

Gendered Innovation in Economics: Marilyn Waring's Approach to Social Science Research

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Abstract

Economics is a social science where women are under-represented in research leadership roles. This paper cites the example of Professor Marilyn Waring and her path-breaking book published in 1988, *If Women Counted: A New Feminist Economics* (also published as *Counting for Nothing: What Men Value and What Women are Worth*). The origins of that book, and the research it required, illustrate how gendered innovation in the social sciences may not fit the Popper-Kuhn-Lakatos model of scientific progress, but can emerge from breaking new ground by a researcher embedded within a community of activists grappling with burning issue of the day. This has implications for economics research agendas focused on human wellbeing, which cannot be blind to the gender of people to be effective.

Keywords: feminist economics, national income accounting, patriarchy.

JEL Codes: E01, B54, P44

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1. Introduction

Economics has found it hard to recognise gendered innovation. Some excellent work is being done to increase understandings of gendered experiences of economic wellbeing (see, for example, the essays in Campbell and Gillespie, 2016), but this research is relatively new. As recently as 1993, for example, when Marianne Ferber and Julie Nelson edited their influential anthology on feminist theory and economics, they called their book *Beyond Economic Man*. That title (which is repeated as the subtitle of Ferber and Nelson, 2003) was a deliberate challenge to the practice still influential in the profession of researching economic questions by modelling choices as if made by a rational agent, allegedly non-gendered, but frequently labelled *Homo Economicus* or Economic Man.

The economics profession has also found it hard to recognise gendered excellence among the innovators. To illustrate, seventy-eight researchers have been awarded the Nobel Prize in Economics, but only one of these has been a woman – Professor Elinor Ostrom (see Ostrom, 2010). Professor Ostrom did not describe herself as an economist; indeed, the Award statement summarising her contribution began with the following telling sentences.¹

As a political scientist Elinor Ostrom's research methods differed from how most economists work. Usually they start with a hypothesis, an assumption of reality, which is then put to the test. Elinor Ostrom started with an actual reality instead. She gathered information through field studies and then analyzed this material.

¹ "Elinor Ostrom – Facts". Nobelprize.org. Nobel Media AB 2014, accessed 18 October 2016 at www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2009/ostrom-facts.html.

Thus, gendered innovation in economics has characteristics that are highly unusual in the social sciences: (1) the recognised research leaders have been dominated by one gender – men; (2) the usual methodology starts with assumptions about reality rather than with observations on actual reality; and (3) those assumptions are typically blind to gender in the model of rational *Homo Economicus*.

The purpose of this paper is to explore these characteristics and their implications, using the example of an outstanding New Zealand economist, Professor Marilyn Waring, who was made a Companion of the New Zealand Order of Merit in 2008 for services to women and economics and was honoured in 2014 with the prestigious NZIER Economics Award.² In 1988, Waring published an early analysis of how gendered innovation moulded how economists define and measure economic progress. Her example is important, not just for the contents of her analysis, but also for *how* Waring came to study her research question and the audience for whom she wrote. This paper contrasts Waring’s approach with the philosophy on scientific enquiry developed by Karl Popper, Thomas Kuhn and Imre Lakatos. It finishes with comments on the future of economics research as a social science, and how it might develop to help people enjoy wellbeing.

2. Scientific Progress

This paper cannot hope to treat comprehensively the large literature on what Karl Popper, Thomas Kuhn and Imre Lakatos respectively called “the logic of scientific discovery” (Popper, 1959), “the structure of scientific revolutions” (Kuhn, 1962) and “the methodology of scientific research programmes” (Lakatos, 1976). Nevertheless, some key elements from these sources, very influential in economics, will serve as a contrast to the research approach taken by Marilyn Waring discussed in sections 3 and 4 of the paper.

