

WORKING PAPERS IN ECONOMICS

**Women as Producers of Economic Articles:
A Statistical Assessment of the Nature and
the Extent of Female Participation in Five
British and North American Journals 1900-39**

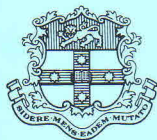
by

Peter D. Groenewegen and Susan King

No. 201

June 1994

DEPARTMENT OF ECONOMICS



The University of Sydney
Australia 2006

**Women as Producers of Economic Articles:
A Statistical Assessment of the Nature and
the Extent of Female Participation in Five
British and North American Journals 1900-39**

by

Peter D. Groenewegen and Susan King

No. 201

June 1994

Research on Trends in professionalisation and specialisation in the early journal literature as part of a historical study of twentieth century economics discloses interesting data on the changing role of women in the production of journal literature over the first four decades of the century. A data base covering the *American Economic Review*, *Economica*, *Economic Journal*, *Journal of Political Economy* and *Quarterly Journal of Economics*, findings on gender balance in journal articles and on occupational, specialisation and professional characteristics of women contributors on both an aggregate and comparative basis. A more startling result from the investigation has been to explain why so many women managed to break into the economic journals in this formative period of professionalised economics and to reflect on the reasons why this position changed from the perspective of experience on both sides of the Atlantic. These in turn shed light on the nature of the profession and the degree of specialisation in the journals in academic economics in the decades before World War II.

National Library of Australia Card Number and ISBN 0 86758 830 6

**WOMEN AS PRODUCERS OF ECONOMIC ARTICLES: A STATISTICAL
ASSESSMENT OF THE NATURE AND THE EXTENT OF FEMALE
PARTICIPATION IN FIVE BRITISH AND NORTH AMERICAN JOURNALS
1900-1939***

Peter D. Groenewegen and Susan E. King

The analysis presented in this paper explicitly draws attention to an aspect of the sexual division of labour, namely the comparative advantage women were said to have in undertaking specific types of economic research. Alfred Marshall, the doyen of British free trade economics, who at the start of his career had improved on Ricardo's analysis of the subject in a never to be completed manuscript on foreign trade written during the 1870s, also addressed this less well publicised aspect of comparative advantage in the economic literature. At a general level, he did so in May 1894 by indicating in what minor social inquiries women could turn their special talents to good account, after first advancing the broad proposition that 'economics is a subject generally unsuited for advance by women'.¹ Nevertheless, women did have a comparative advantage in some social and economic research as a result of the following special talents with which they were endowed:

- a. abundance of leisure;
- b. interest in the concrete;
- c. interest in personal matters;
- d. sympathies;
- e. access to the Unimportant individually, but numerous and therefore important collectively;
- f. power of pursuing certain delicate inquiries relating to women and children in which a man would be out of his element (ibid.).
(Marshall, manuscript note, 28 May 1894, Marshall Archive.)

Whether, in the manner of Heckscher-Ohlin-Stolper-Samuelson, Marshall would have conceded that women's entry into the field of, albeit minor, economic and social research would eventually induce a degree of factor price equalisation with their male counterparts, history does not record. What it did record, in the specific form of an entry in the diary of Beatrice Potter (Webb) is that Marshall earlier had offered her

advice on the basis of points (f), and perhaps (a), of his gender based comparative advantage model. This advice was designed to persuade her to investigate women's labour rather than the 'male' subject of co-operation as her next major research project. The way in which this advice was offered is so entertainingly reported by its recipient that a quotation at length seems justified:

At lunch at his [i.e. Marshall's] house our discussion was more practical. He said that he had heard that I was about to undertake a history of Co-operation.

"Do you think I am equal to it?" I asked.

"Now Miss Potter, I am going to be perfectly frank; of course I think you are equal to a history of Co-operation: but it is not what you can do best. There is one thing that *you* and only you can do - an enquiry into the unknown field of female labour. You have, unlike most women, a fairly trained intellect, and the courage and capacity for original work; and you have a women's courage and capacity for original work; and you have a women's insight into a woman's life. There is no man in England who could undertake with any prospect of success an enquiry into female labour. There are any number of men who could write a history of Co-operation, and would bring to this study of a purely economic question far greater strength and knowledge than you possess. For instance, your views on the relative amount of profit in the different trades, and the reason of the success of Co-operation in cotton and its failure in the woollen industry might interest me; but I should read what you said with grave doubt as to whether you had really probed the matter. On the other hand, if you described the factors enabling combinations of women in one trade and destroying all chance of it in the other, I should take what you said as the opinion of the best authority on the subject. I should think to myself, well, if Miss Potter has not succeeded in sifting these facts no one else will do so, so I may as well take her conclusion as the final one. To sum up with perfect frankness: if you devote yourself to the study of your own sex as an industrial factor, your name will be a household word two hundred years hence: If you write a history of co-operation it will be superseded and ignored in a year or two ... ²

Of course I disputed the point, and tried to make him realise that I wanted this study in industrial administration as an education for economic science. The little professor, with bright eyes, shrugged his shoulders and became satirical on the subject of a woman dealing with scientific generalisations; not unkindly satirical, but chaffingly so. He struck to his point and heaped on flattery to compensate for depreciation.

"Here you are a beginner - a one-year old in economic study, and yet you have outstripped men like myself and Foxwell (who have devoted all the years of our life to economic questions) on the *one* subject of woman's labour. You have made a great success because you have a talent for a special kind of investigation. And yet you insist on ignoring your own talent and taking to

work for which, pardon my absolute frankness, you have no more ability than the ordinary undergraduate who comes to my class. Naturally enough I feel strongly about it. I stand to you in the relation of a consumer to the producer. I am, in fact, one of your principal customers; and yet, though I am willing to lavish gratitude on you if you will only produce what I want, you insist on trying to produce what you cannot make successfully, and when you have made it, it will be practically useless."

I confess, after all this contempt sugared over with an absurdly kind appreciation of my talent for one particular type of investigation, I was relieved to find that in his forthcoming work on political economy the dear little professor had quoted my generalisation about the division of labour being characteristic neither of the best nor of the worst type of production, but of the medium kind. That generalisation, at any rate, is a purely intellectual one, unconnected with the special insight of a woman into the woman's life. (Beatrice Webb, 1038, pp. 398-406).³

Marshall's substantial number of women students at Cambridge probably induced the belief that he was somewhat of an expert on the subject of women's potential in economics. For the Tripos he created, a special niche in economic studies was preserved for those interested in social work, to follow in the footsteps of his hero from the Charity Organisation Society, Octavia Hill. His student, and subsequently ardent Charity Organisation Society supporter by marriage and vocation, Helen Dendy (Bosanquet), whom Marshall described in correspondence as a fellow economist, is a prime but not unique example. Women were therefore not barred from the Royal Economic Society, to use the current name for what was the British Economic Association on its formation in 1890.⁴ Nor were the pages of the *Economic Journal* closed to members of the second sex on its inception. To the contrary: its first editor, Francis Edgeworth in its opening issue declared an open door editorial policy to all those willing to contribute to economic discussion and debate provided they were of sufficient merit, a policy, it must be added, unwillingly forced on him by a stridently pluralist Marshall.⁵

These views of the father of Cambridge economics should be kept in mind in what follows in this discussion. A proclivity to concentrate on women's labour issues, social theory and reform characterises much of the early, and later, academic contributions by women to the major English language economic journals on both sides of the Atlantic. Such aspects of the sexual division of labour at the turn of the century may, likewise, explain the rather startling result why so many women managed to break into the journals during this formative period in the professionalisation of economics. The purpose of this paper is to assess the gender balance in articles in the

English language journals from 1900 to 1939, to analyse occupational specialisations and professional characteristics of the women contributors and the nature of the specialisation they exhibited in their choice of subject. Although some of this work replicates earlier studies, such as those by Libby (1984, 1987, 1990), Strober (1975), Strober and Reagan (1976), the insights obtained from this more extensive comparison appear to us to be valuable, for reasons summarised in the conclusion. In addition, they reveal our still very substantial ignorance about the nature of what are, effectively, the great women pioneers of economics.

The argument is conducted in the following way. After describing the nature of the data, section I presents some detailed statistical findings on gender balance of contributors by journal and by year, seeking explanations for the disclosed variations in terms of what is known about editorial policy. Section II examines the profiles of women contributors in terms of occupation and prolificity in a manner to facilitate national and gender comparisons with their male counterparts. Section III examines the nature of the contribution in terms of broad, generic classification based on qualitative judgement and, more rigorously, by the subject classification used in the *Index of Economic Journal Articles*. A final section posits some conclusions and suggestions for further work.

I

The data for this study were derived as follows. Using five journals, three (*American Economic Review*, *Journal of Political Economy* and *Quarterly Journal of Economics*) from the United States and two (*Economica* and *Economic Journal*) from Great Britain⁶, we extracted articles by women contributors for the period 1900 to 1939. First names were generally a reliable indicator of gender but were checked from other biographical sources where possible, in order to eliminate ambiguities in this index. Such biographical data, available for 92 out of 112 women contributors identified, enables conclusions about the occupational and educational backgrounds of these female contributors for approximately eighty per cent of the total sample. Using the classification system of the American Economic Association's *Index of Economic Articles*, it was possible to determine relative specialisation of female contributors by subject area and to identify the major fields of specialisation for them as a group. Furthermore, visual inspection of each article in the sample enabled the additional classification of articles in terms of whether they were theoretical, historical, mathematical, statistical, econometric and so on, on which data were also compiled to

enable the presentation of a further dimension to specialisation by gender in the journals.

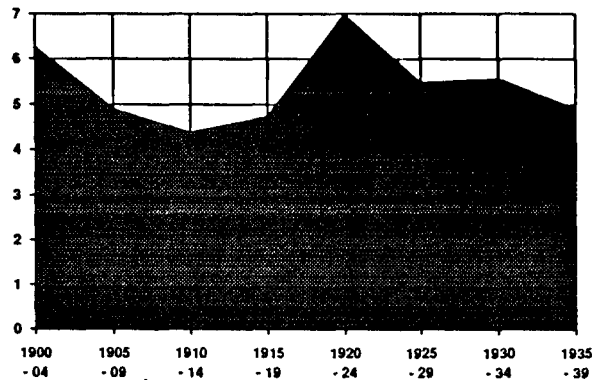
Several limitations of the constructed data base need to be clarified at the outset. Authors names were not an infallible guide to gender, making it impossible in the absence of alternative biographical information to determine gender unambiguously in a small number (3.9 per cent) of cases. These authors have therefore been excluded from much of this survey. Secondly, only articles are included in the data; notes, comments and memoranda were not classified as articles for the purpose of this study, even though they are invariably included in the *Index of Economic Articles* for the relative period. Thirdly, early issues of *Economica* tended to include articles on law, politics and anthropology, which were likewise excluded from the data base which is explicitly devoted to economic articles. The data itself was entered on computer, using Microsoft Access to facilitate manipulation.

