prices that raised the normal real wage for the *mass* of the working population in industrial countries.⁶ Moreover, its effect was to eliminate the adverse effect of unfavourable seasonal conditions on the real wage against which the social wage had traditionally been a safeguard.

Notwithstanding this development lessened the burden on the poor law, it is significant the rise in the normal real wage in capitalist society corresponded

with a decline in the social wage. The reduction in the latter was largely attributable to the Liberal tradition of the nineteenth century which favoured a weakening in state welfare provision at a time when the factors determining the social wage became more complicated with the development of industrial society and with the urbanisation of the population.⁷ If anything, this decline in social welfare provision would have tended to weaken the bargaining power of workers to obtain higher wages. Overall, it seems appropriate to view the normal real wage as progressively rising in relation to the social wage in industrial capitalist societies of the second half of the nineteenth century.

In the nineteenth century and until 1914 the leading countries on the gold standard - the 'gold money economies' - were all industrial capitalist societies. Hence, based on the historical perspective above, it is our contention that from the mid-nineteenth-century onwards Sraffa's conception of the 'surplus' wage is highly relevant to explaining distribution in these gold money economies of 'old' capitalism. From this standpoint an explanation of the distribution of income between wages and profits in a 'Sraffa model' will then depend very much on whether it is more plausible to treat the normal rate of profit or the normal wage as the exogenous variable.

3. An 'Autonomous' Money Rate of Interest

The second proposition consists of the conception formulated by Pivetti that the money rate of interest - as the 'opportunity cost' of capital - governs the normal rate of profit. In showing the rate of interest is autonomously determined by policy factors causally prior to the profitability on capital, Pivetti (1991, pp. 10-17) made reference to sets of circumstances connected to the management of public debt and the external position of the country as they mainly related to modern capitalism. In our view these two kinds of monetary policy-related

circumstances are just as capable of supporting the proposition of an autonomous rate of interest in the gold money economies of 'old' capitalism.

The management of public debt has long been at the centre of monetary policy. As a history of central banks shows, most government-sponsored national banks were originally established for the purpose of financing and managing government debt out of which their 'central banking' role evolved (see De Kock, 1954, pp. 11-17, 42-9; Cameron, 1967, pp. various). The Bank of England, for example, was founded in 1694 in order to finance William of Orange's war with France on favourable terms. Its establishment was based on the provision of a long-term war loan at a moderate rate of interest in exchange for certain commercial privileges (cf. Andreades, 1909, pp. 54-9, 65-71, 88-9; Clapham, 1940, pp. pp.26-8). Thus, from its inception the role of the Bank of England in public debt management was to minimise the burden of debt service costs on the national budget consistent with maintaining investor confidence in government securities. This objective must have been well served after 1714 by the enactment of a 5% usury limit on interest which applied to all but British government loans and which remained in force until 1833. While the usury laws tended to tie the rate of interest down during peacetime it also gave the government an advantage in raising funds in wartime with the option of later refunding the floating debt at lower peacetime rates (Homer, 1977, p. 153).

Throughout the nineteenth century the management of public debt exerted an important influence on interest-rate policy in England. In the French Wars of 1792-1801 and 1804-1815 a massive national debt accumulated which thereafter imposed a large debt servicing charge on the annual budgets of the British government.⁸ Hence, in the management of public debt, the Exchequer gave priority to relieving the fiscal burden of debt servicing costs by a series of timely debt conversion operations. These conversion operations had the effect of

successively lowering long-term rates of interest over the course of the century. This provided scope within national budgets to pursue two longstanding policy objectives: fiscal reform involving the taxation and tariff system; and the reduction of the national debt by the provision of surplus revenues. Thus, an era of cheap money was launched in 1822 when the Bank of England yielded to pressure from Lord Liverpool's government and lowered its bank rate below 5% for the first time since 1774.⁹ In the same year there followed a £150 million conversion of Navy stock from 5% to 4% which actually increased the national debt by £7 million (cf. Morgan, 1965, p.77). The authorities motive for this large conversion operation was to reduce the annual debt charges on the national budget in order to accommodate reductions in taxation aimed at stimulating trade in a depressed economy.¹⁰ It also lay behind the conversion operation in 1824 when interest rates remained low.¹¹ In fact over the next twenty years there were a further five conversion operations which accompanied the secular decline in long-term rates of interest.¹² The relief this afforded to the national budget paved the way for the reduction and removal of customs duties as part of a vigorous free trade policy pursued by Peel's government in the 1840s and renewed by Gladstone's government in the early 1850s.¹³ In this regard, it should be kept in mind that free trade was a vital ingredient in the development of Britain as an Empire economy in the second half of the nineteenth century.

A major factor in the decline in long-term interest rates in the period 1822-1844 was the 'Sinking Fund' which committed governments to allocating part of their annual budgetary revenues to the reduction of the national debt (cf. Fenn, 1889, pp.12-13). This was important in convincing investors of the government's determination to reduce the national debt without resort to inflationary methods of finance. It was no less an important factor during the golden age of cheap money in the last quarter of the nineteenth century when under the 'New Sinking Fund' of 1875 similar debt reduction measures were instituted (*ibid.*).

This, together with sustained low inflation, culminated in 1888 in the conversion of nearly the entire national debt into the 23/4-21/2% 'Goschens'. By the end of the nineteenth century the national debt as a proportion of gross national income had been considerably reduced such that debt servicing charges had fallen from over one-half of government revenues in 1821 to less than one-fifth in 1900.¹⁴

Another and more basic objective of monetary policy in a gold money economy is the maintenance of the convertibility of paper money into gold on demand. This objective is closely connected to the primary function of a 'central bank' to ensure stability in the financial system and 'confidence' in the value of the currency. In the nineteenth century it required the Bank of England to conduct policy such that any demand for gold (or 'liquidity preference') could be met from its reserves of precious metals - a task which was in fact made more difficult by the Bank Charter Act of 1844 because it effectively required the Bank to hold higher reserves.¹⁵ Interest-rate policy was therefore heavily influenced by changes in the Bank's reserves in relation to desired liquidity holdings. The main source of change in bullion reserves and thereby the level of interest were external factors. This is well illustrated by the period of dear-money in England between 1853 and 1858. In 1853 a five year period of cheap money was brought to an end by the Crimean War. The war itself did not involve large scale government borrowing nor impose heavy inflationary pressures on the domestic economy, but it did involve a considerable drain of bullion reserves in order to purchase military stores in the East (cf. Morgan, 1965, pp. 158-160). In addition to war remittances abroad, the bullion reserves of the Bank of England came under pressure from a deterioration in the country's balance of payments connected to large scale foreign investment in the British colonies (especially India) and Western Europe associated with railway construction and the increased importation of corn at high prices as a result of poor seasonal conditions and low

domestic production (cf. Tooke and Newmarch, 1857, V, pp.38-56). Thus, despite the enormous increase in the supply of gold which followed the discoveries in California and the Australian colonies,¹⁶ the Bank of England struggled to maintain a safe reserve of bullion by lifting its discount rate (cf. Hawtrey, 1962, pp. 23-4). The combination of sustained high short-term rates and higher price inflation which was mainly the consequence of a lowering in the cost of production of gold, exerted upward pressure on long-term rates of interest over the period. Only after the financial crisis of 1857 did cheap money briefly return. This was interrupted by the outbreak of the American Civil war in 1860 which triggered a large American withdrawal of bullion from Europe and placed considerable pressure on the reserves of both the Bank of England and the Bank of France. While the Bank of England responded by raising its discount rate, the Bank of France attempted to resist such an increase by maintaining its level of reserves through a series of gold-purchasing transactions. However, eventually the Bank of France was forced to raise its discount rate and by late 1861 short rates were in fact higher in Paris than in London. This source of pressure on bullion reserves in England and France came to an end with the suspension of cash payments and the institution of the 'Greenback' by the Union government of America.¹⁷ Another and ongoing source of pressure on the Bank of England was the cotton shortage which began in 1862 and persisted until after the American Civil War ended in 1865. The shortage forced English manufacturers to purchase cotton from India and Egypt at very high prices, and which, having upset the balance of international payments, placed a continuous strain on the bullion reserves of the Bank of England (cf. Clapham, 1944, II, pp. 256-60; Morgan, 1965, pp. 177-8). As a result of these external circumstances dear money persisted throughout the 1860's until once again it was broken by financial crisis in 1866.