Popper (1959, p. 279) described the task of science as making “marvellously imaginative and bold conjectures or ‘anticipations’ ... carefully and soberly controlled by systematic tests”. Recall the Nobel Prize statement cited above about the way in which most economists work: “Usually they start with a hypothesis, an assumption of reality, which is

² See <http://nzier.org.nz/about/economists-award/previous-economics-award-winners/professor-marilyn-waring-2014-economics-award-winner/>.

then put to the test” (see footnote 1 above). This follows the Popperian vision of science. A bold conjecture or new assumption does not arise in a vacuum; Popper himself recognised that “a structure of scientific doctrines is already in existence; and with it, a generally accepted problem-situation” (idem, p. 13). Kuhn later conceptualised this doctrinal structure as a ‘paradigm’, defining *normal science* as solving “all sorts of complex instrumental, conceptual, and mathematical puzzles” within the research community’s prevailing paradigm (Kuhn, 1962, p. 36). From time to time, a crisis of confidence may emerge, creating an environment in which a scientific revolution, or a paradigm shift, may occur (ibid).

Imre Lakatos built on this insight by observing that a scientific theory does not typically stand on its own; rather, “it is a succession of theories and not one given theory which is appraised as scientific or pseudo-scientific” (Lakatos, 1970, p. 47). He noted that “the members of such series of theories are usually connected by a remarkable continuity which welds them into research programmes” (ibid). During a period of normal science, a research programme has a hard core of theories that the research community agrees are irrefutable, at least for the time being, defended by a “protective belt of auxiliary hypotheses which has to bear the brunt of tests and get adjusted and re-adjusted, or even completely replaced, to defend the thus-hardened core” (idem, p. 48). Lakatos argued that this research work is directed by a *positive heuristic* consisting of “a partially articulated set of suggestions or hints on how to change, develop the ‘refutable variants’ of the research programme, how to modify, sophisticate, the ‘refutable’ protective belt” (idem, p. 50).

The above features of scientific progress are standard in economics. The hard core of the economics research programme is taught to undergraduates in a tightly defined syllabus. People who want to be researchers in economics devote further years in postgraduate research to demonstrate their ability to solve puzzles within the paradigm (in Kuhn’s language) or their ability to contribute to developing the protective belt of auxiliary hypothesis around the hard core theories (in the terms used by Lakatos).

Throughout their career, academic economists prepare scientific papers written using a standard structural template of introduction, literature review, methodology, results and conclusion that show the paper’s place in the programme’s positive heuristic. Their scientific

results are communicated to other researchers through publication in journals, with considerable effort being spent on ranking these journals for scientific quality.³

Criticisms have been made of this approach, including by economists (see, for example, the collection of essays edited by Fullbrook, 2003), but this paper does not address that literature directly. As it happens, the authors think the Popper-Kuhn-Lakatos methodology has contributed to our understanding of economic problems, but with some costs – not the least of which have been the restrictions imposed in the dominant research programme’s positive heuristic on what is permitted to be considered ‘economic problems’. This was a key message in Marilyn Waring’s (1988) book and indeed this paper argues that Waring’s project offers an alternative framework for scientific research. The next section therefore describes how Waring came to do her economic research in the mid-1980s, which is contrasted with the Popper-Kuhn-Lakatos narrative in Section 4.

3. Marilyn Waring’s Attack on Patriarchy

Marilyn Waring completed a Bachelor of Arts Honours degree in political science and international politics at Victoria University of Wellington in 1973. The following year, she accepted a research position in the office of the New Zealand National Party and then won selection to contest the Raglan seat on behalf of that Party at the 1975 general election. Thus at the age of 23 Waring was elected to Parliament as the youngest person in the House, and as one of only two women on the government’s side (McCallum, 1993). In her first address to the House as a new Member, Waring promised to advance the interests of the youth and women of New Zealand. This was not easy to do in a policy environment that was dominated by men, as Waring (2015) has recently summarised:

We had a male Cabinet of 19, one of whom was the spokesman on women’s issues, and five male parliamentary under-secretaries. All heads of government departments were men, and while there were nine women private secretaries to Ministers, all 43 principal private secretaries were men.