The first general findings relate to gender balance of contributors of articles to the five journals for the period in question, both on aggregate and by journal and year. It may be noted immediately that the disaggregated data are more interesting because they more neatly indicate the difficulties with identifying clearly discernible trends in this balance. The most aggregated data are presented first. Of the total 1655 authors listed for the period, 112 or 6.78 per cent were female. In terms of articles published, 222 were contributed by women or 5.3 per cent of the total, indicating a lower average productivity in terms of articles published for women contributors, an issue explored in more detail in the next section.

Annual data for journals on aggregate or by individual journal was too volatile to permit identification of discernible trends (see Figure A1, Table A1 in the Appendix). Expressing the data in terms of five yearly averages proved to be more informative, though it should be noted in this context that the *American Economic Review* and *Economica* did not enter the sample until 1911 and 1921 respectively.⁶ Figure 1 graphs five yearly averages for the five journals. This shows a steady decline in relative contributions for the first three periods, then a rapid rise to a peak of 6.99 per cent in 1920-24.⁷ This is followed by an uneven decline over the late 1920s and 1930s. Figure 2 provides the five yearly average of percentage contributions of female authors by individual journal, clearly illustrating the diverse experience in this respect for the five journals studied. All journals except *Economica* peaked twice over the forty years in question, the lower level of the second peak in all cases suggesting a declining overall trend. The peak period of 1920-24 for all journals combined peaks

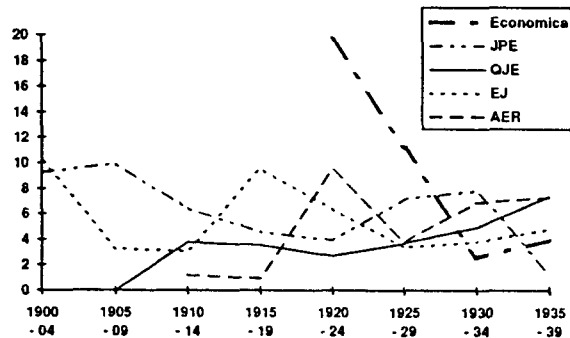
for the *American Economic Review* and *Economica* with actual troughs for the *Quarterly Journal of Economics* and *Journal of Political Economy*.

Figure 1: Female Representation in the five Journals: 5 yearly averages 1900-1939



Source: Survey data of Economic articles in *Quarterly Journal of Economics*, *American Economic Review*, *Economica*, *Journal of Political Economy* and *Economic Journal*.

Figure 2: Female Representation by journal: 5 yearly averages 1900-1939



Source: Survey Data of Economic articles in *Quarterly Journal of Economics*, *American Economic Review*, *Journal of Political Economy*, *Economica* and *Economic Journal*.

Even when smoothed out by means of five yearly averages, the variations shown in the data are such that it seems implausible to explain them in terms of shifts in editorial policy. Archival evidence is unlikely to throw further light on this hypothesis, largely because of the sparsity of the surviving material. *Economica* has no records for the period in question; the *Economic Journal* has little, though the Council Minutes of the Royal Economic Society survive for the period; the adequacy of records for the three American journals with respect to editorial policy remains to be tested. The data do, however, suggest a number of hypotheses on this matter (but cf. Coats, 1971, p. 32).

At first glance, *Economica* appears to have the most open door policy to female contributors of the five journals studied, an aggregate 8.15 per cent of its economic articles were written by women. However, the high rate of female contributors in its initial years was not sustained, and during the 1930s fell to well below average. As indicated, no archival material on editorial policy has survived, but the frequent changes in *Economica's* editorial board plus lack of any clear statement on editorial policy published within the journal suggests that no specific shifts in editorial policy are likely to have been responsible for these drastic shifts in gender balance of the articles. The association of the journal with the University of London, which had a more liberal attitude to women's education at this time than Oxford and Cambridge, may have been an initial influence encouraging women contributors. The decline in the 1930s may also partly be explained by Robbins' prominence and by his preference for theoretical contributions.

The *Journal of Political Economy* appears likewise to have been rather liberal in its editorial policy as judged by the relative strength of its female contributed articles. Over the period as a whole, it published 81 articles by women or 6.18 per cent of total articles published. Figure 2 shows, however, that this percentage was no steadily maintained trend but subject to wide fluctuations from a peak of nearly ten per cent to troughs of below four and two per cent respectively, indicating an overall declining trend in women contributions. It has been claimed (Libby, 1984, p. 274; cf. 1990, p. 124) that Laughlan, editor of the journal until 1916, showed greater willingness to accept contributions by women than some of his contemporaries. The data support the view that from his resignation in 1916, and until 1922, their relative importance in any case sharply declined. In that year, editorial policy became the collective responsibility of the Department of Economics and the University of Chicago. It was not until 1929 that Jacob Viner and Frank H. Knight became chief

editors. Women authors, however, continued to feature significantly in the *Journal of Political Economy* until 1934. Thereafter, this relative significance dropped very markedly. University associations may have had a distinct effect on the shifts in gender balance of this journal's contents. Six of the female authors in this study came from the University of Chicago - Edith Abbott, Sophonisba Breckinridge, Bertha Clark, Helen Hohman, Helen Robbins and Agnes Wergeland - so it is tempting to argue that it was this factor which gave women special access to the journal for a time.

Of the 886 articles published in the *Economic Journal*, 49 or 5.5 per cent were contributed by women. This average again disguises the unevenness of the trend over the period. For two five year periods, the rate of women contributions fell below the 4 per cent mark; it peaked for two periods in the vicinity of ten per cent. For the first fifty-five years of its existence the journal effectively had only two editors, F.Y. Edgeworth (until 1922) and John Maynard Keynes (from 1912). Editorial policy for the *Journal*, specified at its foundation, required it to be topical, catholic and comprehensive, a policy Edgeworth translated into a preference for short analytical reports rather than long theoretical articles. In this sense, the *Journal* provided a forum for women contributors to express their views, especially if they had strong practical experience in economic and social matters, and despite their general lack of theoretical rigour or startling originality. A number of eminent women involved in Royal Commissions, in issues of Poor Law reform, Labour Economics and social issues were among the more important female contributors. These included Millicent Fawcett, Bessie Hutchins, Beatrice Webb and Eleanor Rathbone, as well as Helen Bosanquet and Clara Collet on a smaller scale. It seems partly paradoxical that the British Economic Association formally established with Marshall's blessings initially gave space to as many women as it did, but on closer inspection this is quite compatible with both his views on the sexual division in economic labour and the open door editorial policy he himself so actively espoused.

Of the 686 articles contributed to the *American Economic Review* between 1911 and 1939, 37 or 5.4 per cent were by women, virtually an average performance. As in the case of *Economica*, editorial policy is difficult to ascertain from its pages, and, also like that journal, the level of female contributions was very uneven. However, as Coats (1969, 59-62) has shown, Dewey's editorial policy was designed to aim at the professional portion of AEA membership and though he favoured articles with factual content, he sought also to make the *American Economic Review* a vehicle for all members of the Association, including presumably, women members. Apart from its foundation year, the *American Economic Review* contained no female contributions

until 1919, with a similar absence of articles by women between 1924 and 1927. Figure 2 illustrates these fluctuations as well as the rising trend in contributions by women in its pages visible for the 1930s.

The *Quarterly Journal of Economics* is undoubtedly the most interesting case study of the five journals, given it was least receptive to female contributors of articles. Only 3.09 per cent of its 904 articles were by women, with none whatsoever published over the first ten years of the century, a very uneven performance over the next decade followed by a steady improvement over the 1920s and 1930s. It is tempting to attribute this peculiar pattern to F.W. Taussig, the journal's continuous chief editor from 1896 to 1937. Taussig's obituaries show no marked trace of misogyny in their reports of his person and character, but they do indicate the fact that for much of this time he took sole responsibility for all the articles which were published in the journal. Ellis (1941, p. 210) reported that "Taussig himself read virtually every manuscript submitted to the journal making painstaking notations" while Schumpeter et al. (1941, p. 356) record his "unflagging zeal [in] reading and judging manuscripts, inviting contributions, offering suggestions for improvement" in connection with his editorial work for the *Quarterly Journal*. However, the lack of female content can also be explained by the intended style of the journal, at that stage the most theoretical of the five under consideration. The journal and its editor aimed at theoretical rigour. The scarcity of female economists specialising in theory at this time may then account for their poor relative showing within its pages.

From the data presented it appears that female contributions to the English language journals were quite limited over this period. Such a conclusion needs to be placed in historical context. Much has been written on the state of women in society between 1850 and 1920 in connection with the feminist movement. Modern feminist theory views this period in terms of two separate spheres. A male, public sphere is defined in terms of career, education, business relations and public service. By contrast, the private female sphere is based on the notion that woman was confined to the home, devoted in a nurturing role as wife and mother in raising children to instilling moral values and otherwise contributing to a harmonious domestic environment. This division is particularly relevant to the middle class women who were likely to contribute to economics over the first four decades of the twentieth century. Such views on the role of women were strongly articulated in the nineteenth century, although earlier thinkers had often predicated their opinions on the assumption that women were intellectually inferior and incapable of reasoning, logical analysis or sustained study. The role of women in society had long been seen as that of wife and

mother, incapable of an independent or self sufficient career. This did not apply to paid work for unmarried or widowed women, or, even if married, when economic necessity and desire for economic improvement drove them to it.

The reality for the educated, middle class nineteenth century woman was that marriage and motherhood was the major option for a 'living' available and that this was nothing but her effective bondage in economic dependency to the husband. The difficulties of the single woman, if unsupported by generous family relations, are immediately apparent. Education became increasingly a requirement for her paid, and socially acceptable employment, and by the last quarter of the century, this began to include university education. More generally, it was the single, independent female who became the vanguard of the movement for establishing greater equality between the sexes both institutionally, politically and legislatively. It was she, sometimes assisted by married 'sisters' and their husbands, who tried first to establish, and then to enhance educational opportunities for women, to enable women to gain access to the professions via university and college training, as they increasingly began to do, especially from the 1890s.

In short, the educated middle-class woman of the late nineteenth and early twentieth century was often a social activist, a social worker, and from the 1890s especially, an occasional university teacher or public servant. Were these the women who contributed to the economic journal literature in this period?

II

As already indicated, for 92 of the 112 identified women contributors biographical data enable construction of part of their career paths. Of these 92 women, 60 can be classified as academic in the sense that at the time of publication of their articles they were employed in a university or research institute. Another 29 women were drawn from a variety of occupations ranging from teaching, civil (public) service and industry to social work. Three women were classified as ambivalent since they made significant contributions within academe and in public service. Occupational details about these 92 women as well as the names of the 20 women about whom no biographical data could be found⁸ are given in Table A.2 of the Appendix.