The historical episodes outlined above show how external factors could for significant periods of time seriously constrain a policy of low interest rates in the dominant of the gold money economies of the nineteenth century. They also indicate how the level of interest rates in other internationally integrated countries such as France and the United States - even during those periods when they were not on a gold or bimetallic standard - must have been heavily influenced by the Bank of England's interest-rate policy when London was the centre of international trade and finance.¹⁸ Just as is the situation today for internationally subordinate economies, the authorities in these two countries would have been unable to persist with low rates of interest for very long if English rates were high and rising.

A history of interest rates in England between 1821 and 1914 indicates the authorities long-running policy of cheap money : long-term rates of interest were for the most part low, stable and, until the mid-1890s, in secular decline; while short-term (bank bill) rates of interest tended to fluctuate considerably in response to liquidity pressures, and, over the second half of the nineteenth century, in response to the Bank of England's adoption of a more active policy of adjusting its discount rate(cf. King, 1936, pp. 152-69; Homer, 1977, pp. 192-215). The cheap money policy was motivated not only by considerations of debt management and the aim of reducing the fiscal burden of debt servicing costs, but also by the British authorities key objective of promoting the nations industry through the opening up of new markets for trade. Low and stable long-term rates of interest must have played an important role in fostering what was often commercially risky foreign investment so critical to the economic development of Britain's colonies and the expansion of its foreign markets.¹⁹ To this end the price stability afforded by the gold standard was also important. Moreover, the fact that Britain was the largest creditor nation in the international economy meant the Bank of England could more effectively

manage the external flow of bullion through the effect which changes in its rate of interest exerted on the foreign earnings component of the balance of payments. Overall, then, low interest rates was a policy objective of the authorities and a key element behind the dominance of Britain as a gold money economy.

The above discussion has endeavoured to show that the rate of interest in the dominant of the gold money economies can be satisfactorily explained as an autonomous variable by reference to the constraints and policy objectives of the authorities and according to the institutional structure of the given monetary system - notwithstanding that 'macroeconomic policy' as understood today was not in any way part of the consciousness of policymakers. In our view a history of interest rates in other nineteenth century gold money economies would show that their respective rates of interest can be adequately explained in a similar way without resort to the rate of profit(cf. Homer, 1977, p. 216 *et seq.*). It is perhaps significant in this connection that the weight of evidence in support of the view of an autonomous interest rate should have caused some major English economists of the nineteenth century to break with orthodoxy and posit the notion of an independently determined rate of interest. The historian of prices and the foremost 'inductive' analyst among classical economists, Tooke(1826, pp. 5-30) posited such a notion on the basis of his unprejudiced observation of the facts.²⁰ These facts must have been sufficiently compelling to have caused J.S.Mill(1874[1829-30], pp. 90-119; 1871, pp. 405-10, 637-50) and Marx(1894, various pp. 338-442, 593-612) to later follow Tooke's viewpoint and to posit in their own analysis a rate of interest determined independently of the rate of profit(cf. Panico, 1988, pp. 21-101).

4. The Money Wage as the Residual Distributive Variable

The third of our propositions follows from the afore-mentioned interdependency between the money wage and the rate of profit in a 'Sraffa' gold money economy. This interdependency is based on the approximate *constancy* in the (gold) price level : whereby given the technique of production, an increase (reduction) in the rate of profit must be associated with a corresponding decline (rise) in the money wage in relation to a *given* price level;²¹ the corresponding increase (decline) in the price-wage ratio being brought about *primarily* by a reduction (rise) in the money wage. In light of this interdependency, the choice of the distributive variable will according to our view depend on the balance of power existing between capitalists and workers in the determination of the distribution of income between wages and profits : when the balance of power is seen to lie with capitalists, the rate of profit ought to be taken ; and conversely, when it is seen to rest with workers the money wage ought to be taken.

To illustrate the above viewpoint, consider a situation in which for some reason there is an exogenous rise in the normal rate of profit. This rise can only occur for a given technique if capitalists possess a sufficient superiority in bargaining power over workers to engineer a lowering of the money wage commensurate with the new higher normal rate of profit. Conversely, an *autonomous* increase in the money wage can only be permanently obtained by workers if they possess the power to overcome the resistance of capitalists to a lowering of the normal rate of profit. Now, once it is admitted that in the era of gold money economies, the social and economic institutions of society invested capitalists with the balance of power over workers in the determination of the long-run normal money wage, it seems more historically plausible to explain distribution by reference to an exogenous rate of profit.

The monetary explanation expounded here follows Pivetti(1991, pp. 20-32) that the normal rate of profit consists of the sum of two autonomous components : the long-term rate of interest and the normal profit of enterprise.²² This normal rate is the rate of return on capital earned by productive enterprises at which a normal level of output is produced using the dominant of techniques available. Now, according to our view the rate of interest regulates the price-wage ratio in a gold money economy through the capacity of industrial capitalists to ultimately determine the normal money wage compatible with the normal rate of profit. In this explanation it is envisaged that as the 'opportunity cost' of capital, the rate of interest forms a major component of the normal money cost of production of commodities, upon which productive enterprises will base their wage-bargaining position in order to achieve a normal rate of profit consistent with competition. Thus, a permanent increase in the long-term rate of interest will, for a given technique, require productive enterprises in general to reduce their wage payments in the long run so as to bring their normal money costs of production in line with normal money prices at which a higher normal rate of profit can be earned. It is because capitalists possess superior bargaining strength over workers in general that they can force a lowering in the normal money wage and thereby higher price-wage ratio compatible with the new higher rate of interest. The power of capitalists to override workers in the determination of money wages is however circumscribed by competitive forces. Therefore, when there is instead a permanent reduction in the rate of interest which tends to lower the normal money costs of production, compatible with a lower normal rate of profit and price-wage ratio, competition will ensure that capitalists in general tend to accede to workers demands for higher money wages rather than risk costly industrial disruption and/or the loss of its (skilled) workers to competitors. In this manner the money rate of interest is conceived to be the main magnitude through which the distribution of income between wages and profits is determined in a gold money economy such as have historically existed.

In this explanation wage outcomes are effectively determined by the interest-rate policy of the authorities because the balance of power is seen to rest with capitalists. But this does not mean that the monetary authorities are free to establish any level of interest such that the money wage (real wage) moves to levels that do not reflect the *relative* power of workers. On the contrary, the freedom of the monetary authorities to set the rate of interest in a gold money economy depends, among other things, on the bargaining power of workers - on factors such as the degree of trade union organisation, economic activity and the level of unemployment. Thus, suppose a situation of sustained economic growth, low unemployment and well organised trade unions which strengthen the bargaining position of workers. In this situation a policy of high rates of interest which would depress the money wage (and if not compensated by productivity growth, depress the real wage also) to levels unacceptable to workers would probably be met by strong resistance from organised labour in the form of strikes and other industrial action. The authorities could in these circumstances (and under political pressure from industrial capitalists) settle for a policy of unchanged rates of interest (or even aim for lower rates) in order to avoid costly social and economic disruption. However, while considerations of this kind can exert an influence on distribution through its impact on interest-rate policy, they are only one aspect of the overall social and economic circumstances which determines distribution. The assumption that capitalists hold the balance of power over workers means that in our picture the effect of wage-bargaining on the distribution of income is *subsidiary* to those 'monetary' considerations connected with debt management and external relations, which, as discussed above, are seen to play a *primary* role in shaping interest-rate policy in a gold money economy. Hence, suppose in the situation above, there is a sustained deterioration in the balance of payments which places serious external pressure on the bullion reserves of the central bank and causes the authorities to strongly

believe that a higher rate of interest is necessary to uphold the current gold standard. Under these circumstances the primary objective of maintaining the gold standard will outweigh the social and economic costs of industrial disruption that would accompany the corresponding reduction in the money wage.