³ To illustrate, the Australian Business Deans Council maintains a regularly updated “Journal Quality List” that currently sorts 2,778 journals into four categories of A*, A, B and C (see the dedicated website at www.abdc.edu.au/master-journal-list.php).

A particular policy issue promoted by Waring was affordable childcare at a time when socioeconomic factors were a strongly influence on who could access these services (Pollock, 2012, p. 2). Childcare became “a women’s liberation issue” in the 1970s (idem, p. 3), but Waring came up against opposition from her colleagues on the grounds that childcare was a private matter and public policy was expected to focus on economic matters (which decidedly did not include childcare).

At the end of 1978, Waring was appointed chairperson of the Public Expenditure Select Committee, just as New Zealand was updating its National Income and Expenditure Accounts in line with standards set in the United Nations System of National Accounts (UNSNA). This was a key moment for Waring or, in her words, a “rude awakening” (Waring, 1988, pp. 1-2):

I learned that in the UNSNA, the things that I valued about life in my country – its pollution-free environment; its mountain streams with safe drinking water; the accessibility of national parks, walkways, beaches, lakes, kauri and beech forests; the absence of nuclear power and nuclear energy – all counted for nothing. . . . Since the environment effectively counted for nothing, there could be no “value” on policy measures that would ensure its preservation.

Hand in hand with the dismissal of the environment, came evidence of the severe invisibility of women and women’s work. For example, as a politician, I found it virtually impossible to prove – given the production framework with which we were faced – that child care facilities were needed. “Non-producers” (housewives, mothers) who are “inactive” and “unoccupied” cannot, apparently, be in need.

As a Member of Parliament, Waring was invited to travel to other countries; wherever she went she would ask to meet with women about her age to learn about her hosts’ working days. Again and again, Waring found that women were commonly engaged in 16 to 18 hours of daily work that, following the rules set out in the UNSNA, were unrecorded in national accounts. As a consequence that work was generally invisible in economic policy.

Waring served in the New Zealand Parliament for nine years. During her last term, her party ruled with a majority of one seat. Waring maintained a strongly principled standard against the government’s practice of allowing nuclear powered ships to visit New Zealand ports, which put her at odds with the Prime Minister. When that conflict escalated in June

1984, Waring withdrew from caucus and announced she would retire at the election scheduled for later in the year. The Prime Minister used her announcement to call an early election on 14 July, which resulted in a landslide victory to the opposition party. Thus Waring was the catalyst for the change of government that heralded a decade of wide-ranging and internationally significant economic reforms (see Evans *et al*, 1996, and Dalziel, 2002).

Waring had to decide what to do next. While chairperson of the Public Expenditure Select Committee, she had asked her officials to provide her with a copy of UNSNA manual. Her officials advised that there wasn't a copy in New Zealand. Waring asked if they could obtain one from Australia; in due course the officials returned to say there wasn't a copy there either. So Waring decided to travel to New York to study the UNSNA in the Dag Hammarskjöld Library at the United Nations. She was hosted at Rutgers University in New Jersey by the Institute for Research on Women and by the Eagleton Institute of Politics.

At the Dag Hammarskjöld Library, Waring was able to read the original documents for the UNSNA (especially United Nations, 1953). The following quote captured the essence of what she found. The context is that some goods and services produced in a country are not bought and sold in a market, and so their value must be "imputed" if their contribution to the national economy is to be included. There are specific rules on what can and cannot be considered. A good example is where women in a household tend small crops or look after food-producing animals to feed the household family – this is called "primary production for the household's own consumption". The rules said that an imputed value for this could be allowed only if the household was also engaged in farming for market sales (United Nations, 1953, p. 5; emphasis added by Waring, 1988, p. 78):

... no other imputations of this kind are made *since primary production and the consumption of their own produce by non-primary producers is of little or no importance.*

Waring acknowledged the rules had been broadened in the UNSNA (1968) revision, but she had met many women in developing countries who every day spent hours of work in these production activities, which were essential for the subsistence survival of millions of people. Waring (1988, p. 78) therefore denounced the attitude of mind that could produce a sentence like that:

Over the years I have read and reread the last sentence of the above quote. It still makes me gasp for breath. It embodies every aspect of the blindness of patriarchy, its arrogance, its lack of perception – and it enshrines the invisibility and enslavement of women in the economic process as “of little or no importance”.