On the basis of data collected for all contributors to the five journals, it was found that academics constituted a higher proportion among the males than the

females. If the persons of unknown occupational status are eliminated from the base, 72.3 per cent of male contributors can be classified as academics for the period, as against 66 per cent of the females. In terms of absolute numbers, male academic contributors dwarf female academic contributors far more strikingly, with a ratio of 1049 to 60. This very much lower female academic ratio needs some explanation.

A major factor in explaining this relatively low rate of female 'economic' academic contributors is attitudes to education, particularly relevant for the earlier part of our period when women contributors to the journals had generally experienced what higher education they had during the 1870s and 1880s. As late as 1904, President Wheeler of Berkeley could address the Women's Association Student Government with the words, "You are not here with the ambition to be school teachers and old maids, but ... for the preparation of marriage and motherhood" (cited in Nerad, 1987, p.24), implying Berkeley at this stage did not welcome women academics from its alumni. Later, it appears to have done so in social economics (Cookingham, 1987, pp. 64-5). Some more enlightened parents did, however, see higher education for their daughters as a means to a career if their daughters failed to achieve marriage. Apart from the social pressures against women seeking higher education⁹, a further barrier existed in the high economic costs of the enterprise which, given the likelihood of marriage and a career as housewife, was almost invariably considered to be a poor investment of household money by the *pater familias*. Gaining a degree for women for much of this period, that is, if it was possible in the tertiary education institution they entered,¹⁰ was therefore an obstacle race against social prejudice, and family obstruction, compounded by all the other difficulties of undergraduate life.

For an academic career, a first degree was not always sufficient, particularly as the century progressed. Opportunities for postgraduate studies or other advanced research had to be available, especially in the United States where higher degrees played a greater role in securing academic preferment before the second world war. By 1900, most American universities were admitting women as doctoral candidates, but the gaining of such qualifications in many cases required long and arduous years of part-time work in order to finance study since most research and graduate fellowships were reserved for men. A detailed analysis of the postgraduate situation for women in the United States before 1940 is provided by Libby (1987). However, as Strober (1975) points out, by the early 1970s, the additional obstacles placed on women in pursuing PhD studies continued to be present to a remarkable degree, hence explaining their low entry into doctoral study (McDowell, 1982).

Even with postgraduate qualifications, academic employment was at best problematical. In Britain, limited lecturing or tutoring positions were available in the women's colleges at Oxford and Cambridge, and at some of the institutions which formed the University of London. For the late nineteenth century especially, there was also the Extension movement, in which both Mary Paley and Ellen McArthur made their teaching debut. In the data gathered for this survey (Appendix, Table 2), with the notable exceptions of Ruth Cohen and Helen Makower employed at different Oxford research institutes, all British women academic contributors to the journals were employed at some stage by these three universities though Lynda Grier also taught for several years at Leeds in between Cambridge and Oxford. For the United States, academic employment for women was often limited to women's colleges of the major universities or small, regional community colleges, with the University of Chicago, as indicated earlier, a notable exception. Sexton (1976) has shown for the 1970s that while women constituted twenty per cent of all teaching and professional staff in the United States, they comprised forty per cent of the staff in small and community colleges. This female concentration in what are essentially teaching institutions had undoubtedly an inhibiting influence on research and publication in the academic journals. Moreover, women PhD's in areas such as social work found it difficult to gain employment during the 1920s, while the depression eliminated many of them from university payrolls since as the "marginal" employees they were the first to go in times of financial hardship (Libby, 1990)¹¹.

Apart from the barriers to women's entry into the academic world already noted, commitment to an academic career by women also entailed considerable personal sacrifice. Many academic women had to reject marriage and/or a family as a feasible option in their lives because family responsibilities and academic life seemed incompatible at this stage (Newcomer, 1959, p. 191; Strober, 1975, esp. pp. 96-8; Cass et al., 1983, Chapters 4 and 6, McDowell, 1982).

Some national differences can be identified. Of the 60 female academics listed (Appendix, Table A.2), only one quarter were British. The remainder were employed in the American system. This is largely explicable from differences in the respective educational systems, particularly size. Although women's educational opportunities were a controversial issue for the whole of the nineteenth century and after, institutions for women's education in the United States had a tradition going back to the American War of Independence. Expansion of such institutions was particularly rapid from 1830 to 1850 while the aftermath of the Civil War with its much enlarged prospects of a single existence for many women of marriageable age necessitated employment and

preparatory training for them, including university or college education for those from the middle class. By the turn of the century, our sample of American contributors to the journals shows that fourteen of the 45 American female academics came from the seven major women's colleges: Katherine Coman and E.C. Brown (Wellesley); Elizabeth Gilboy, Anna Bezanson, Blanche Hazard, Caroline Farran Ware (Radcliffe); Amy Hewes (Mt. Holyoke); Henrietta Cooper Jennings (Bryn Mawr); Mabel Newcomer, Ruth Hutchinson (Vassar); Elizabeth Baker (Barnard) and D.W. Douglas, Esther Lowenthal and H.L. Whitner (Smith College).

The long-standing American tradition of women's colleges gave far greater academic opportunities to American women than to their British 'sisters'. Not until the middle of the nineteenth century were women's secondary schools established and it was not until the final third of the century that women gained access to higher education at London, Oxford and Cambridge. Separate female universities were debated at this time, but rejected as an unsuitable solution by the supporters of women's higher education. The newer universities created from the 1860s tended to be co-educational but lacked the status of the big three. The hard battle by which women launched themselves in the male subject of economics within the male dominated strongholds of Oxford and Cambridge especially, is evidenced by the gender balance in the academic journals and even by the 1920s, academic positions for women remained very few.

Given the problems with women's entry into the professions over this period (Blitz, 1974; Strachey, 1937; Zimmeck, 1987) it is not surprising that a significant number of the non-academic writers in our sample of female journal contributors simply described themselves as "writers" in their entries for the various biographical directories which were our source of information on their career paths. Good examples are M.D. George and I.F. Grant. Others were categorised as social activists, social reformers or engaged in social work as was the case with Millicent Fawcett, Florence Kelley, Bessy Hutchins, Eleanor Rathbone and Caroline Hill, a category among whom Helen Dendy Bosanquet and Beatrice Potter Webb can also be included. Some were involved in school teaching, the major career opening for professional women (Alice Lee, Constance Smith); others in government service (Lois Bacon, Myra Curtis, M.H. Hogg, Constance Kiehel and Emma Winslow). Very few were involved in industry. Helene Reynard stands out as Director of a Wool company at Bradford. Pearl Goodman and Leona Powell were unionists and former workers.

Several ambiguous cases can be highlighted of women at one stage employed in universities but who achieved their most outstanding renown outside of academe. Eleanor Dulles had a superlative record of public service but also spent many years lecturing at various universities. A graduate from Bryn Mawr in 1920, she was initially employed in industry, returned to her college as assistant professor in economics in 1928 and in 1936 resigned to enter full time government service. Her more important responsibilities included post-war reconstruction in Berlin and organising projects of assistance for developing countries. In 1959 she resumed her academic career as Professor of Political Science at Duke, and subsequently Northwestern, University. Karin Kock, one of the few non-native English writers in our sample, had a similarly varied career. After graduating from the University of Stockholm in 1918, she gained employment in the financial sector in order to finance her postgraduate studies (MA in 1925, PhD in 1929). She was appointed to the teaching staff of the University of Stockholm from 1932 to 1946 (after 1938 as acting professor), publishing books on banking and contributing an appendix on the gold standard to a book by Gunnar Myrdal (1934). In 1947 she gained the distinction of becoming the first female cabinet minister in a Swedish government.

Career and educational background help to explain female productivity in terms of publishing in the journals. The basic facts of female prolificity in the economic journals can be simply indicated. Of the 112 identified female authors, 69 contributed only one article (61.6 per cent); 23 wrote two articles (20.5 per cent); 8 wrote three articles (7.1 per cent) while the remaining 12 produced four or more articles.

The most prolific contributor was Edith Abbott. Her interests centred on Labour Economics and she gained her PhD from the University of Chicago in 1905 in this field. Study of women in industry at London University made possible by a Carnegie Fellowship brought her into contact with the Webbs and Charles Booth. After teaching for some time at Wellesley, she joined the Chicago School of Civics and Philanthropy where she was involved in research and social reform. In 1927 she founded the *Social Science Review* with Sophonisba Breckinridge. She was Dean of the School of Social Studies Administration in Chicago until 1942. Her entry in the *New Palgrave* (Kerr, 1987) notes her involvement in the protection and education of juveniles and immigrants, housing improvement and penal reform, as well as with women's rights, especially suffrage and protection of women in employment. During the New Deal period she ardently advocated improved welfare and social insurance. Social work dominated her later academic life but in its practice she invariably applied the skills and training she had received during her economics studies.

The next three most prolific contributors to the journal literature were Sophonisba Breckinridge, Amy Hewes and Anna Youngman with 8 articles each to their credit. All three were academics but the most famous of them was Breckinridge, the only one of the three to be included in the *New Palgrave* (Berch, 1987). Her early career after graduation from Wellesley in 1888 involved high school teaching and law (she was the first woman to successfully complete the Kentucky bar examinations) but inability to practice law from lack of clients brought her to an outstanding career at Chicago (PhD, 1901; J.D., 1904). As shown in the previous paragraph, during the 1920s she teamed up with Edith Abbott in concentrating on social work and issues. This extended to co-authoring two books and several articles with her prolific colleague. Amy Hewes, who reported on developments in the Soviet Union and guild socialism in the pages of the *Journal of Political Economy* and the *American Economic Review* from 1919 to 1932 and Anna Youngman remain totally unrecognised in the profession despite their importance as pioneer women economists in the formative years of the professional journals.

The next two authors in terms of prolificity, Elizabeth Gilboy with seven contributions and Joan Robinson with six, need also to be mentioned, since in some ways they constitute important exceptions in the sample of female contributors to the economic journal literature of the period. Both were economists whose journal output was published during the 1930s (and after). Both were born in 1903, studied at major universities (Radcliffe College and Girton College, Cambridge) subsequently leading to prominent academic careers as economists (Harvard, Cambridge). Gilboy published on the estimation of demand curves as well as on economic history; Joan Robinson contributed extensively to economic theory, commencing with her study of *Imperfect Competition* and continuing with contributions to the new economics of Keynes, as well as classificatory articles on price and distribution theory. Often described as the only female theoretical economist of note (Pasinetti, 1987), she is the only woman to appear among the most frequently cited economists between 1865 and 1969 as identified by Stigler and Friedland (1979, [1982] pp. 182-3) and not surprisingly, she has the largest entry for a woman economist in the *New Palgrave* (Pasinetti, 1987).