Many other situations could be drawn from the historical experience of gold money economies to show that while factors connected with wage-bargaining were important, considerations of a monetary nature were the more decisive in the determination of the level of the rate of interest. This view is entirely in accordance with Pivetti's notion that the money rate of interest is the magnitude upon which the 'respective powers' of the competing classes of society "discharge themselves in *the first place*, and through which distribution between profits and wages is actually arrived at" (1991, p.35). The main point of distinction in our historical explanation of distribution being that in the discharge of those 'respective powers', the socio-economic and politico-institutional structure of 'old' capitalist society conferred upon capitalists a systematic dominance over workers in *wage determination* consistent with the continuing viability of a gold-based monetary system.

This way of explaining distribution in an economy where real wages are above subsistence seems more plausible than that of the 'old' classical economists who explained distribution by reference to an exogenous (gold) money wage (or real wage). In the first place, if the wage is taken as given, monetary policy is purely passive with the money rate of interest having to systematically adapt to the prior determined rate of profit. The problem is that it is difficult to conceive of a robust mechanism consistent with classical analysis by which market forces would compel the monetary authorities - who cannot statistically verify the magnitude of the normal rate of profit - to persistently establish levels of the rate

of interest in sympathy with prior endogenous movements in the normal rate of profit.²³ Secondly, and the main difficulty with the 'old' classical view, is that it requires the assumption that the balance of power between capitalists and workers rests with the latter such that the normal rate of profit - and thereby the rate of interest - is for given techniques, the *result* of wage outcomes. As suggested above, according to our view this assumption means that workers can exert a dominant influence on the policy of the monetary authorities to establish levels of interest compatible with the objective of achieving certain wage outcomes as a priority over other policy objectives and given constraints of a 'monetary' nature - an assumption which is hardly justified by the economic and social history of gold money economies.²⁴ On the contrary, in our view a definitive history of the labour movement and wage determination in gold money economies of the nineteenth century and up until 1914 would support the notion presented here of a residually determined normal wage.²⁵

5. Distribution, the Price Level and the Monetary System.

A monetary explanation of distribution which is relevant to a gold money economy has very different implications for the relationship between wage-bargaining, the rate of interest and the price level than one which is relevant to a fiat money economy. It is this difference which goes to the heart of explaining the connection between the *way* the distribution of income between profits and wages is determined and the *kind* of monetary systems which have historically existed in capitalist economies.

Let us first consider the long run relationship between the rate of interest and the price level. In a fiat money economy in which money prices are normalised by an exogenously determined money wage, the monetary explanation of distribution supposes a positive causal influence of the 'autonomous' rate of

interest on the general level of normal money prices for any given configuration of production techniques (see Pivetti, 1991, pp. 38-9). This relationship follows from the conception outlined above of the rate of interest as the magnitude which ultimately governs distribution through its systematic effect on normal prices (the price level) in relation to the given level of money wages. But as Pivetti (1991, p. 79) has pointed out with reference to the original form of this proposition by Tooke in the nineteenth century, this causal relationship cannot be easily sustained in a gold money economy in which the circulating medium is freely convertible into gold and the money prices of commodities are normalised by the official mint price of gold (i.e. the monetary standard of value). In such a monetary system a permanent increase (reduction) in the rate of interest will, given the technique of production, result only in a change in *relative* prices associated with the permanent reduction (increase) in the (gold) money wage and redistribution of income from wages (profits) to profits (wages). As indicated above, this result stems from the fact that a change in distribution does not involve any significant or predictable change in the price level for a given money wage; on the contrary, for a given technique the price level will not be much affected by any change in distribution so that any change in the normal rate of profit brought about by a 'prior' change in the rate of interest can only be accommodated by an inverse movement in the gold money wage (real wage). An implication of this is that unlike in a fiat money economy, it is not plausible to attribute the phenomenon of the 'Gibson Paradox' in a gold money economy to the prior causal influence of changes in the rate of interest on the price level.²⁶ Instead, as the discussion below will show, the most plausible explanation of the 'Gibson Paradox' in the gold money era is that the nominal rate of interest tended to adjust to prior changes in the price level on the basis of investors' desire to maintain the *real* return on long-term financial securities.

The next relationship to be considered is between wage-bargaining and the price level. In a fiat money economy the money wage - as a component of normal money costs of commodities - plays a central role in the determination of the general level of money prices. Given the level of the rate of interest and assuming zero productivity growth, any increase (reduction) in the money wage will raise (lower) normal costs of production, and, through the operation of competition, cause firms to increase (decrease) prices until they are equal with the higher (lower) money costs so that they earn a normal rate of profit on capital. This wage-price inflation (deflation) will involve no change in the normal distribution of income between wages and profits. Other than by indirectly influencing interest-rate policy, wage-bargaining can only directly affect distribution if money wage increases persistently run ahead of price adjustments such as to drive the real (annual inflation adjusted) rate of interest below the nominal rate. By contrast, in a gold money economy wage-bargaining cannot have any persistent (or predictable) effect on the price level and cannot therefore influence distribution through the inflationary (or deflationary) route. As discussed above, in our picture the gold money wage is the outcome of the level of the rate of interest such that wage-bargaining can only indirectly effect the normal distribution of income between wages and profits through its subsidiary influence on monetary policy. Thus, in contrast to the case with a fiat money economy, neither the rate of interest nor the money wage can exert a systematic influence on the price level in a gold money economy. The question then is : What are the main determinants of the price level and how does this effect the role of wage-bargaining in the distribution of income between wages and profits in such a monetary economy?

An answer to the above question revolves around the special role which gold plays as the monetary standard of value for all other commodities in a gold money economy. Any change in the exchange value of gold will, unlike any other

commodity, cause a change in the money prices of all other commodities. Therefore it is factors which effect the value of gold *relative* to other commodities which exert the main influence on the general level of money prices. In consideration of these factors a distinction needs to be made from the outset between those which have a short-lived effect from those which have a persistent effect on the price level.

Those factors of a temporary nature which effect the interaction between the demand for and supply of gold and other commodities will have a short run effect on the price level. The short run price level will therefore reflect *market* prices at which there is disequilibrium between the demands and supplies of commodities in the economy.²¹ The most prominent factors will clearly be those connected with the demand and supply of gold (as money) in the international market and which cause variations in its market price. However, historical experience shows that short run fluctuations in the price level were more heavily influenced by factors which tended to effect the market prices of other commodities basic to the economic system, such as corn and cotton in nineteenth century Britain. It was seasonal conditions and extraordinary events such as war (i.e. American Civil War), which, by disrupting supply in relation to demand, exerted a major influence on the fluctuation of market prices (cf. Tooke and Newmarch, 1857, V, Parts I-II).

Of course short run variations in the price level can also reflect cyclical behaviour in economic activity. A point worthwhile emphasizing in this connection is that the market price of gold will normally be more stable than the market prices of other commodities. The reason for this is in its role as the monetary standard, any variation in the price of gold will cause an inverse change in the price level which will tend to quickly correct the disequilibrium between demand and supply in the gold market. Thus, for example, suppose the

market price of gold rises above its normal price. This will cause a reduction in the price level which, *ceteris paribus*, will tend to reduce the demand for gold as a monetary asset on account of the lower transaction requirements of the economy. In this way the market price of gold will tend to be stabilised around its normal price. Hence, on most occasions, short run fluctuations in the price level in a gold money economy will be attributable to factors operating on the market price of commodities other than gold.

The long run (or underlying) level of money prices will reflect the normal prices of commodities at which market equilibrium is established by competition. In a gold money economy, the long run price level will be governed by the technical conditions of production that (given distribution) determines the ratio between the normal price of commodities and the normal price of gold. The long run price level can therefore be largely explained by reference to those factors which exert a persistent influence on the technical conditions of production which determine the normal cost of production of commodities other than gold in relation to the normal cost of production of gold. While those factors operating directly on the cost of production of commodities other than gold can have a significant influence on the underlying price level, it is factors directly connected with the production of gold which are always going to exert the more important influence.²⁸ This stems largely from the fact that gold is the designated standard for monetary values of the economic system.