It is important to draw attention to Marilyn Waring’s use of the word “patriarchy”, which is a key term throughout Waring’s book, particularly in chapter 9 where she concludes from her analysis that the UNSNA is applied patriarchy: “The laws of economics and those that govern the UNSNA are creations of the *male* mind and do not reflect or encompass the reality of the female world (idem, p. 225; emphasis in the original text).

We cannot know, of course, but it is likely that ‘the male minds’ who designed the original architecture of national accounts in the United Kingdom (Colin Clarke, Maynard Keynes, James Meade and Richard Stone; see Tily, 2009) would have been astonished at the criticism. They saw themselves working within a scientific paradigm (which might be called Keynesian macroeconomics following Keynes, 1936) and the decisions they were making about what activities to include within the boundaries of national accounts were perfectly consistent with that paradigm. “What do male and female”, they might have asked, “have to do with Keynesian macroeconomics?”

Waring addressed that issue early in her book. She quoted one of Keynes’s colleagues, Joan Robinson, who had made a distinction between science and ideology (Robinson, 1955, p. 21): “The best way to separate out scientific ideas from ideology is to stand the ideology on its head and see how the ideas look the other way up.” This was Waring’s stated approach – to stand the UNSNA on its head by looking at it from the perspective of activities undertaken predominantly by women for the wellbeing of their households: “if women’s work cannot be successfully incorporated in a system which purports to measure all economic activity, if the system at that point disintegrates, then it is invalid” (Waring, 1988, p. 44). Using that standard, in one of the strongest sentences in the book, Waring concluded that the UNSNA “acts to sustain, in the ideology of patriarchy, the universal enslavement of women and Mother Earth in their productive and reproductive activities” (ibid; see Folbre and Hartmann, 1988, for a contemporaneous analysis of how economists’ approaches to different types of work are a reflection of “ideology and gender in economic theory”).

This diagnosis that the fundamental problem was ideological (rather than only scientific) led to a further implication. Maynard Keynes famously began the preface to *The General Theory* by explaining that the book was chiefly addressed to “fellow economists” and would “deal with difficult questions of theory, and only in the second place with the applications of this theory to practice” (Keynes, 1936, p. v). The purpose and target audience of Waring’s book could scarcely be more different. Her interest in the theory of UNSNA had come from discovering how its *applications* exclude significant aspects of women’s work and the environment’s ecological services. Further, while Waring recognized that some economists, even some *fellow economists*, might be allies (Waring, 1988, pp. 324-5), her book was chiefly addressed to women, as reflected in her final paragraph (*idem*, p. 326):⁴

We women are visible and valuable to each other, and we must, now in our billions, proclaim that visibility and that worth. Our anger must be creatively directed for change. We must remember that true freedom is a world without fear. And if there is still confusion about who will achieve that, then we must each of us walk to a clear pool of water. Look *at* the water. It has value. Now look *into* the water. The woman we see there counts for something. She can help to change the world.

The book introduced her ideas to a wide audience, but Waring’s communication went well beyond that publication. She agreed, for example, to the subject of a 1995 documentary, *Who’s Counting? Marilyn Waring on Sex, Lies and Global Economics* by the National Film Board of Canada (www.nfb.ca/film/whos_counting). She gave keynote addresses around the world and participated in a wide range of initiatives to promote women’s wellbeing in developing and developed countries. She continues to maintain a personal website with key resources available for download (www.marilynwarrior.com).