Apart from the major contributors mentioned in the preceding paragraphs, productivity in terms of published articles is low for the women in our journal sample. As indicated earlier, it is considerably less than for men. Only 10 per cent of the women in this study wrote four or more articles over the period; the comparable percentage for men was nearly double at 17 per cent. Abbot, who topped the

women's list of authors with 18 articles, is eighteenth (with Irving Fisher) in the complete list headed by Pigou (39 articles) and Taussig (32).¹² A number of possible explanations can be given for this low productivity, some of which were canvassed in previous parts of this paper. They include editorial policy of the journals; marriage and motherhood; constrained academic career paths forcing women into teaching rather than research institutions; lack of research facilities and funding for women; careers which did not encourage publication such as the public service; and, last but not least, a tendency of the subject matter of economics appearing in the journals to move from descriptive and historical articles to more theoretically and quantitatively sophisticated ones. This last factor is more conveniently explored in the context of the next section.

Some of these reasons can be tested against our six most prolific female authors. The strong performance of Abbott and Breckinridge, particularly via their publications in the *Journal of Political Economy*, may be partly explained by their Chicago associations and the alleged liberal policy in this regard of its early editor, Laughlin. Four of the six stayed unmarried. Gilboy married (no children). Joan Robinson married (to fellow Cambridge economists, Austin Robinson) and had two daughters which undoubtedly slowed her publication rate in the decade following her graduation. This makes Joan Robinson even more exceptional. Sexton (1976) showed that approximately two in every three female academics had no children, compared with 16.2 per cent of male academics, a result replicated for other countries (for example, Cass, 1983, p. 130, for Australia). Our six prolific authors likewise suffered no educational disadvantage and enjoyed academic positions at top American and English schools, eventually as professor.¹³ Furthermore, Gilboy and Robinson, whose articles only started to appear in the 1930s published in areas which were by then eminently acceptable to the editors of leading economic journals: economic theory and quantitative economics. This was also exceptional. This shift towards more theoretical approaches to the subject, evident in many professions from the late 1920s, had a less favourable impact on most women contributors to economic journals: it took them out of the economics arena and into that of social work and social welfare, hence further reducing what little impact women had through publishing in the leading journals (Libby, 1990, p. 126; Cookingham, 1987). This impact of specialisation on contributions is examined in the next section.

III

The nature of specialisation in women's journal contributions was analysed in two ways. One, discussed later in this section, was to use the subject classification of the *Index of Economic Articles*. The other, discussed first, was to rely on visual inspection of the contents of each article to enable a count of mathematical, theoretical, econometric, statistical, descriptive and historical articles.¹⁴ Table 1 presents the findings of this aspect of the nature of women's specialisation in economic articles. Inclusion in the table of gender balance data for all articles facilitates interpretation of the percentage contributions by women in individual categories. Above average female contributions were recorded for historical, statistical, and descriptive, topical articles; women contributed significantly below average to mathematical, econometric and theoretical articles. However, relative to total women's contributions in the form of articles, a slightly different picture is presented. The vast majority, three quarters in fact, were devoted to current topics, discussed descriptively. Nevertheless, 16 per cent of the articles contributed by women could be classified as theoretical, 14 per cent as statistical and, surprisingly, only 6.2 per cent as historical.

The emerging highflyers from the previous section, Elizabeth Gilboy and Joan Robinson, feature heavily in the categories in which, more generally, women were under-represented. Two of the three mathematical articles were by Elizabeth Gilboy, the other one by Joan Robinson. Elizabeth Gilboy also wrote the only econometric article by a woman in this study. Of the 36 theoretical articles, Joan Robinson and Elizabeth Gilboy contributed a third (six each); the rest came in single contributions apart from Eveline Burns, Shirley Coon, Myra Curtis and M. Tappan Holland who wrote two each. Edith Abbott with five contributions and Mabel Newcomer with three were the most important female writers of statistical articles, followed by Minnie England, Elizabeth Gilboy¹⁵, M.H. Hogg and Ruth Hutchinson with two each.

Table 2¹⁶ provides data on the relative contribution by women to topics used in classifying articles for the *Index of Economic Articles*, with male data included to facilitate gender comparisons. In absolute numbers, Labour Economics, Industrial Organisation and Public Policy, together with Economic Theory, were the major sub-disciplines to which women contributed articles, comprising in fact well over half of the total¹⁷ or 56.8 per cent. However relatively speaking, only contributions to Labour Economics of these three topics were above average (with 16.7 per cent of

TABLE 1: Gender Balance of Authorship by Broad Nature of Article: 1900 - 1939

Name of Article	Female Authorship		Male Authorship		Total ^a
	Number	per cent	Number	per cent	
Current topic (Descriptive)	167	5.9	2567	91.7	2787
Econometric	1	2.1	47	95.9	49
Historical	14	8.0	158	90.3	175
Mathematical	3	1.5	188	95.9	196
Non-Mathematical	212	5.5	3525	92.4	3814
Statistical	33	7.1	417	89.9	464
Theoretical	36	3.3	1043	95.3	1095
All Articles ^b	215	5.36	3713	92.6	4010

Notes:

(a) Totals include articles by persons with unidentified gender, hence female/male percentage do not add to 100 per cent.

(b) Some articles not classified in this category.

total contributions to this subject). The performance by Labour Economics was greatly overshadowed by that of Consumer Economics (33.3 per cent) and Health, Education and Welfare (19.7 per cent), the broad areas of Social Policy. Other sub-disciplines to which women were above average contributors included Economic History (12.9 per cent); Economic Systems and Planning (10.7 per cent); Regional Planning, Development and Housing (7.4 per cent); Natural Resources and Land Economics (6.7 per cent) and Defence and War Economics (6.7 per cent). In the other fourteen sub-discipline areas, especially in Business Organisation and Managerial Economics (1.3 per cent), Money, Credit and Banking (1.5 per cent) and Economic Fluctuations and Stabilisation (1.6 per cent), women contributions relative to those of men were well below average.

To put it another way, Labour Economics; Social Policy (especially noticeable when Health, Education and Welfare are combined with Regional Planning, Development and Housing); Comparative Economic Systems and Industry Studies were the various branches of the subject to which women were contributing significantly above the average of their overall contribution to the journal literature. It needs little justification to suggest that none of these were leading areas in the development of the subject, particularly during the final phases of the period of study from the 1920s onwards.

This point may be further illustrated by means of the female/male speciality index devised by Strober and Reagan (1976) but substituting articles for persons and regrouping the *Index of Economic Articles* classification to roughly approximate that used by the *Journal of Economic Literature*. Table 3 presents these data, including the findings Strober and Reagan (1976) reported for the 1970s.

Although these data are not strictly comparable, partly because of differences in classification of the underlying data, partly because they compare different outputs - articles in leading journals (1900-39) versus PhDs and almost completed dissertations (1970s) - it is interesting to observe what is different in gender imbalance between the start of the century and the march to its conclusion reflected in the Strober and Reagan (1976) findings. In terms of the ten broad *Journal of Economic Literature* classifications, the more female intensive areas (as measured by an FMI > 100) in some respects show remarkably little change over the century in terms of areas of female specialisation. Labour Economics and Social Policy remain the most female intensive areas of research in economics, their low numerical ranking in the *Journal of*

TABLE 2: Gender Balance of Articles by Sub-Discipline as Defined by the Index of Economic Articles 1900-1939.

Sub-Discipline	Female		Male		Number ^(a)
	Number	Percent	Number	Percent	
1. Scope and method of Economics	1	0.6	158	99.4	159
2. Economic Theory including Monetary Theory	32	4.0	752	94.5	796
3. Economic Systems, Planning	8	10.7	66	88.0	75
4. History of Economic Thought	4	3.1	124	96.1	129
5. Economic History	8	12.9	53	85.5	62
6. General Contemporary Economic Conditions, Policy, Planning	2	2.9	65	92.9	70
7. Mathematical, Statistical	1	2.4	41	97.6	42
8. Social Accounting, Statistical Data	1	2.0	47	90.4	52
9. Money, Credit and Banking	8	1.5	500	95.8	522
10. Public Finance	14	4.5	287	92.9	309
11. International Economics	11	2.3	452	96.2	470
12. Economic Fluctuations, Stabilisation Policy	1	1.6	59	93.7	63
13. War and Defence Economics	12	6.7	159	88.8	179
14. Business Organisation, Managerial Economics	2	1.3	153	98.7	155
15. Industrial Organisation and Public Policy	41	4.6	829	93.9	883
16. Agriculture	11	4.8	209	91.7	228
17. Natural Resources, Land Economics	5	6.7	68	90.7	75
18. Population	3	3.5	82	96.5	85
19. Labour Economics	82	16.7	397	81.0	490
20. Consumer Economics	9	33.3	17	63.0	27
21. Health, Education, Welfare	15	19.7	60	78.9	76
22. Regional Planning, Development, Housing	2	7.4	24	88.9	27
23. Unclassified	-	-	19	95.0	20
TOTAL ^(b)	222	5.4	3813	92.6	4117

(a) Totals including articles by persons with unidentified gender, hence female/male percentages do not always add.

(b) Totals do not add because of double counting.

TABLE 3: Male and Female Economists by Speciality as disclosed by PhD and all but completed dissertations (1970s) and by published articles (1900-1939)

Journal of Economic Literature subject category	1900-39				1970s
	(1)	(2)	(3)	(4)*	(5)
	Male	Female	FMI	FMI Corrected to FMO = 100	FMI
000: General Economics, Theory, History, Systems (1,2,3,4):	1100	45	4.09	72.1	114.6
100: Growth, Development, Planning, Fluctuations (5,6,12,13):	336	23	6.85	120.7	114.6
200: Economic Statistics (7):	41	1	2.44	43.0	74.3
300: Domestic Monetary and Fiscal Theory and Institutions (8, 9,10):	834	23	2.76	48.7	71.7
400: International Economics (11):	452	11	2.43	42.8	122.6
500: Business and Finance, Marketing and Accounting (14):	153	2	1.31	23.1	47.6
600: Industrial Organisation, Technical Change, Industry Studies (15):	829	41	4.95	87.3	58.9
700: Agriculture, National Resources (16, 17):	277	16	5.78	101.9	48.4
800: Manpower, Labour, Education (18,19):	479	85	17.75	312.8	152.9
900: Welfare, Consumer Economics, Regional Economics (20,21,22):	101	26	25.74	447.7	135.3
FMO:	1040	59	5.673	100.0	100.0

Notes: * (4) = (3) x 17.62736

Source: 1900-39 (1-4): Table 2; 1970s (5): Strober and Reagan, 1976, Table 2.