A consideration of the technical conditions which determine the cost of production of gold must proceed from the fact that as an exhaustible natural resource, gold was a scarce commodity whose production was subject to diminishing returns to scale. In accordance then with the classical approach of Sraffa, as the scale of production of gold increases to meet higher levels of normal demand, the price of gold will rise as more cost-intensive techniques are

brought into use for the exploitation of less successively fertile mining deposits.²⁹ On these grounds and assuming that the production of most other commodities in the economic system are subject to constant returns to scale, a permanent increase (decrease) in the normal demand for gold will lower (raise) the price level for a given spectrum of fertile mines. It may be supposed therefore that the main factors influencing the long run level of money prices will be those which effect the normal demand for gold (relative to the composition of normal demand for all other commodities) on the one hand, and the 'natural' fertility of gold deposits available for exploitation on the other hand. Long run price stability will rest on the slowly changing nature of these factors.

The demand for gold can essentially be divided into a monetary and non-monetary demand : firstly, the demand for gold in its role as 'reserve' money; and, secondly, the demand for gold used in the production of ornaments, artworks and other luxury adornments. It can therefore be said gold approximated to a *non-basic* commodity. The monetary demand for gold as a flow is derived from its demand as a stock. Under the institutional arrangements of gold money economies, a significant part of monetary circulation consisted of gold coin, while gold bullion served as the monetary reserve of the whole financial system. Thus, the demand for gold as money was derived from the overall demand for a stock of money in the economy. Given nominal income, the normal demand for gold as money can then be conceived to be determined by a complex set of institutionally related factors that fix the velocity of circulation of gold. However, assuming the normal non-monetary demand for gold remains constant, it is clear there is always going to be a causal interdependency between the monetary demand for gold and the price level : while a change in the price level will tend indirectly to have a *positive* causal effect on the monetary demand for gold, a change in the scale of production of gold for a given technique will tend to have an *inverse* causal effect on the price level. This interdependency will

tend to have a stabilising effect on the demand for gold and thereby the price level around the monetary equilibrium position of the economy. To illustrate this interdependency, suppose there is an autonomous increase in the monetary demand for gold. For a given technique, the increased production of gold to satisfy the higher demand will result in an increase in its price (relative to all other commodities) with the effect of lowering the price level. Given the level of aggregate output, the reduction in the price level will, on account of transaction requirements, cause a lowering in the monetary demand for gold as derived indirectly from a lowering in demand for the overall stock of money. On this reasoning, the establishment of the normal demand for gold as money will be stable at which the gold money economy is at competitive monetary equilibrium. This will tend to enhance stability of the long run price level.³⁶

A further condition of long run price stability will be that productivity in gold mining changes only slowly over time. The productivity of the gold mining industry will in turn depend heavily, if not completely, on the natural fertility of known and accessible deposits which can only change with the discovery of new deposits in relation to the exhaustion of existing ones. By virtue of its scarcity, gold deposits are difficult to find, and, at least in the nineteenth century when exploration was based heavily on a trial-and-error process in association with the process of extraction, its discovery was subject to much uncertainty. In the absence of the discovery of more fertile deposits, the technical conditions of gold production would tend to change only slowly according to the rate of exhaustion of the spectrum of available mines.

The above discussion leads to the view that long run price stability of gold money economies rests heavily on the *scarcity* of gold in the sense first, its discovery is difficult and costly, and second, its production is subject to diminishing returns to scale. This perhaps goes some way to explaining why gold was chosen

historically as the monetary standard of value. Of course this view does not preclude the possibility of sudden changes in the institutional arrangements of gold money economies altering the normal monetary demand for gold or the discovery of new more fertile mines from causing discrete changes in the level of money prices and disrupting monetary equilibrium. These kind of events in fact did occur in the nineteenth century and explain much of the long run movement in the price level. As was widely recognised by economists at the time³¹, the gold discoveries in California and the Australian colonies in the middle of the nineteenth century was the major cause of the upward movement in the underlying level of prices in Britain from the early 1850s to early 1870s. The subsequent downward phase in the price level over the last quarter of the nineteenth century can in large part be attributed to a sustained rise in the international demand for gold at a time when productivity in gold production was declining with the progressive exhaustion of the most fertile mineral deposits. The sustained increase in the monetary demand for gold stemmed from fundamental changes to the institutional arrangements of the United States and many European states in the early 1870s. They consisted of Germany going onto the gold standard in 1871-3, followed by Holland in 1875 and the Scandinavian countries in 1872-6, and the introduction of measures by the United States from 1873 onwards to displace from circulation silver with gold coinage in preparation for going onto the gold standard in 1879. In addition, the Latin States of Europe (including France, Italy, Belgium and Switzerland) agreed in 1874 to phase out silver coinage.³² Again, the upturn in the price level around the turn of the twentieth century can in large part be attributed to the exploitation of newly discovered and more fertile gold deposits in South Africa, Alaska and Western Australia (cf. Vilar, 1976, pp. 321, 328-330).³³

In this picture, the implications of a permanent change in the (gold) price level for the distribution of income between wages and profits will depend on the

concurrent effect on the long-term money rate of interest. If the rate of interest remains unchanged in the face of a change in the long run price level brought about by a permanent change in the normal cost of production of gold, the (gold) money wage will adjust *pari passu* with the price level and the real wage will be unaffected. By way of illustration, let us suppose an increase in the long run price level brought about entirely by an improvement in the productivity of the gold mining industry which lowers the normal cost of gold relative to all other commodities. If the level of interest remains unchanged, the money wage will increase until the real wage is restored to its pre-existing rate such that distribution of a higher nominal level of net income between wages and profits will remain unchanged. Thus, the persistent price inflation will have a neutral impact on normal distribution. Alternatively, for a given level of interest, a reduction in the price level would result in a decline in the money wage and an unchanged real wage. Hence, in absence of a permanent alteration in the long-term rate of interest, and acknowledging that the main source of change in the long run price level are factors operating directly on the technical conditions of production in the gold industry (which determines the normal price of *non-basic* gold relative to all other commodities), the normal distribution of income between wages and profits will be largely unaffected by a persistent change in the price level of a gold money economy.³⁴

It is important to emphasise that the re-establishment of normal distribution in the above analysis is conceived to involve a wage-bargaining process by which the money wage attains its normal level compatible with the normal rate of profit for a given technique. Thus, in the example above of an increase in the price level, the restoration of the real wage will require workers to successfully obtain the higher normal money wage consistent with an unchanged normal rate of profit. Until the money wage is raised to this higher normal rate, the real wage will be lower associated with a rate of profit above its normal level.

Conversely, when the long run price level falls, in order to maintain the existing normal rate of profit capitalists must obtain a reduction in the money wage to a lower normal rate at which the real wage is restored to its pre-existing level. Over the period of time of wage adjustment workers will enjoy higher real wages and capitalists will earn less than a normal rate of profit. In view of the well acknowledged lag of the money wage to price movements in the wage-bargaining process, clearly a reduction in the underlying level of money prices is more favourable to employed workers than an increase; and vice-versa, for industrial capitalists. When there is an increase in the long run price level the onus is on workers to obtain a higher normal (gold) money wage and when there is a decrease in the long run price level the onus is on industrial capitalists to lower the money wage to maintain the normal rate of profit. The point is that whilst a change in the long run price level considered here will not have a lasting effect on the distribution of income between wages and profits in a gold money economy, the wage-bargaining process plays a crucial part in the re-establishment of normal distribution so understood.