The essays contained in the recent tribute volume edited by Margunn Bjørnholt and Ailsa McKay (2014), already in its second edition, provide examples of the deep influence that Waring has had on women personally and professionally, all around the world (some summaries are provided in Saunders and Dalziel, 2016). An illustrative example is the following explanation by two Australian women about the impact of Waring’s analysis as a tool for change (Grace and Craig, 2014, p. 213):

⁴ In Australia, Duncan Ironmonger and Michael Bittman are example of enthusiastic male allies; see, for example, Ironmonger (2004) and Bittman and Ironmonger (2011).

We characterise Waring’s work as creating conceptual tools for change because her timely and meaningful ideas became shared concepts in the minds and conversations of the people influenced by her work. These shared understandings became incorporated into the Australian social policy discourse. Many academics, policymakers, politicians and ordinary Australians read and understood Waring’s work, and used her concepts in talking to each other and developing understandings and proposals that have eventually led to change.

4. Gendered Innovation, Paradigms and Ideology

From the above account of Waring’s research, some comparisons can be made with the Popper-Kuhn-Lakatos (hereafter PKL) research framework discussed in Section 2. The key points are listed in Table 1. In the PKL framework, the research context comes from a science community, whereas Waring’s context arose from a social movement. The PKL research motivation is to advance the science community’s research programme; for Waring, the research was to advance the social movement’s mission. An agreed research programme means a PKL researcher can typically rely on the previous literature in a single discipline or field, whereas mission-led research typically requires familiarity with the literature of a wider range of disciplines relevant to the mission. The different purposes also result in different outputs; the dominant form of communication in the PKL framework is publication in journals read by scientists, while Waring’s example illustrates the range of community engagements that are needed to communicate results back to a social movement.

– TABLE 1 PLACED ABOUT HERE –

The previous section of this paper contrasted the Keynesian macroeconomic paradigm that was used to develop national income accounting with Waring’s description of the UNSNA serving the ideology of applied patriarchy. More generally, normal science in the PKL framework works to develop an agreed paradigm (or extend the protective belt of auxiliary hypotheses around the research programme’s hard core), whereas Waring’s research was framed by the opportunity to deconstruct a prevailing and unacknowledged ideology. In the PKL framework, a specific research question arises from a bold conjecture or assumption about reality; Waring’s research question reflected a burning issue for the social movement that needed specific new knowledge to make progress. The remaining two rows in Table 1 record that the two approaches use the same research method (rigorous testing) with comparable goals of making a scientific or a social impact respectively.

To think further about the differences between the two approaches, a comparison can be made with Robert Eisner's (1988) critique of national accounts in the *Journal of Economic Literature* that appeared in the same year as Waring's book. Eisner addressed the economics profession within the standard PKL approach. His section on nonmarket output, particularly household activity, acknowledged "it is reasonable to conjecture that the proportions of income related to non-market output in the home are larger among the poor and among women, the aged, and those on farms or in rural areas" (idem, pp. 1613-1614). He therefore proposed a more inclusive approach, but in a way that would protect the hard core of the Keynesian macroeconomics paradigm: "While preserving a clearly identified core of market transactions, extended accounts should include all economic activity productive of final output, whether market or nonmarket" (idem, p. 1621).

The contemporaneous appearance of Eisner's essay offers a benchmark for evaluating the reception of Waring's book in the literature, by comparing citations records for the two publications. Table 2 analyses these records for the period 1988-2012 using the Thomson Reuters Web of Science database. Total citations are presented in its final row, while the other rows analyse the 'research areas' of the publications in which the citations appeared (journals can be categorized to more than one research area, and hence the analysed figures sum to more than the total figure).