Economic Literature list surely no coincidence; with Growth, Development, Planning and Fluctuations the third in the list from the earlier period, fourth (together with General Economic Theory, History and Systems) in the 1970s. The 1970s also show that low female intensity of specialisation in international economics research for 1900-39 has been reversed while the same applies in the opposite direction (but far less significantly) to agriculture and natural resources. This very rough comparison suggests modest extensions in the range of women's specialisations in economics by the end of the century and some drastic reductions in the very high levels of intensity of specialisation in the distinctly 'female' areas of research (cf. Marshall) of Labour Economics and Social Welfare, Work and Theory.¹⁹

This last point enables further exploration of a feature of female economic specialisation obfuscated in Table 3 by its different units of measurement²⁰, though Strober and Reagan (1976, p. 305) are fully aware of this implication of the analysis. The very high intensity measures for Labour Economics and Social Policy recorded for 1900-39 reflect an encouragement, push and natural inclination of women to enter these fields, as Marshall had argued on the basis of his sexual division of labour in economics model. This tendency is also seen in the creation of a new specialisation of "Home Economics" (embracing labour and social issues) which developed at United States universities during the early decades of the twentieth century. Solomon (1985, pp. 86-7) has argued that, "individuals were too often shunted into that Department [Home Economics] of their institutions rather than being allowed to assume faculty standing in the disciplines in which they were trained. A study in 1911 showed that 60 per cent of women professors in co-educational schools were in home economics."

In any case, this seems to have been the fate of some of the more prominent American women economists in this survey, that is, Jessica Peixotto, Edith Abbott, Eveline Burns, Sophinisma Breckinridge, Helen Hohman and Helen Witmer. Separation in faculty also enabled separation by journal. The Chicago women economists did so explicitly by founding the *Social Science Review* in which to publish their research. Specialist journals in female intensive areas of research explain much of the decline in the proportion of women contributors to the five leading English written journals evident over the period and after (Cf. Cookingham, 1987; Libby, 1990).

The extent to which this was an American phenomenon needs further investigation. In their study of 'Gender, Curriculum and Career' of English women university students before 1914, Howarth and Curthoys indicate that in many ways "women were freer [than men] to choose what subject they wanted to read at

university, to do whatever they pleased" though in practice this freedom was limited by the negative constraint that "it did not make sense [for women] to read a vocational subject which prepared students for professions that were closed to [them]." (Howarth and Curthoys, 1987, p. 10). This Catch 22 in educational freedom makes it difficult to decide whether the area of social or home economics was the field in which most women students of economics were interested or if it simply reflected the reality that it was the major career path open to them at the time. However, a tendency of women to specialise in areas of economics designed "to help people", can also explain the concentration of women in specialisations associated with the reduction of poverty, suffering and increasing social justice, such as labour economics, medical economics, economics of welfare programs and economic development (Strober and Reagan, 1976, p. 307). Whether this is irrespective of the degree of foresight women use in occupational choice, important in economics to secure the requisite degree of mathematical training, is problematical. What our research does disclose is that the areas which made women contributors to the journals as prominent as they were in our period enabled the reduction of that prominence by the elimination of these topics from those published in the leading mainstream journals.

IV

What other conclusions can be offered? First of all, the research enables identification of the large number of women labouring in economic research in the early years of the professionalisation of economics. This leads us to echo the sentiments expressed in this context for Australia by Cass et al. (1983, Chapter 9), 'How so Many?' rather than "Why so Few?", given the enormous barriers that existed to women doing academic research in economics over this period. More importantly, this way of observing the matter allows us to point to the fact that in some respects relative contributions to economic journals by women have declined, both over our period and subsequently. The reasons for this are complex, and need further research beyond what is offered here at this stage.

A second important result from this identification of the female cadres operating in economic research over these decades is to raise the question why so many of these pioneers seem to have been forgotten or have dropped from history, in some cases quite underservedly (Amy Hewes and Anna Youngman are good examples for reasons already discussed). To put it in another way, the relative proportion of women included in the *Palgraves*, new or old, and in *Who's Who in Economics*, seems

to be far below their relative performance in the journals, at least as recorded here. This difference in female participation seems to depend rather more on the subjective judgement of what is regarded as important in economic research than on any objective measures of the importance of specific economic investigations. Given the areas of economics concerned with "helping people" on which women have concentrated in their economic studies, a value system which gives fewer rewards to abstruse theorems of pure theory and more to socially useful applied work is one way to somewhat redress the imbalance. Such a change in values would probably have been applauded by the dominant male figure in economics at the turn of the nineteenth century, with whose views this paper started, at least if he practiced what he preached in his *Principles*.

Needless to say, many other questions remain unanswered. How, for example is the Joan Robinson phenomenon to be explained? An aberration, or? Why so few, if that is indeed the case, female contributors to economics from continental Europe since the few examples observable in our study (of which Karin Kock was our striking example) fall relatively well below their male counterparts in this respect. What drove these women into economics? More intensive biographical research seems here the real answer, something which one of us intends to pursue in more detail for this particular cohort. What drove them out of the leading journals in relative terms? Hints on this were given, but there is still relatively little of a definitive answer to this important question. It seems appropriate to end with a quote from the doyen of women contributors to theoretical economics, Joan Robinson, who in this, as in so many cases of other economic inquiry, would have pertinently argued, "there is much work still to do!"

NOTES

- * Research support from a grant by the Australian Research Council, here gratefully acknowledged, for research dealing with general trends in twentieth century economics, provided initial inspiration for this study. Susan King conducted much of the basic research for the paper, the need for which was demonstrated to us from research conducted in connection with Groenewegen (1994a). Dr. David King's valuable computing assistance is also gratefully acknowledged.
- 1. This explains his rather peculiar and most unequal intellectual partnership with his wife, Mary Paley Marshall, recounted in Groenewegen (1993, esp. pp. 94-106). It likewise gives colour to Mary Paley's delightful reception of Joan Robinson's *Theory of Imperfect Competition* in 1933 on the ground that this so clearly proved 'Alfred's' hypothesis on this subject to have been wrong (cited in Harcourt, 1982, p. 349). A more detailed discussion of Marshall's attitudes to women and the sexual division of labour is provided in a forthcoming biography of Marshall (Groenewegen, 1994b).
- 2. The note which Beatrice Webb later appended to this entry which she reproduced in her autobiographical, *My Apprenticeship* (Beatrice Webb, 1938, p. 399 n1) should also be reproduced since it suggests a touch of bias in the treatment of the sexual division of labour by the Cambridge Professor.

I confess to a certain *Schadenfreude* in reading the following extract from an obituary appreciation of Professor Marshall by Professor C.R. Fay, a favourite pupil, now the well-known economist and writer on Co-operation, as proving that, ten years after publication, my little book still interested him!

"Gradually I arrived at my subject - Co-operation." recalls Professor Fay. "I was under a bond with him to write down, on a separate page in my notebook, the proposed title, altering it each week till it fitted my ambition. At last it became 'Co-operation at Home and Abroad, an analysis and description'. His only fear was that I should be over-influenced by a pernicious book written by Beatrice Potter on this subject." (*The Canadian Forum*, p. 147, 1925.)
- 3. When Beatrice Potter (Webb) applied to the Labour Commission of which Alfred Marshall was a member, for one of the positions of Lady Assistant

Labour Commissioner, appointed for the special purpose of investigating issues associated with female labour, her application was rejected, on her own account, because of her socialism (Beatrice Potter to Alfred Marshall, 20 January 1892, Passfield Papers III(ii) 116, British Library of Economic and Political Science). Whether, in the light of his 1888 advice, Marshall pleaded on her behalf with his fellow commissioners for her employment, is not recorded.

4. The inaugural meeting of the British Economic Association chaired by Alfred Marshall drew no less than ten women mentioned by name in the reported proceedings (*Economic Journal* 1 (1) March 1890, p. 3), namely the Misses Borchardt, Mrs. Bryant D.Sc., Miss Clara Collet, Mrs. Fawcett, Miss Caroline Foley M.A., Miss Ada Heather-Bigg, Miss Octavia Hill, Miss Constance Jones and Mary Paley Marshall.
5. For an indication of the openness of this editorial policy, see Kadish and Freeman (1990) and Groenewegen (1994b) Chapter 13.
6. The study therefore includes the five journals in the English-speaking world which published for the greater part of the period, omitting however later journals, largely founded during the 1930s. These were, with foundation year indicated in brackets, *Econometrica* (1933), *Manchester School* (1930), *Review of Economics and Statistics* (1919), *Review of Economic Studies* (1933) and *Oxford Economic Papers* (1938).
7. If the very high female contribution rate to *Economica* (19.8 per cent) is excluded for 1920-24, the average rate for the journals on aggregate drops to 5.39 per cent, comparable to the percentage of 5.49 recorded for the following period, and thereby virtually eliminating the second peak.
8. We would be delighted if readers of this paper can provide us with clues about possible sources of information about these women which have escaped us, sending them to us c/- Department of Economics, University of Sydney, Sydney, NSW 2006, Australia.
9. A national disaster was feared "if the most intelligent women turned to education and career rather than marriage and childbearing" (Burstyn, 1984, p. 70), partly because of contemporary medical fears that prolonged study would

seriously impair female gynaecological functions. For Marshall's reasons for such possible national disaster from women's turning away from marriage, see Groenewegen (1994a, Chapter 4, especially, pp. 95-106). A prominent psychologist associated with Colombia University, James McKeen Cattell argued, "It is probably not an exaggeration to say that to the average cost of each girl's education through high school must be added an unborn child" (cited by Rosenberg, 1982, p. 89). More generally, the popular press caricatured "women intellectuals" as "ugly, mannish and sexually deviant" (Dyhouse, 1984, p. 58).

10. See Rita McWilliams-Tullberg (1975) for the scandalous situation which persisted at the University of Cambridge in this matter until after the second world war.
11. It is sad to note that the next half century saw relatively little progress in the situation. For example, Acker (1984) reports that in Britain in 1980-81 women comprised 2.7 per cent of the total professoriate. Aziz (1990, p. 37) reports that a 1988 survey of the situation at Cambridge stated that "forty years after the admission of women [to membership] of the University and 16 years after the first admission of women to some of the men's colleges, women are [only] a tiny minority among both academic and administrative staff." For a detailed analysis of the Australian situation, see Cass et al. (1983).
12. Other male high-flyers as measured by the number of journal articles they produced included Cannan and Davenport (27), Frank Knight and Maynard Keynes (25), Laughlin (22), Edgeworth, Fetter and Carver (21), J.M. Clark, D.H. Macgregor, Wesley Mitchell and H.G. Moulton (20), Paul Douglas, A.L. Bowley and H. Parker Wills (20). Commons and D.H. Robertson had by then written 17, Hawtrey and William Beveridge (15), Robbins (14), Seligman (13), Hayek (12), Viner, Veblen and Allyn Young (11), while those with 10 articles to their credit included Hicks, Hansen and Lerner of the new generation, Chapman and H.L. Moore of the old.
13. Pasinetti (1987, p. 212) reports in the context of Joan Robinson's relatively slow rise in the Cambridge Faculty hierarchy that "it was suggested in Cambridge that the fact that her husband was in the same faculty kept her back at all stages of her academic career." American practice before World War II

prevented this from happening: if a husband is employed as a member of faculty, the wife cannot be hired in a tenured position (cf. Libby, 1990).