The discussion has thus far assumed that the rate of interest remains constant in the face of a change in the long run price level brought about by a change in the cost of production of non-basic gold. However, in view of the central role of gold in the monetary system, it is hardly plausible to suppose that the money rate of interest will be unaffected by a fundamental change in the underlying level of money prices. In all likelihood, a significant change in the normal price of gold will be associated with an institutional change in the monetary system so altering the circumstances in which the rate of interest is determined. The nature of the institutional change to the monetary system and its effect on the rate of interest will depend heavily on the circumstances behind the alteration in the cost of producing gold in relation to the overall economic and financial situation as well as the policy objectives of the authorities. An explanation of the

effect of a change in the long run price level on distribution will therefore depend on the *concrete* situation under consideration.

Nevertheless, it can be argued that to the extent the demand for long-term interest-bearing assets (e.g. 'consols') by agents is dependent on the real inflation-adjusted rate of interest, the nominal rate of interest will tend to vary in sympathy with movements in the long run price level. Thus, persistent price inflation is likely to cause an increase in the long-term rate of interest, while persistent price deflation will induce a reduction in the interest rate. In accordance with the explanation given in this paper, this will have unambiguous implications for the normal distribution of income between wages and profits : a permanent increase (decrease) in the interest rate associated with a higher (lower) long run price level will limit the rise (decline) of the money wage to a normal level at which the real wage (or gold money wage) stands lower (higher) than before, compatible with a higher (lower) normal rate of profit and accompanied by a redistribution of income from wages (profits) to profits (wages). This proposed change in normal distribution will be based on the capacity of capitalists (workers) to limit rises (reductions) in the money wage in order to accommodate a higher (lower) normal rate of profit (and money rate of interest). Indeed, this explanation seems to broadly correspond to the experience of the afore-mentioned three main phases of movement in the underlying level of money prices in Britain in the second half of the nineteenth century and until 1914(see Appendix).³⁵

As should be apparent from the above discussion, in accordance with a monetary explanation of distribution as has been proposed, the institutional framework of the monetary system is pivotal to the determination of the normal distribution of income between wage and profit shares through its effect on the manner of determination of the long-term rate of interest.³⁶ The way in which distribution

is determined in a gold money economy on the one hand, and a fiat money economy on the other hand, is therefore going to be different according to the distinctive nature of the institutional framework in which monetary policy is operated and the rate of interest is determined in each of these comparative monetary economies. Indeed, these two fundamentally different monetary economies will in fact reflect the different policy objectives of the authorities in the context of a well established economic and social order. In this connection, critical to interest-rate policy and the way distribution is settled in each of these two distinctive monetary economies, is the fundamental difference in the manner by which the real wage is determined as a residual. As has been previously outlined, whereas the residual determination of the real wage on the basis of a given rate of interest (profit) and technique of production in a gold money economy involves the adjustment of the money wage in relation to a given level of (gold) money prices, in a fiat money economy it involves the adjustment of money prices in relation to the given money wage.³⁷ Hence, unlike the case in a fiat money economy, distribution in a gold money economy cannot be resolved through an inflationary (or deflationary) process. It can only be resolved directly through the wage-bargaining process in the determination of the money wage. There is simply no scope for any incompatibility between interest-rate policy and wage determination spilling over into a series of wage-price increases that can drive a wedge between the nominal and real rate of interest in a gold money economy as can occur in a fiat money economy(cf. Pivetti, 1991, pp.52-6).³⁸ Instead, any such conflict over distribution will take the form of protracted industrial disputation over the determination of the normal money wage.

6. Conclusion

This paper has endeavoured to show that consistent with a Sraffa model, a monetary explanation of distribution in a monetary system backed by gold, and, in the presence of a 'surplus' wage, is historically more plausible than an explanation based on treating the real wage as the exogenous distributive variable. The argument presented here has been based fundamentally on the twin propositions that the rate of interest was an autonomous variable and the balance of power over wage-bargaining rested with capitalists. It has been shown that based on these propositions a monetary explanation of distribution in a gold money economy will be logically different to one in a fiat money economy mainly because of the lack of independence of money wage determination in relation to that of (gold) money prices (the price level), and hence, in how the real wage is residually determined for a given rate of profit and technique of production. These explanations will also differ in the two different types of monetary systems on the basis of the difference in the manner in which the rate of interest is institutionally determined according to the 'objectives and constraints' of the authorities. In this connection, it is our view that the 'type of monetary system' assumed is not important so much in determining in a Sraffa model whether the real wage or rate of profit ought to be chosen as the independent variable as it is in determining the *manner* in which distribution is resolved on the basis of an autonomous rate of interest (profit).

An important feature of the monetary explanation of distribution is it links the institutional arrangements of the monetary system with the social and economic relations which ultimately determines the division of income between wages and profits. From this perspective, fundamental changes in the monetary system, such as occurred with the shift from a gold money to fiat money system in the twentieth century, must have implications for distribution. The different way in

which distribution has been shown to be determined in these two types of monetary systems provides, in our view, a key insight into the historical demise of the gold money system in the interwar period and its replacement by a fiat money system after the Second World War.

It will be recalled a major proposition of our explanation of distribution in a gold money economy is that the socio-economic and politico-institutional framework of 'old' capitalist society invested industrial capitalists with the 'balance of power' over workers in wage negotiations sufficient to deliver money (real) wage outcomes compatible with interest-rate policy. An implication of this view is that the historical viability of a gold-based monetary system depended heavily on this social relationship. Therefore, once the balance of power had sufficiently shifted from industrial capitalists to organised labour - as it in fact did in Britain by the early twentieth century - such that wage outcomes consistent with interest-rate policy could only be achieved at an unacceptable economic and social cost in the form of lost productivity resulting from protracted industrial disputation and high levels of unemployment, the gold money system was no longer sustainable. In other words, once the social and institutional order had changed in a way which shifted wage-bargaining power from industrial capitalists to organised labour, the gold money system was no longer effective because, associated with changes in interest-rate policy, the adjustment process (deficit) countries would inevitably be required to make under the system would be attended with high economic and social costs. This was starkly revealed by Britain's ill-fated return to the gold standard in the 1920's, when, in altered post-war economic circumstances, wage behaviour seriously threatened the *primacy* of the authorities interest-rate policy. As well known, the relative deterioration of Britain's external position after the First World War meant a return to gold at the pre-war parity required the adoption of a dear money policy, and, in the absence of increases in the price level in the rest of the world,

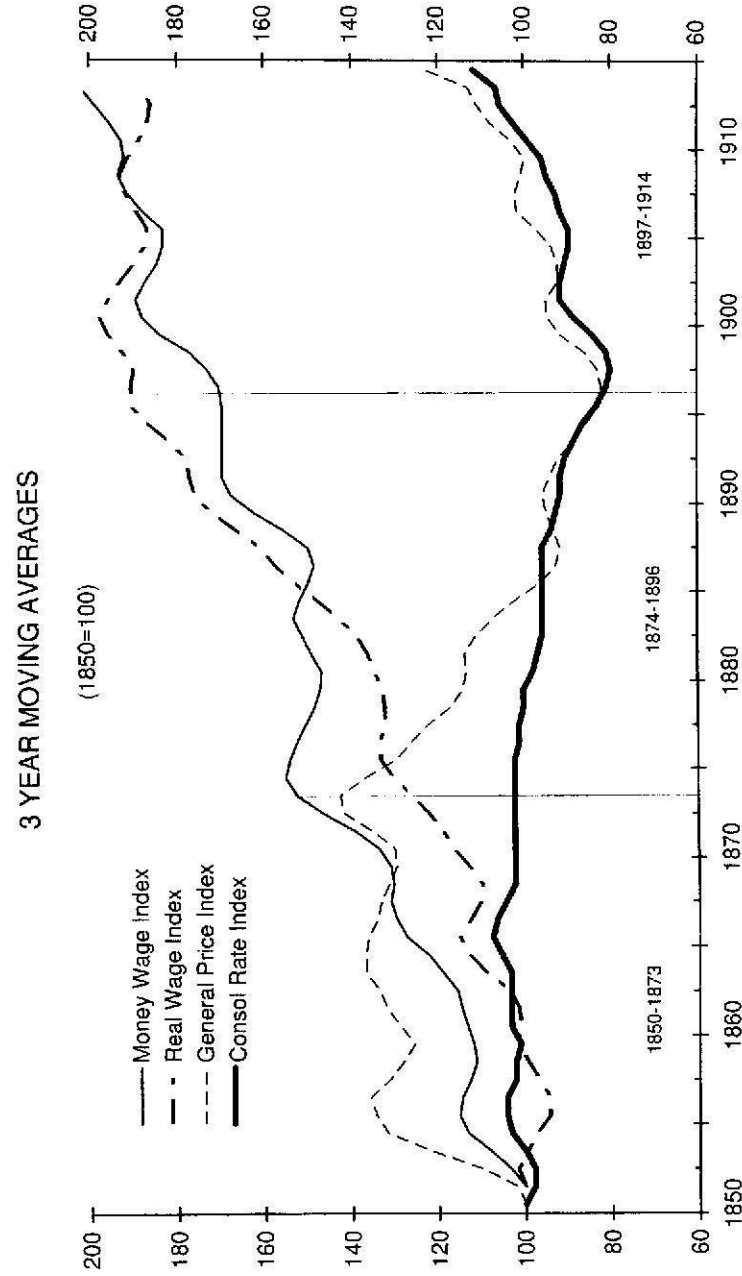
considerable reductions in the money wage.³⁹ While high levels of unemployment succeeded in forcing down wages in the early 1920's, the strong resistance of the trade union movement and the political limits to which deflationary monetary policy could be pursued in the face of historically high unemployment, meant further reductions in money wages were in fact difficult to achieve after 1923. As Moggridge (1969, p. 83) has stated in this connection, "after the General Strike of 1926 direct attacks on money wages were not really possible" and therefore "the success of the 1925 policy became dependent on British money wages remaining constant while competitors' money wages rose by amounts sufficient to more than offset their higher rates of growth of productivity".⁴⁰ With Britain unable to resume its dominant position in the international economy, and after the onset of the 'Great Depression' and mass unemployment, the gold money system disintegrated in the 1930s amidst economic and political disorder.