– TABLE 2 PLACED ABOUT HERE –

In the 'business economics' research area, the publications have a similar number of citations – 76 for Eisner and 79 for Waring – but this similarity hides important differences. First, only a small overlap exists between the two citation sets; of the 150 articles in these journals citing either reference, only five cite both (Postner, 1992; Folbre and Wagman, 1993; Leete and Schor, 1994; MacDonald, 1995; and Mullan, 2010). Second, Table 2 lists the business economics journals that published at least three articles citing either publication. This shows a marked difference in the preferences of different journals; *Feminist Economics* and *Futures* favour Waring, for example, while the *Review of Income and Wealth* and the *Journal of Economic Literature* favour Eisner.

– TABLE 3 PLACED ABOUT HERE –

Finally, the citations recorded in research areas outside business economics amount to just 30 for Eisner compared to 369 for Waring. Concerns have been expressed about low levels of citation of feminist scholarship in high-ranking economics journals (Strassmann, 1993; Hyman, 1994, Chapter 1; Woolley, 2005; and Lee, 2008). This example points to a different form of that pattern: although Eisner’s review is an article considered important by economists, it has had much less influence outside the economics literature, while Waring’s contribution, although less like to be cited in the high-ranking economics journals, is widely cited across a number of research fields, arguably because her research was mission-led.

It is not necessary, of course, to suggest that scientists must choose between the two frameworks discussed in this paper. Elinor Ostrom is an outstanding example of a scholar who was deeply embedded in practical problems of particular communities and whose work greatly expanded paradigms used to understand collective action for *Governing the Commons* (Ostrom, 1990). Nevertheless, the gender divide in the narrative of this paper will be obvious to readers: Karl Popper, Thomas Kuhn, Imre Lakatos, Colin Clarke, Maynard Keynes, James Meade, Richard Stone and Robert Eisner on the one hand; Marianne Ferber, Julie Nelson, Elinor Ostrom, Marilyn Waring, Joan Robinson, Margunn Bjørnholt, Ailsa McKay, Marty Grace and Lyn Craig on the other hand.

We do not want to suggest that this pattern of gendered innovation is due to some existential characteristic of the human sexes. Our explanation would point to another aspect of Waring’s research, which emphasised the importance of time-use choices – without giving a monetary value to time spent in different activities – on the basis that “time is the one unit of exchange we all have in equal amounts, the one investment we all have to make” (Waring, 1996, p. 88; see also Gershuny, 2000, and Stiglitz *et al*, 2009, pp. 126-8).⁵ Time-use surveys reveal a large gender difference in the proportion of time spent by women compared to men in household work, childcare and other examples of committed work. Figure 1 illustrates this with the most recent data for Australia and New Zealand.⁶

– FIGURE 1 PLACED ABOUT HERE –

⁵ Following that approach, the Canadian Index of Wellbeing (2012, pp. 49-53) includes time use as one of its eight quality of life domains. Waring is a member of its Advisory Board.

⁶ The Australian Bureau of Statistics cancelled the scheduled 2013 time use survey after budget cuts; see Sawer *et al.* (2013) for a critique at the time of the announcement.

The time-use survey data also allow analysts to produce comparisons like the one shown in Figure 2. It examines two parent households in New Zealand with all children aged under 12 and analyses which parent spends how much time with the children. Fifty per cent of the time 'mother only', whereas 'father only' is just eight per cent of the time. Given that comparison, it is scarcely surprising to find a tendency for men to go to the library to study paradigms and a tendency for women to think it is an important mission to understand how childcare is valued as an economic activity.

– FIGURE 2 PLACED ABOUT HERE –

In other words, research is gendered *because society is so strongly gendered*. Gendered innovation is essential *because society is so strongly gendered*. Gendered excellence in the social sciences should be the goal of all of us *because society is so strongly gendered*.

5. Conclusion

This paper began with the observation that the Popper-Kuhn-Lakatos framework for research is very influential in economics. It has used the example of Marilyn Waring to argue that an alternative framework is possible. We finish with three points about economics as a social science in the light of the claim just made that gendered excellence in the social sciences should be the goal of all of us because society is so strongly gendered.