14. For classificatory purposes, a mathematical article was defined as one using equations for establishing the main argument; a theoretical article required abstract reasoning; an econometric paper required regression analysis. Statistical articles were classified as such if they relied heavily on the use of statistical data, hence use of statistical method was not a necessary criteria for this category. Needless to say, double counting is a problem when drawing comparisons since many articles can be placed into two or more of these categories. See also note 15 below.
15. The frequent references to Elizabeth Gilboy's contributions illustrate the double counting possibilities to which this classificatory scheme is prone, with some of her articles, for example, potentially being mathematical, statistical, econometric and historical at the same time.
16. Overlapping categories in Tables 1 and 2 agree reasonably well with respect to theoretical and historical contributions by women (less well for men) but not with mathematical and statistical contributions where the classificatory criteria are clearly different, being more lax on those used in the construction of the data for Table 1.
17. That is, relatively to the total number of observations, not articles, which do not match because of double counting in the classification scheme of the *Index of Economic Articles*.
18. Industrial Organisation and Public Policy contributions by women were largely devoted to industry studies with the sole exception of Joan Robinson's papers devoted to theory of market structure.
19. It should be noted that Strober and Reagan (1976, p. 311) explain the decline in welfare programs etc. (900) in the 1970s to increased male interest in urban economics because of the high demand for urban economists.
20. Articles in the five leading economic journals for the English-speaking world as compared with completed Ph.D's and dissertations in progress. As shown

subsequently, the 'leading' as descriptor of economic journals is significant in this context.

REFERENCES

- Acker, Sandra (1984), 'Women in Higher Education: What is the Problem', in Sandra Acker and David Piper, eds., *Is Higher Education Fair to Women*, London, Nelson.
- Aziz, Adrienne (1990), 'Women in UK Universities - the Road to Casualisation', in Suzanne Lie and Virginia O'Leary, eds., *Storming the Tower - Women in the Academic World*, London, Nichols/GP Publishing.
- Berch, D. (1987), 'Sophonisba Preston Brickinridge 1866-1948', *The New Palgrave Dictionary of Economics*, eds., John Eatwell, Murray Milgate, Peter Newman, London, Macmillan, vol. 1, p. 275.
- Blitz, RC. (1974), 'Women in the Professions 1870-1970', *Monthly Labour Review*, May, 34-39.
- Burstyn, Joan (1984), 'Educator's Response to Scientific and Medical Studies of Women in England 1860-1890', in Sandra Acker and David Piper, eds., *Is Higher Education Fair to Women*, London, Nelson.
- Cass, Bettina et al. (1983), *Why So Few? Women Academics in Australian Universities*, Sydney, Sydney University Press.
- Coats, A.W. (1969), 'The American Economic Association's Publications: An Historical Perspective', *Journal of Economic Literature* 7(1) March, 57-68.
- Coats, A.W. (1971), 'The Role of Scholarly Journals in the History of Economic Thought: An Essay', *Journal of Economic Literature* (9)1 March, 19-44.
- Cookingham, Mary (1987), 'Social Economists and Reform: Berkeley 1906-61', *History of Political Economy* 19(1), Spring, 47-66.
- Dyhouse, Carol (1984), 'Storming the Citadel or Storm in a Teacup. The Entry of Women into Higher Education 1860-1920', in Sandra Acker and David Piper, eds., *Is Higher Education Fair to Women*, London, Nelson.
- Ellis, Howard S. (1941), 'Frank William Taussig, 1859-1940', *American Economic Review*, 31(1), March, pp. 209-11.
- Groenewegen, Peter (1993), 'A Weird and Wonderful Partnership: Mary Paley and Alfred Marshall 1877-1924', *History of Economic Ideas* 1(1), 71-109.
- Groenewegen, Peter, ed. (1994a), *Feminism and Political Economy in Victorian England*, Aldershot, Elgar.
- Groenewegen, Peter (1994b), *A Soaring Eagle: Alfred Marshall 1842-1924*, Aldershot, Elgar (forthcoming).
- Harcourt, G.C. (1982), *The Social Science Imperialist. Selected Essays*, edited Prue Kerr, London, Routledge and Kegan Paul.
- Howarth, Janet and Mark Curthoys (1987), 'Gender, Curriculum and Career: A Case Study of Women University Students in England before 1914', in *Women Education and the Professions*, Occasional Publications No. 8, pp. 4-20.
- Kerr, Prue (1987), 'Edith Abbott (1876-1957)', *The New Palgrave Dictionary of Economics*, John Eatwell, Murray Milgate, Peter Newman, eds., London, Macmillan, Vol. 1, p. 1.
- Libby, Barbara (1984), 'Women in Economics before 1940', *Essays in Economics and Business History*, III, 273-90.
- Libby, Barbara (1987), 'Statistical Analysis of Women in the Economics Profession', *Essays in Economics and Business History*, V, pp. 179-89.
- Libby, Barbara (1990), 'Women in the Economics Profession 1900-1940: Factors in Declining Visibility', *Essays in Economics and Business History*, VIII, pp. 121-30.
- MacDowell, John (1982), 'Obsolescence of Knowledge and Career Publication Profiles: Some Evidence of Difference among Fields in Costs of Interrupted Careers', *American Economic Review*, 72 (4), Sept, pp. 752-68.

McWilliams-Tullberg, Rita (1975), *A Men's University - though of a Mixed Type. Women at Cambridge*, London, Gollancz.

Myrdal, Gunnar (1934), *Finanspolitikens ekonomiska verkningar*, Stockholm, P.A. Norstedt.

Nerad, Maresi (1987), 'Coping with Women Students: Women Coping with the University', *Women Education and the Professions*, Occasional Publications No. 8, 21-36.

Newcomer, Mabel (1959), *A Century of Higher Education*, New York, Harper and Row.

Pasinetti, L.L. (1987), 'Joan Violet Robinson (1903-1983)', *The New Palgrave Dictionary of Economics*, eds., John Eatwell, Murray Milgate, Peter Newman, London, Macmillan, Vol. 3, p. 212-7.

Rosenberg, Rosalind (1982), *Beyond Separate Spheres*, New Haven, Yale University Press.

Schumpeter, J.A. et al. (1941), 'Frank William Taussig', *Quarterly Journal of Economics* 50(3), 3 May, pp. 337-63.

Sexton, Patricia (1976), *Women in Education*, Phi Beta Kappa Educational Foundation.

Solomon, Barbara (1985), *In the Company of Educated Women*, New Haven, Yale University Press.

Stigler, G.J. and Clare Friendland ([1979]. 1983), 'The Pattern of Citation Practices in Economics', *History of Political Economy* 11, 1979, in G.J. Stigler, *The Economist as Preacher*, Oxford, Blackwell, 173-191.

Strachey, Ray (1937), *Careers and Openings for Women*, London, Faber and Faber.

Strober, Myra (1975), 'Women Economists: Career Aspirations, Education and Training', *American Economic Review* 65(2), May, 92-99.

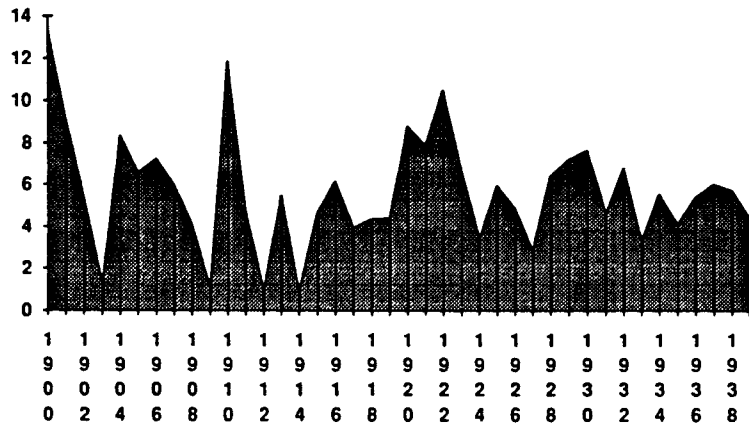
Strober, Myra and Reagan, Barbara B (1976), 'Sex Differences in Economists, Fields of Specialisation', *Signs* 3(2), 303-17.

Webb, Beatrice (1938), *My Apprenticeship*, Harmondsworth, Pelican Books.

Zimmeck, Meta (1987), 'We are all Professionals Now: Professionalisation, Education and Gender in the Civil Service, 1873-1939', in *Women, Education and the Professions*, Occasional Publications, No. 8, 61-76.

APPENDIX

Figure A.1: % female articles in five journals 1900-1939



Source: Survey data of economic articles in *Quarterly Journal of Economics*, *American Economic Review*, *Journal of Political Economy*, *Economica* and *Economic Journal*.

TABLE A.1: % Female Articles in Five Journals 1900-1939

Year	Female Articles	Total Articles	Percentage
1900	2	15	13.33%
1901	8	66	12.12%
1902	4	75	5.33%
1903	1	78	1.28%
1904	7	84	8.33%
1905	5	76	6.58%
1906	6	83	7.23%
1907	5	84	5.96%
1908	3	73	4.11%
1909	1	91	1.10%
1910	8	78	11.84%
1911	5	105	4.76%
1912	1	102	0.98%
1913	6	110	5.45%
1914	1	108	0.93%
1915	5	108	4.63%
1916	7	114	6.14%
1917	4	101	3.96%
1918	4	92	4.35%
1919	4	91	4.40%
1920	7	108	6.50%
1921	9	114	7.89%
1922	11	105	10.48%
1923	8	120	6.67%
1924	4	116	3.45%
1925	7	118	5.93%
1926	5	103	4.85%
1927	3	105	2.86%
1928	7	108	6.42%
1929	8	111	7.21%
1930	9	118	7.63%
1931	5	108	4.63%
1932	8	118	6.78%
1933	4	120	3.33%
1934	7	127	5.51%
1935	5	122	4.10%
1936	7	130	5.38%
1937	7	140	5.00%
1938	8	140	5.71%
1939	7	158	4.43%

Source: Survey data of economic articles in *Quarterly Journal of Economics*, *American Economic Review*, *Journal of Political Economy*, *Economica* and *Economic Journal*.