The breakdown of the gold money system in the interwar years can be attributed to a number of contributing factors (cf. Nevin, 1955, pp. 1-33). However, a major factor was the highly deflationary bias of the system stemming in large part from the afore-mentioned shift in the balance of wage-bargaining power from industrial capitalists to organised labour. Given the fixed rate of exchange in terms of gold, it meant external adjustment by (deficit) countries involved the implementation of very tight monetary policies which could overcome workers resistance to lower wages by the establishment of socially intolerable levels of unemployment. The onus of adjustment was thrown squarely on industry, who, faced with high interest costs, had to implement the reductions in wages and thereby cut costs. Under these circumstances the gold money system hindered cheap money policies and thereby discouraged any moves toward an expansionary fiscal policy. In contrast, a fiat money system has an inflationary bias because any distributional conflict over wages will tend to spill over into higher prices with the possibility of industry being able to shift the burden of

adjustment onto the financial market in the form of lower *real* rates of interest. Moreover, with the ability to alter the foreign exchange rate as well as to control the nominal rate of interest, the authorities were enabled under a fiat money system to adopt long-running cheap money policies as a pre-requisite to a more expansionary fiscal policy stance. In this regard it is highly significant the demise of the gold standard in the 1930s was associated with a fundamental shift in the direction of policy from price stability to reducing unemployment from its very high levels. This shift was firmly instituted after the Second World War, when, in the reconstruction of the international economic order, primacy was given to full employment and clearly lay behind the establishment of the Bretton-Woods system - a system which was fiat money based. The institutional transformation from a gold based money to fiat based money system in the twentieth century was therefore associated with a sea-change in policymaking from the adoption of neutral fiscal and monetary policies to maintain price stability, to the adoption of 'Keynesian' macroeconomic policies for full employment.⁴¹ This sea-change was accompanied, in fact, partly stimulated, by a fundamental change in social relations which altered wage behaviour and required an alteration in the institutional character of the monetary system.

APPENDIX

APPENDIX
 SECULAR MOVEMENT IN WAGES, PRICES AND INTEREST IN BRITAIN, 1850-1914



Data Sources for Figure:

The data for the above figure has been derived from various well-known sources all contained in Mitchell(1962, pp. 343-5, 455-6, 474-5).⁴² The money wage and real wage index has been constructed as a composite from two series. The first series consists of the index calculated by Wood(1909) relating to those 'not allowing for unemployment' for the period 1850-1902. The second series was calculated by Bowley(1937) as an extension of Wood's series covering the period 1880-1914. To obtain a series for the whole period, 1850-1914, Bowley's series was spliced onto Wood's at the year 1880. The price index is derived from the Sauerbeck-*Statist* series. It should be noted the real wage index featured in the figure was calculated on the basis of a Wood-Bowley 'cost of living' index and *not* this price index. For the relevant historical period, both indices are highly correlated with nearly identical turning points. The major difference between these two indices is that the Sauerbeck-*Statist* price index covers a wider range of commodities (i.e. raw materials) and tends to exhibit a wider fluctuation of movement. Though it is not the basis for the translation of the money wage into the real wage index in the figure, it nevertheless provides a more representative measure of the price level and its movement. Lastly, the consol rate index was calculated on the basis of annual average yields on consols.

Endnotes

¹ As has been pointed out elsewhere by Garegnani(1990, pp. 118-119; 135 ns. 12, 14), the major classical economists and Marx allowed for the possibility of persistent unemployment. Adam Smith(1776, I, viii, p. 90) did so in the case of a 'declining state' "where funds destined for the maintenance of labour were sensibly decaying"; in the third edition of the *Principles*(1823, pp. 386-97) Ricardo allowed for this possibility arising from the displacement of workers by the introduction of machinery; and, as well known, the notion of a permanent 'reserve army' of unemployed played an important part in the economic analysis of Marx(1867, esp. p. 589 *et seq.*). In classical economics there is no price-wage adjustment mechanism that systematically eliminates labour unemployment such as to provide the basis for an expectation that the economy would normally gravitate around the neighbourhood of full-employment output(cf. Garegnani, 1983). Also see Stirati(1992, pp. 53 *et seq.*).

² Smith comes very close to asking this question himself when he says in relation to a declining state (e.g. Bengal) that presumeably lacks any system of poor relief :

... the competition for employment would be so great ... as to reduce the wages of labour to the most miserable and scanty subsistence of the labourer. Many would not be able to find employment even upon these hard terms, but would either starve, or be driven to seek a subsistence either by begging, or by perpetration perhaps of the greatest enormities (*W.N.*, 1776, I, viii, vol. I, pp. 90-1).

In absence of welfare relief, not only would the desperately unemployed offer themselves for work, but 'masters' may easily construe it as an act of humanity to employ such additional persons at lower wages on the grounds that a greater number of persons can be saved from destitution and starvation. This does not mean of course that under the assumed circumstances the lowering of the real wage in this way towards a minimum subsistence level could produce full-employment and prevent any starvation.

¹ Most Western European countries have traditionally possessed parish-based systems of poor relief going back to medieval times. In England the poor laws were essentially instituted under the 1601 Act of Relief of the Poor which set out the rights and obligations of the poor. This Act remained the foundation of poor relief in England until the Poor Law Amendment Act of 1834 under which was instituted the 'new' system of poor laws over the remainder of the nineteenth century. See Rimlinger, (1971, pp. various).

² The best example of this is provided by the Speenhamland System of poor relief introduced in England at the end of the eighteenth century. The Speenhamland System, officially sanctioned by parliament in 1795, clearly provided citizens with a legal right to a 'living wage'. Under this system county authorities would provide welfare assistance to a labourer by supplementing his wage according to the price of bread and the size of his family. This system was to play an important social welfare role throughout the period of the French Wars when the inflation in food prices outstripped the rise in money wages and caused a general reduction in the real wage of workers. As Tooke(1838, I, various), in particular, has shown in his analysis of prices from 1792 to 1814, the proclivity of poor seasons and deficient domestic harvests in combination with the disruption to foreign supplies wrought by the French Wars, saw the price of corn over the period rise to high levels on 'average' ,and, at times, to extraordinary levels, with adverse effects on the real incomes of most of the population. While humanist principles of the eighteenth century may have provided the initial motivation to the adoption of this more benovolent system of welfare, there seems little doubt that its official sanction by Prime Minister William Pitt in 1795, a year of widespread scarcity, was largely motivated by concerns about internal social stability, which, in the aftermath of the French revolution, was threatened by the resurgence of Jacobin consciousness and by the hardships of war(cf. Thompson, 1968, p. 58 *et seq.*).