The first two points concern recent developments within the economics profession about Marilyn Waring's (1988) subject, the United Nations System of National Accounts. The manual for national accounts continues to be revised; the latest is United Nations (2009). Some important changes have been made in line with Waring's (1988) critique, but the main exclusions remain. Six services produced by household members for consumption within the household are explicitly listed as outside the production boundary, for example, including the care, training and instruction of children and the care of sick, infirm or old people (United Nations, 2009, p. 98). Despite evidence of anthropogenic global climate change leading to unprecedented warming of the atmosphere and ocean (IPCC, 2014, p. 2), the UNSNA continues to exclude the atmosphere and deep seas from consideration (United Nations, 2009, p. 7). Thus, as argued in Saunders and Dalziel (2016), Waring's book remains a

profound challenge to the UNSNA central framework and will continue to do so while the system excludes unpaid household work and impacts on the natural environment from its core statistics.

The second point is that there is a greater receptiveness within the economics profession to the argument that our focus on gross domestic product and related measures in the UNSNA is flawed. This is illustrated by the recent report of the Commission on the Measurement of Economic Performance and Social Progress (CMEPSP) led by Joseph Stiglitz, Amartya Sen, and Jean-Paul Fitoussi. The Commission was created because of dissatisfaction with the existing state of statistical information about the economy and society. The unifying theme of the Commission's report was: "the time is ripe for our measurement system to *shift emphasis from measuring economic production to measuring people's well-being*" (Stiglitz *et al*, 2009, p. 12, emphasis in the original text). It is tempting to ask why "the time is ripe" in 2009, but was not ripe in 1988 when Marilyn Waring and other authors were making similar criticisms at least two decades earlier. The answer may have something to do with the defence of the hard core of the Keynesian macroeconomics paradigm, and indeed it is not certain that the economics profession is ready to accept the scale of change that is required (see, for example, Coyle, 2014).

Finally, and some pessimistically, we note that economists use the *Journal of Economic Literature* classification system produced by the American Economic Association to categorise the fields in our discipline. Feminist economics has its own category (category B54) in that system, but this is a subcategory of B5 that is called "Current Heterodox Approaches". Thus, mission-led economics research on burning issues for the feminist social movement is explicitly labelled by the American Economics Association as "heterodox"; that is, outside the discipline's hard core. Gendered innovation in economics evidently still has some way to go before it is admitted into the mainstream.

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Table 1: Comparison of the Popper, Kuhn, Lakatos Research Framework with Waring's Research

Research Framework	Popper, Kuhn, Lakatos	Waring
1. Research Context	Science Community	Social Movement
2. Research Motivation	Research Programme	Mission-led Research
3. Research Literature	Discipline or Field	Multi-discipline
4. Research Outputs	Science Journals	Community Engagement
5. Research Framework	Developing the Paradigm	Deconstructing the Ideology
6. Research Question	Bold Conjecture	Burning Issue
7. Research Method	Rigorous Testing	Rigorous Testing
8. Research Goal	Scientific Impact	Social Impact

Table 2: Number of Citations of Eisner (1988) and Waring (1988) Analysed by Research Areas, 1988-2012

Research Area	Eisner (1988)	Waring (1988)
Business Economics	76	79
Women's Studies	1	59
Sociology, Social Sciences Other Topics, Social Issues	5	67
Public Admin., Government Law, International Relations	2	65
Environmental Sciences Ecology, Geography, History	7	41
Other Research Areas	15	58
TOTAL (excluding duplicate categories)	88	296

Source: Thomson Reuters Web of Science Cited Reference Search, accessed 15 May 2013.