TABLE A.2: Female Journal Contributors by Occupation: 1900-1939

Author Type	Surname	Initials	Occupation
Academic	Abbott	Edith	University of Chicago (1919)
Academic	Abrams	Annie	Tutor, social sciences, LSE
Academic	Anstey	Vera	LSE appointed, 1921
Academic	Baker	Elizabeth F.	Barnard College Columbia
Academic	Bezanson	Anna	Radcliffe / University of Pasadena
Academic	Brandee	Elizabeth	University of Wisconsin
Academic	Brockbridge	Sophonisba Prael	University of Chicago
Academic	Brown	E. C.	Wellesley College
Academic	Burns	E. M.	Columbia university / NY School of Social Work
Academic	Clark	B. W.	University of Chicago
Academic	Clark	M. R.	University of Nebraska
Academic	Cohen	Ruth	Agricultural Research Institute Oxford, followed by Cambridge
Academic	Coman	Katherine	Wellesley
Academic	Comish	Alison	Iowa State
Academic	Comstock	A. P.	Columbia University
Academic	Coon	Shirley	University of Washington
Academic	Dietrich	Ethel Barbara	Brownell Hall, Omaha Nebraska
Academic	Douglas	D. W.	Smith College
Academic	England	Minnie T.	University Nebraska
Academic	Fisher	Lellie	Tutor at Cambridge
Academic	Fogg-meade	Emily	University of Pennsylvania
Academic	Gilboy	Elizabeth W.	Radcliffe
Academic	Grier	Lynda	University Of Leeds, then Oxford.
Academic	Griffin	Claire Elmer	Michigan
Academic	Haskins	Miss	Tutor social science Dept University of London
Academic	Hazard	Blanche	Radcliffe College
Academic	Hewart	Beatrice	LSE
Academic	Hewes	Amy	Holyoke College
Academic	Hofman	Helen Fisher	Chicago University, also Northwestern University
Academic	Holland	M. Tappan	Girton College, Cambridge
Academic	Hutchinson	Ruth Gillette	Vassar College
Academic	Jennings	H. C.	Bryn Mawr, then Wheaton College Massachusetts.
Academic	Knowles	Lilian	University of London
Academic	Lough	S. M.	Westhampton College Richmond.
Academic	Lowenthal	Esther	Smith College
Academic	MacDonald	Lois	New York University
Academic	MacKenzie	Miss	LSE
Academic	Makower	Helen	Institute of Statistics Oxford
Academic	Marshall	Dorothy	Girton College, Cambridge, Cornell, London, Durham, Wales and Wellesley
Academic	Newcomer	Mabel	Vassar College
Academic	Otson	Helen	University of Texas
Academic	Palmer	Gladys Louise	Hollins College
Academic	Petrollo	Jessica Blanche	University of California
Academic	Power	Eileen	Cambridge, Girton College, lecturer in Oriental Studies
Academic	Robbins	Helen	University of Chicago
Academic	Robinson	Joan	Cambridge
Academic	Sorenson	Helen	Harvard University
Academic	Southworth	Shirley Donald	Princeton/ Colorado/ Princeton
Academic	Stecker	Margaret L.	Cornell in 1924 on res. staff National Industrial Conference Board
Academic	Stock	Mrs M.	LSE
Academic	Trepp	Jean Carol	Sarah Lawrence College, Bronxville NY
Academic	Ware	Caroline Farrar	Radcliffe
Academic	Webb	Ursula	Oxford
Academic	Wergeland	A. M.	University of Illinois, Chicago and Wyoming
Academic	Wimer	H. L.	Smith College - Social Work
Academic	Woodhouse	C. G.	US Bureau of Home Economics/ Professor Economics, Womens Coll, Carolina
Academic	Wootton	Barbara	Cambridge
Academic	Wunderlich	Frieda	NRRS
Academic	Yaple	Maione	Harvard University
Academic	Youngman	Anna	Columbia
Ambivalent	Bosquet	Helen	Extension Lecturer and writer
Ambivalent	Dulles	Eleanor Lansing	Diplomat and economist with the Dept of State
Ambivalent	Keck	Karin	Stockholm University, and Swedish Gov. minister
Non Academic	Bacon	L. B.	Farm Foundation Chicago

Author Type	Surname	Initials	Occupation
Non Academic	Black	Clementina	Woman activist, social worker
Non Academic	Charles	Erud	Census Research Specialist Ottawa
Non Academic	Curtis	Myra	British Civil Servant 1915-41
Non Academic	Fawcett	Millicent	Social activist
Non Academic	Fleurer	J.	Librarian
Non Academic	George	M. D.	Writer
Non Academic	Goodman	Pearl	Involved in the shirt-waist trade.
Non Academic	Grant	Miss J. F.	Writer on Scottish history and folklore
Non Academic	Hill	Caroline	Social Settlement worker
Non Academic	Hogg	M. H.	Assistant statistician
Non Academic	Hutchins	Miss B. L.	Social activist
Non Academic	Kelley	Florence	Journalist and author, reformer and social worker
Non Academic	Kiehel	Constance Amelia	Public servant, Washington DC
Non Academic	Lee	A. L.	Teacher of English and History
Non Academic	Lewis	Cleona	Printing Industry
Non Academic	Lorgan	Edna	Washington DC
Non Academic	Miller	Miss M. S.	Assistant Statistician Industrial Commission, Ohio
Non Academic	Potter	Dorothy S.	Lady Potter, member of various Commissions.
Non Academic	Powell	Leona	NY Employing Printers Association
Non Academic	Rathbone	Eleanor	British feminist, National Union Womens Suffrage Societies
Non Academic	Reynard	Helene	Director of a Wool Company 1914-1922
Non Academic	Smith	Constance	Teacher of mathematics
Non Academic	Stone	Winifred M.	Writer, wrote jointly with husband Richard
Non Academic	Ueland	Elsa	Shirt waist trade
Non Academic	Webb	Beatrice	Writer, socialist and reformer
Non Academic	Wilson	Mona	Secretary of Trade Union Womens League
Non Academic	Winslow	E. A.	Govt. official, although some time lecturer at Columbia
Non Academic	Young	Ruth	School teacher
Unknown	Braithwaite	Dorothea	
Unknown	Dodd	Agnes F.	
Unknown	Fugge	Eva	
Unknown	Friedlander	Lilian M.	
Unknown	Goddard	Isabel	
Unknown	Graham	J. G.	
Unknown	Jebb	Miss Louisa	
Unknown	Jevons	H. W.	
Unknown	Killedredge	Dorothea Davis	
Unknown	Lamberton	Frances	
Unknown	Lander	Beatrice	
Unknown	Lapham	Ellis C.	
Unknown	Orchard	Dorothea J.	
Unknown	Rhys-david	C. A. F.	
Unknown	Stein	R. M.	
Unknown	Teller	Charlotte	
Unknown	Vlasto	Olga	
Unknown	Wamner	Doreen	
Unknown	Whitney	Caroline	
Unknown	Zimmer	Dorothy	

Source: Survey data of economic articles in *Quarterly Journal of Economics*, *American Economic Review*, *Journal of Political Economy*, *Economica* and *Economic Journal*, and major biographical directories and reference books.

**Working Papers
in Economics**

- 153 B. Rao A Disequilibrium Approach to the New Classical Model; December 1990
- 154 J.B. Towe The Determinants of American Equity Investment in Australia; December 1990
- 155 E. Jones Economists, The State and The Capitalist Dynamic; January 1991
- 156 I.J. Irvine & W.A. Sims Gorman Polar Forms and the S-Branch Utility Tree; February 1991
- 157 B. Rao A Model of Income, Unemployment and Inflation for the U.S.A.; February 1991
- 158 W.P. Hogan New Banks: Impact and Response; March 1991
- 159 P.D. Groenewegen Decentralising Tax Revenues: Recent Initiatives in Australian Federalism; April 1991
- 160 C. Karfakis Monetary Policy and the Velocity of Money in Greece: A Cointegration Approach; July 1991
- 161 B. Rao Disaggregation, Disequilibrium and the New Classical Model; July 1991
- 162 Y. Varoufakis Postmodern Challenges to Game Theory; August 1991
- 163 Y. Varoufakis Freedom within Reason from Axioms to Marxian Praxis; August 1991
- 164 D.J. Wright Permanent vs. Temporary Infant Industry Assistance; September 1991
- 165 C. Karfakis & A.J. Phipps Covered Interest Parity and the Efficiency of the Australian Dollar Forward Market: A Cointegration Analysis Using Daily Data; November 1991
- 166 W. Jack Pollution Control Versus Abatement: Implications for Taxation Under Asymmetric Information; November 1991
- 167 C. Karfakis & A. Parikh Exchange Rate Convenience and Market Efficiency; December 1991
- 168 W. Jack An Application of Optimal Tax Theory to the Regulation of a Duopoly; December 1991
- 169 I.J. Irvine & W.A. Sims The Welfare Effects of Alcohol Taxation; December 1991
- 170 B. Fritsch Energy and Environment in Terms of Evolutionary Economics; January 1992
- 171 W.P. Hogan Financial Deregulation: Fact and Fantasy; January 1992
- 172 P.T. Vipraio An Evolutionary Approach to International Expansion: A Study for an Italian Region; January 1992
- 173 C. Rose Equilibrium and Adverse Selection; February 1992
- 174 D.J. Wright Incentives, Protection and Time Consistency; April 1992
- 175 A.J. Phipps, J. Sheen & C. Wilkins The Slowdown in Australian Productivity Growth: Some Aggregated and Disaggregated Evidence; April 1992
- 176 J.B. Towe Aspects of the Japanese Equity Investment in Australia; June 1992
- 177 P.D. Groenewegen Alfred Marshall and the Labour Commission 1891-1894; July 1992
- 178 D.J. Wright Television Advertising Regulation and Programme Quality; August 1992
- 179 S. Ziss Moral Hazard with Cost and Revenue Signals; December 1992