³ With respect to Britain see Deane, 1965, pp. 260-69; Wood, 1982, pp. 182-4; and with respect to Germany, Sagarra, 1977, pp. 253-62.

⁶ In the case of Britain, the repeal of the corn laws in 1846, by opening the domestic market to competition from foreign (largely European) competition, was an important factor in encouraging the adoption of more efficient techniques of production in agriculture. For a relevant history of British agriculture see Orwin and Whetham, 1964.

⁷ The 'new' poor law introduced in 1834 lowered welfare protection by tightening the eligibility for poor relief (cf. Himmelfarb, 1983, pp. 147-76). In conjunction with the continuance of the corn laws, its introduction particularly exposed large parts of the English population to starvation in the late-1830s and mid-1840s when, as a result of unfavourable seasonal conditions and low agricultural output, food prices rose considerably. While the poor law still provided the foundation for the social wage during the remainder of the nineteenth century, it became heavily dependent on relief provided by voluntary charities and later in the century on trade union funded unemployment insurance. At the same time the rapid urbanisation of the population meant that social welfare became increasingly dependent on remedial measures by the state to improve housing, sanitary conditions, education and factory conditions. Following Liberal tradition, the same pattern of lower welfare provision in the nineteenth century occurred with industrialisation in France, the United States and Germany - though, with regard to Germany, the state introduced far-sighted social insurance schemes in the early 1880s which considerably bolstered the social wage in that country (cf. Rimlinger, 1971). In Britain it was not until the social welfare reforms of the Asquith Liberal government in the first decade of the twentieth century that the state sponsored a significant increase in the social wage.

⁸ In the course of the French Wars, 1792-1815, the national debt increased by £641 million to £900 million (cf. Fenn, 1889, pp. 8-11).

⁹ In a speech in May to the House of Lords, the Prime Minister, Lord Liverpool, made reference to the 'extraordinary and injurious' refusal of the Bank of England to lower its discount rate from 5%. He stated that having found "it impossible to induce the Bank to lower its rate of interest on discounts, conformably with the expectations held out in

1819, His Majesty's government resolved on borrowing four million pounds on Exchequer bills from the Bank, with a view to applying that sum in some manner to the relief of the country" (2 *Hansard*, 1822, p. 715; also quoted in Hawtrey, 1962, p. 14).

¹⁰ The annual charge of the debt on the national budget of 1822 constituted more than 50% of revenues. In addition to the large conversion operation, the government sought to reduce the annual charges for war pensions on the budget in upcoming years by the 'Dead Weight' scheme, consisting of the sale of a fixed annuity for 45 years in return for the sums required to meet ever decreasing annual payments over the years to maturity. Unable to induce other non-bank investors, the Bank of England agreed to purchase the Dead Weight for the period 1823 to 1828 (cf. Morgan, 1965, pp. 79-80). On the 1822 budget see Smart, 1917, pp. 80-91.

¹¹ On the 'first free trade' budget of 1824 again see Smart, 1917, pp. 192-222.

¹² Conversion operations were carried out in the years 1825, 1826, 1830, 1834 and 1844, over a period in which the average annual price of 3% consols rose from around 85 to nearly par (at 99).

¹³ For an account of Peel's free trade measures see Clapham, 1959, pp. 476-506.

¹⁴ National debt declined from around three times to less than one-third the size of gross national income between the years 1821 and 1900 (cf. Mitchell, 1962, pp. 366, 392-8, 402-3).

¹⁵ As Tooke (1856, pp. 59 *et seq.*) first pointed out, the 1844 Act tended to lock up bullion reserves in the Issue Department with the effect of restricting the reserve available in the Banking Department to carry on discount business. Thus, in order to maintain a 'safe' reserve for the purposes of meeting liquidity demands as they arose and thereby ensure convertibility, the Bank of England was obliged to adjust its discount rate more frequently and carry a higher 'average' reserve than was previously required. Also see King, 1936, pp. 148-169.

¹⁶ According to Newmarch's estimates there was an increase in the production of gold to the value of £174 millions in the nine years from 1848 to 1856, representing an increase of 31% to the world's stock of gold (Tooke and Newmarch, 1857, VI, pp. 145-54).

¹⁷ On this episode see Morgan, 1965, pp. 175-7.

¹⁸ For evidence of the sympathetic movement of the long-term rate of interest of other countries with that of Britain in the nineteenth century see Homer, 1977, pp. 225, 241, 251, 263, 292.

¹⁹ It has been argued that this aspect of the low interest policy was in fact 'too successful', with a detrimental effect on the long-term development of British industry. According to Cain and Hopkins (1987, pp. 3-4) this policy, together with the severe limitation placed on the supply of government securities by the 'Gladstonian' policy of balanced budgets, was the cause for a large proportion of capital to be diverted away from domestic to colonial investments over the last quarter of the nineteenth century.

²⁰ It is largely from this viewpoint that in connection with distribution, Tooke tends to treat the rate of profit as an autonomous variable and the real wage as a dependent variable for a given technique. Thus, in the face of a series of unfavourable seasons and a decline in productivity in agriculture in England during the French wars, Tooke (1824, 54-6, n.; 1838, I, pp. 329-30) maintains that the burden of the reduction in net real income - manifested through price inflation - tended to fall on real wages and not the profits of industry.

²¹ For a given technique, a change in distribution will of course cause a (minor) change in the price level associated with the change in relative (gold) prices, subject to the given commodity composition of the workers real wage upon which the index for the price level can be calculated.

²² This conception of the profit rate as consisting of these two component parts can be traced in classical economics as far back as Adam Smith in the late eighteenth century (cf. Pivetti, 1991, pp. 61-9).

²³ Following Thornton (1811, pp. 335-9), Ricardo (1811, pp. 91-2; 1823, pp. 363-4) relied on the notion that changes in the normal rate of profit would induce an alteration in the demand for loans relative to their supply in the money market which would cause sympathetic changes in the money rate interest; that is, a reduction (increase) in the normal rate of profit would lead to a decline (rise) in borrowing for profitable investment and thereby tend to force down (up) the money rate. However, unlike in marginalist theory in which it is possible to derive supply and demand functions of savings (in financial form) as the basis for the establishment of a 'natural' rate around which the interest rate gravitates, in classical theory no such analysis can be logically formulated which would accommodate the *systematic* gravitation of the rate of interest toward the normal rate of profit.

²⁴ This is different to the argument made by Pivetti (1991, pp. 36-7) for refuting the notion of the real wage as the independent variable in a fiat money economy on the grounds "that the direct outcome of wage-bargaining is a certain level of the money wage, while the price level cannot be determined before and independently of money wages" since in a gold money economy the normal money wage will be jointly determined with the real wage for a given technique of production.

²⁵ For such a history of Britain see Pelling, 1987, pp. 3-149; Clapham, 1930, pp. 198-219; 1932, Ch. IV.

²⁶ The notion of a strong statistical correlation between the movement of the rate of interest and the price level was first discovered by Tooke (1838, II, pp. 348-9; 1844, pp. 81-2) in the nineteenth century when England was a gold money economy. At the end of the nineteenth century Wicksell was to write of this statistical relationship: [T]he correctness of this observation [by Tooke] is beyond dispute; later statistics have frequently fully confirmed this fact" (1906, p. 182); while in more cautious vindication, Marshall said "I myself go with those who hold that statistics bear out the *a priori* probability that firstly, the rate of discount would be generally higher when prices are

rising than when they are falling ... and secondly, that they would be higher during periods of high prices, than in periods of low prices"(1926, p.274).

²⁷ However the price index is calculated, either as a cost of living index in terms of the normal composition of the real wage or an overall index in terms of the total normal composition of output of all commodities in the economy, the short run index will be a deviation from the long run index calculated on the basis of normal prices of commodities.

²⁸ The main reason for this is that 'non-natural' technical progress will tend to spread across all industries tending to reduce unit costs of production of a multitude of commodities (including gold), notwithstanding that they will always be associated with changes in relative prices.

²⁹ For a simple multi-commodity model in which gold is treated as the only scarce and non-basic commodity see Smith, 1995.

³⁰ A more detailed examination of this 'interdependency' between the monetary demand for gold and the price level is given in Smith, 1995.

³¹ See Tooke and Newmarch, 1857, Part VII; and Jevons, 1863; 1869.

³² For a detailed account of these institutional changes in the international monetary system see Cecco, 1974, pp.39-61. On the part played by these institutional changes in the increased value of gold in relation to silver see the *Final Report of the Gold and Silver Commission*(1888).

³³ For a picture of this three-stage movement in the price level in Britain in the period 1850-1914, refer to the figure in the Appendix.

³⁴ If, however, the source of the technically related change in the long run price level comes from an alteration in the cost of production of 'other' basic commodities that comprise the price level, the resulting effect on normal distribution will not be neutral. This is because the change in the price level will in this case be associated with a change in the 'real' net income of society that can be distributed between wages and profits. Let us suppose that the rise in the long run price level considered in the text above is

instead attributable wholly to a decline in productivity which increases the cost of production of basic commodities relative to non-basic gold (i.e. a long series of poor seasons which causes a rise in the normal cost of producing corn). While the resulting price inflation will cause the nominal value of net income to increase, its real value will fall on account of the increase in the means of production as a proportion of the gross real output of society. With an unchanged rate of interest (and normal profit rate), there will be a redistribution of a smaller real net income (or surplus) from wages to profits. As a corollary, the money wage will rise but not in the same proportion as the increase in the price level, leaving the real wage at a lower level than before. The lower real wage follows from the fact that technical changes have increased the relative price of basic commodities entering directly and indirectly into the wage in relation to the new gold money wage. As would be expected, in the alternative situation of technical progress, which, for a given level of interest, lowers the price of basic commodities in relation to non-basic gold, the real wage will rise associated with the redistribution of a higher level of real net income in favour of wages.

³⁵ This view is confirmed by Hobson(1913, pp. 118-122) who finds that the secular decline in the price level in the period 1879-1896 was accompanied by a trend rise in the money wage and also the real wage. However, in the period 1896-1912 Hobson(1913, pp. 119-125) establishes that the secular increase in the price level and the money wage was accompanied by a decline in the real wage and high and rising interest rates. The conclusion Hobson(1913,pp. 123-5) reached was as follows:

The rate of interest upon current investments in Consols and first-class debentures in this country steadily fell for more than thirty years preceding 1896, and since that time they have risen to an extent of at least 25 per cent. The rise in the rate of interest thus synchronizes closely with the fall of real wages. This can be no accident. Its meaning is unmistakable. Treating capital and labour as participants of the national dividend, it can only mean that shift in the distribution has taken place, labour taking less and capital more.

The hire price of capital has risen at least equivalently to the rise of general prices : the hire price of labour has either fallen or has not risen at all....It is this

stagnation or fall of real wages that is stirring the discontent of the workers everywhere. In this and other advanced industrial countries most classes of wage-earners had made considerable and fairly continuous rises of real wages during half a century, and the expectation of further advances underlay their common attitude towards the future. Suddenly this expectation is baffled, and instead of advance they experience retrogression in the standard of living. Trade unionism, with its policy of collective bargains, the newly-won representation of labour by working-men in Parliament, the advance of State and Municipal Socialism seem to avail nothing against this insidious attack upon their standard wages by the rise of prices.

³⁶ As the main determinant of distribution, the rate of interest should in our view be properly seen as a socio-institutional variable. In this regard the author is in complete agreement with Pivetti's conclusion "that an ideal *History of Interest Rates* - a thorough consideration of the circumstances that have governed the course of interest rates in major capitalist countries - is bound to lead one to see clearly that interest rate determination is not subject to any general law (1991, p. 136, emphasis added)."

³⁷ It is worth mentioning here that this difference also has implications for the effect of changes in the rate of interest on the inducement to invest. As Pivetti (1991, pp. 41-2, 50 n.3, 126-7) has indicated, the monetary explanation of distribution, with its treatment of the money rate of interest as a constituent of normal costs, helps explain empirical findings (especially those of the 'Oxford Inquiry' in 1938-9) of the lack of sensitivity of investment to permanent changes in the rate of interest. This is because in a fiat money economy a lasting change in the money rate of interest will, *given wage costs*, cause a change in the nominal value of normal costs of production to which firms will adjust their money prices in order to earn a normal rate of profit on capital. However, things will be very different in a gold money economy *where firms in general will have to adjust their costs of production to the given normal (gold) price by compensating for any change in interest costs by a counteracting alteration in wage costs*. Thus, in a gold money economy, for a given technique and therefore for an approximately given price level, any lasting increase (reduction) in the money rate of interest will require firms to implement offsetting reductions (grant increases) in money wages to maintain their overall normal costs of production and earn a normal rate of profit. For this reason investment is likely to be more sensitive to lasting changes in the rate of interest in a gold money economy

than is the case in a fiat money economy. In accordance with the above example, it is perhaps significant that circumstances favourable to firms to 'pass' on higher costs in prices comes with an increase in the long run price level (brought about by a permanent reduction in the cost of producing gold) in relation to a more slowly adjusting money wage. Contrawise, when the price level is falling the burden of adjusting costs to lower prices will fall on firms. This may help to explain why economic activity in Britain in the nineteenth century tended to be stronger during the periods 1850-1873 and 1897-1914 when there was a secular increase in the price level and slower during the period 1874-1896 when it was in secular decline (cf. Morgan, 1965, pp. 165-209; Wood, 1982, pp. 275-80).

"As the discussion above has indicated, only a change in the value of gold associated with a change in the technical conditions of its production could cause a divergence between the nominal and real rate of interest in a gold money economy.

"For an account of Britain's return to the gold standard in 1925 see Moggridge (1969). On British economic policy over the whole of the interwar period see Howson (1975).

"A similar view is shared by Skidelsky (1967, p. 9) who thought the General Strike made government and industry "alive to the probable consequences of any general attempt to lower wages (It was about this time that the phrase 'rigidity of wages' came into general use.)" such that "[A]fter 1926 the wages struggle was tacitly abandoned." In his biography of Ernest Bevin, Williams (1952, p. 125) said of the General Strike "it marks the dividing line between the belief in force as the ultimate authority in industrial relations - a belief to which both sides of industry were equally committed - and the slow recognition of a new balance of the relationship in which the trade unions were to be accepted as holding an important constitutional position in modern British society" (as quoted by Clegg (1954, p. 2)).

"However, since the break-down of the Bretton-Woods system, there has been a discernible return to price stability over full-employment as the priority objective of policymakers. This fundamental shift in policy direction in 'modern' capitalism has too

been accompanied by an alteration in the institutional nature of fiat money economies and the terrain upon which distribution is settled; most notably, the deregulation of financial markets and the removal of direct controls over interest rates, the widespread adoption of flexible exchange rates and the removal of exchange controls over capital movements accompanying the closer integration of international capital markets (cf. Pivetti, 1993). It is significant that these institutional changes have over the last twenty years been associated with higher trend nominal rates of interest, and, since the early 1980's, historically high *real* rates of return on financial securities. All indications are that in connection with monetary policy formulation, these institutional changes have had the effect of shifting the burden of adjustment of any wage-price inflation that is the result of distributional conflict from wealthholders in the financial market to firms in industry, and, in the context of high unemployment, ultimately back onto money wage determination.

⁴² For a detailed analysis of price and wage movements in Britain over the period 1820-1920 see Layton, 1913, pp.31-38; 1920.

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