- 180 C. Rose The Distributional Approach to Exchange Rate Target Zones; December 1992
- 181 W.P. Hogan Markets for Illicit Drugs; January 1993
- 182 E. Jones The Macroeconomic Fetish in Anglo-American Economies; January 1993
- 183 F. Gill Statistics in the Social Sciences A Mixed Blessing? March 1993
- 184 Y. Varoufakis & S. Hargreaves-Heap The Simultaneous Evolution of Social Roles and of Cooperation; April 1993
- 185 C. Karfakis & D.M. Moschos The Information Content of the Yield Curve in Australia; April 1993
- 186 C. Karfakis & A. Parikh Uncovered Interest Parity Hypothesis for Major Currencies; May 1993
- 187 C. Karfakis & A.J. Phipps Do Movements in the Forward Discount on the Australian Dollar Predict Movements in Domestic Interest Rates? Evidence from a Time Series Analysis of Covered Interest Parity in Australia in the late 1980s; May 1993
- 188 J.B. Towe Citation Analysis of Publications on the Australian Tariff Debate, 1946-1991; August 1993
- 189 C. Karfakis & S-J Kim Exchange Rates, Interest Rates and Current Account News: Some Evidence from Australia; September 1993
- 190 A.J. Phipps & J.R. Sheen Unionisation, Industrial Relations and Labour Productivity Growth in Australia: A Pooled Time-Series/Cross-Section Analysis of TFP Growth; September 1993
- 191 W.P. Hogan Market Value Accounting in the Financial Sector; November 1993
- 192 Y. Varoufakis & W. Kafourous The Transferability of Property Rights and the Scope of Industrial Relations' Legislation: Some Lessons from the NSW Road Transport Industry; November 1993
- 193 P.D. Groenewegen Jacob Viner and the History of Economic Thought; January 1994
- 194 D. Dutta & A. Hussain A Model of Share-Cropping with Interlinked Markets in a Dual Agrarian Economy; March 1994
- 195 P.E. Korsvold Hedging Efficiency of Forward and Option Currency Contracts; March 1994
- 196 J. Yates Housing and Taxation: An Overview; March 1994
- 197 P.D. Groenewegen Keynes and Marshall: Methodology, Society and Politics; March 1994
- 198 D.J. Wright Strategic Trade Policy and Signalling with Unobservable Costs; April 1994
- 199 J. Yates Private Finance for Social Housing in Australia; April 1994
- 200 L. Haddad The Disjunction Between Decision-Making and Information Flows: The Case of the Former Planned Economies; April 1994
- 201 P.D. Groenewegen & S. King Women as Producers of Economic Articles: A Statistical Assessment of the Nature and the Extent of Female Participation in Five British and North American Journals 1900-39; June 1994

Copies are available upon request from:

Department of Economics
The University of Sydney
N.S.W. 2006, Australia

Working Papers in Economics Published Elsewhere

- 2 I.G. Sharpe & R.G. Walker *Journal of Accounting Research*, 13(2), Autumn 1975
- 3 N.V. Lam *Journal of the Developing Economies*, 17(1), March 1979
- 4 V.B. Hall & M.L. King *New Zealand Economic Papers*, 10, 1976
- 5 A.J. Phipps *Economic Record*, 53(143), September 1977
- 6 N.V. Lam *Journal of Development Studies*, 14(1), October 1977
- 7 I.G. Sharpe *Australian Journal of Management*, April 1976
- 9 W.P. Hogan *Economic Papers*, 55, The Economic Society of Australia and New Zealand, October 1977
- 12 I.G. Sharpe & P.A. Volker *Economics Letters*, 2, 1979
- 13 I.G. Sharpe & P.A. Volker *Kredit and Kapital*, 12(1), 1979
- 14 W.P. Hogan *Some Calculations in Stability and Inflation*, A.R. Bergström et al (eds.), J. Wiley & Sons, 1978
- 15 F. Gill *Australian Economic Papers*, 19(35), December 1980
- 18 I.G. Sharpe *Journal of Banking and Finance*, 3(1), April 1978
- 21 R.L. Brown *Australian Journal of Management*, 3(1), April 1978
- 23 I.G. Sharpe & P.A. Volker *The Australian Monetary System in the 1970s*, M. Porter (ed.), Supplement to Economic Board 1978
- 24 V.B. Hall *Economic Record*, 56(152), March 1980
- 25 I.G. Sharpe & P.A. Volker *Australian Journal of Management*, October 1979
- 27 W.P. Hogan *Malayan Economic Review*, 24(1), April 1979
- 28 P. Saunders *Australian Economic Papers*, 19(34), June 1980
- 29 W.P. Hogan *Economics Letters*, 6 (1980), 7 (1981)
- I.G. Sharpe & P.A. Volker *Australian Economic Papers*, 18(33), December 1979
- 30 W.P. Hogan *Keynesian Theory, Planning Models, and Quantitative Economics*, G. Gandolfo and F. Marzano (eds.), 1987
- 32 R.W. Bailey, V.B. Hall & P.C.B. Phillips *Australian Economic Papers*, 21(39), December 1982
- 38 U.R. Kohli *Journal of the Operational Research Society* (33) 1982
- 39 G. Mills *Canadian Journal of Economics*, 15(2), May 1982
- 41 U.R. Kohli *Applied Economics*, 15, February 1983
- 42 W.J. Merrilees *Australian Economic Papers*, 20(37), December 1981
- 43 P. Saunders *Canadian Journal of Economics*, 15(3), August 1982
- 45 W.J. Merrilees *Journal of Industrial Economics*, 31, March 1983
- 46 W.J. Merrilees *Review of Economic Studies*, 50(160), January 1983
- 49 U.R. Kohli *Economic Record*, 57(159), December 1981
- 50 P. Saunders

- 53 J. Yates *AFSI, Commissioned Studies and Selected Papers*, AGPS, IV 1982
- 54 J. Yates *Economic Record*, 58(161), June 1982
- 55 G. Mills *Seventh Australian Transport Research Forum-Papers*, Hobart 1982
- 56 V.B. Hall & P. Saunders *Economic Record*, 60(168), March 1984
- 57 P. Saunders *Economic Record*, 59(166), September 1983
- 58 F. Gill *Economie Appliquée*, 37(3-4), 1984
- 59 G. Mills & W. Coleman *Journal of Transport Economics and Policy*, 16(3), September 1982
- 60 J. Yates *Economic Papers*, Special Edition, April 1983
- 61 S.S. Joson *Australian Economic Papers*, 24(44), June 1985
- 62 R.T. Ross *Australian Quarterly*, 56(3), Spring 1984
- 63 W.J. Merrilees *Economic Record*, 59(166), September 1983
- 65 A.J. Phipps *Australian Economic Papers*, 22(41), December 1983
- 67 V.B. Hall *Economics Letters*, 12, 1983
- 69 V.B. Hall *Energy Economics*, 8(2), April 1986
- 70 F. Gill *Australian Quarterly*, 59(2), Winter 1987
- 71 W.J. Merrilees *Australian Economic Papers*, 23(43), December 1984
- 73 C.G.F. Simkin *Singapore Economic Review*, 29(1), April 1984
- 74 J. Yates *Australian Quarterly*, 56(2), Winter 1984
- 77 V.B. Hall *Economics Letters*, 20, 1986
- 78 S.S. Joson *Journal of Policy Modeling*, 8(2), Summer 1986
- 79 R.T. Ross *Economic Record*, 62(178), September 1986
- 81 R.T. Ross *Australian Bulletin of Labour*, 11(4), September 1985
- 82 P.D. Groenewegen *History of Political Economy*, 20(4), Winter 1988 and *Scottish Journal of Political Economy*, 37(1) 1990
- E.M.A. Gross, W.P. Hogan & I.G. Sharpe *Australian Economic Papers*, 27(50), June 1988
- 85 F. Gill *Australian Bulletin of Labour*, 16(4), December 1990
- 94 W.P. Hogan *Company and Securities Law Journal*, 6(1), February 1988
- 95 J. Yates *Urban Studies*, 26, 1989
- 96 B.W. Ross *The Economic and Social Review*, 20(3), April 1989
- 97 F. Gill *Australia's Greatest Asset: Human Resources in the Nineteenth and Twentieth Centuries*, D. Pope (ed.), Federation Press, 1988
- 98 A.J. Phipps *Australian Economic Papers*, 31(58), June 1992
- 99 R.T. Ross *Australian Bulletin of Labour*, 15(1), December 1988
- 100 I. Haddad *Hetsa Bulletin*, (11), Winter 1989
- 101 J. Piggott *Public Sector Economics - A Reader*, P. Hare (ed.), Basil Blackwell, 1988
- 102 J. Carlson & D. Findlay *Journal of Macroeconomics*, 13(1), Winter 1991
- 102 J. Carlson & D. Findlay *Journal of Economics and Business*, 44(1), February 1992

- 104 P.D. Groenewegen *Decentralization, Local Government and Markets: Towards a Post-Welfare Agenda*, R.J. Bennet (ed.) Oxford University Press, 1990
- 107 B.W. Ross *Prometheus*, 6(2), December 1988
- 108 S.S. Joson *Rivista di diritto valutario e di economia internazionale*, 35(2), June 1988
- 112 P. Groenewegen *NeoClassical Economic Theory 1870 to 1930*. K. Hennings and W. Samuels (eds.), Boston Kluwer-Nighoff, 1990
- 113 V.B. Hall
T.P. Truong
V.A. Nguyen *Energy Economics*, 12(4) October 1990
- 114 V.B. Hall
T.P. Truong
& V.A. Nguyen *Australian Economic Review*, (87) 1989(3)
- 115 F. Gill *Australian Journal of Social Issues*, 25(2), May 1990
- 116 G. Kingston *Economics Letters*, 15 (1989)
- 117 V.B. Hall &
D.R. Mills *Pacific and Asian Journal of Energy*, 2(2), December 1988
- 118 W.P. Hogan *Abacus*, 25(2), September 1989
- 120 P. Groenewegen *Flattening the Tax Rate Scale. Alternative Scenarios & Methodologies*, (eds.) J.G. Head and R. Krever, 1990
- 122 W.P. Hogan &
I.G. Sharpe *Economic Analysis and Policy*, 19(1), March 1989
- 123 G. Mills *Journal of Transport Economics and Policy*, 23, May 1989
- 126 F. Gill *The Australian Quarterly*, 61(4), 1989
- 128 S. Lahiri &
J. Sheen *The Economic Journal*, 100(400), 1990
- 130 J. Sheen *Journal of Economic Dynamics and Control*, 16, 1992
- 135 Y. Varoufakis *Économie Appliquée*, 45(1), 1992
- 136 L. Ermini *The Economic Record*, 69(204), March 1993
- 138 D. Wright *Journal of International Economics*, 35, (1/2) 1993
- 139 D. Wright *Australian Economic Papers*, 32, 1993
- 141 P. Groenewegen *Australian Economic Papers*, 31, 1992
- 143 C. Karfakis *Applied Economics*, 23, 1991
- 144 C. Karfakis &
D. Moschos *Journal of Money, Credit and Banking*, 22.(3), 1990
- 147 J. Yates *Housing Studies*, 7, (2), April 1992
- 158 W.P. Hogan *Economic Papers*, 10(1), March 1991
- 159 P.Groenewegen *Local Government and Market Decentralisation: Experiences in Industrialised, Developing and Former Eastern Block Countries*, R. J. Bennett (ed.) UN University Press, 1994
- 160 C. Karfakis *Applied Financial Economics*, 1(3), September 1991
- 162 Y. Varoufakis *Erkenntnis*, 38, 1993
- 163 Y. Varoufakis *Science and Society*, 56(4), 1993
- 173 C. Rose *The Rand Journal of Economics*, 24(4), Winter 1993