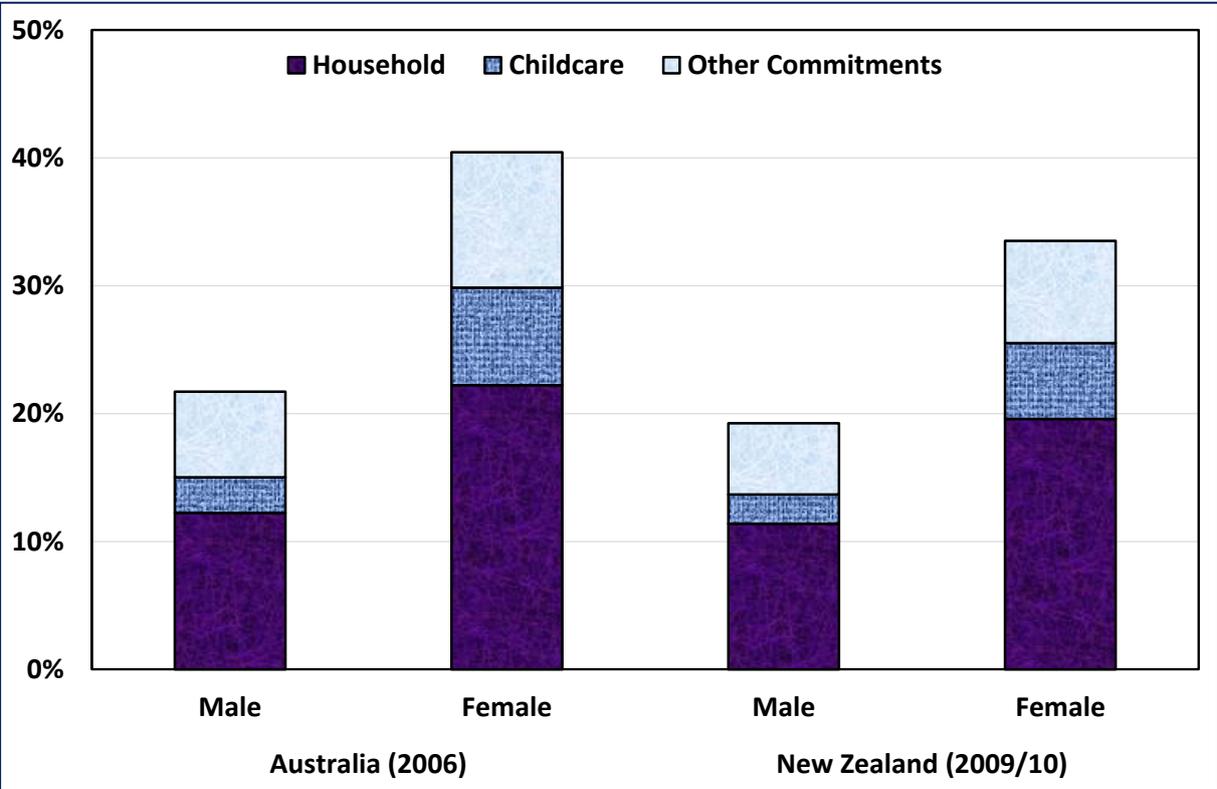
Table 3: Number of Articles in Business Economics Journals with Three or More Articles Citing either Eisner (1988) or Waring (1988), 1988-2012

	Eisner (1988)	Waring (1988)
<i>Feminist Economics</i> ¹	1	12
<i>Review of Income and Wealth</i> ¹	11	2
<i>Ecological Economics</i>	3	7
<i>Futures</i>	0	6
<i>Journal of Economic Literature</i>	5	0
<i>World Development</i>	0	5
<i>Accounting Organizations and Society</i>	0	4
<i>American Economic Review</i>	3	1
<i>Canadian Journal of Economics</i> ¹	3	1
<i>Journal of Economic Issues</i>	1	3
<i>Industrial Relations</i> ¹	2	2
<i>Human Relations</i>	0	3
<i>Review of Radical Political Economics</i>	0	3

Note 1: Includes one article citing both publications.

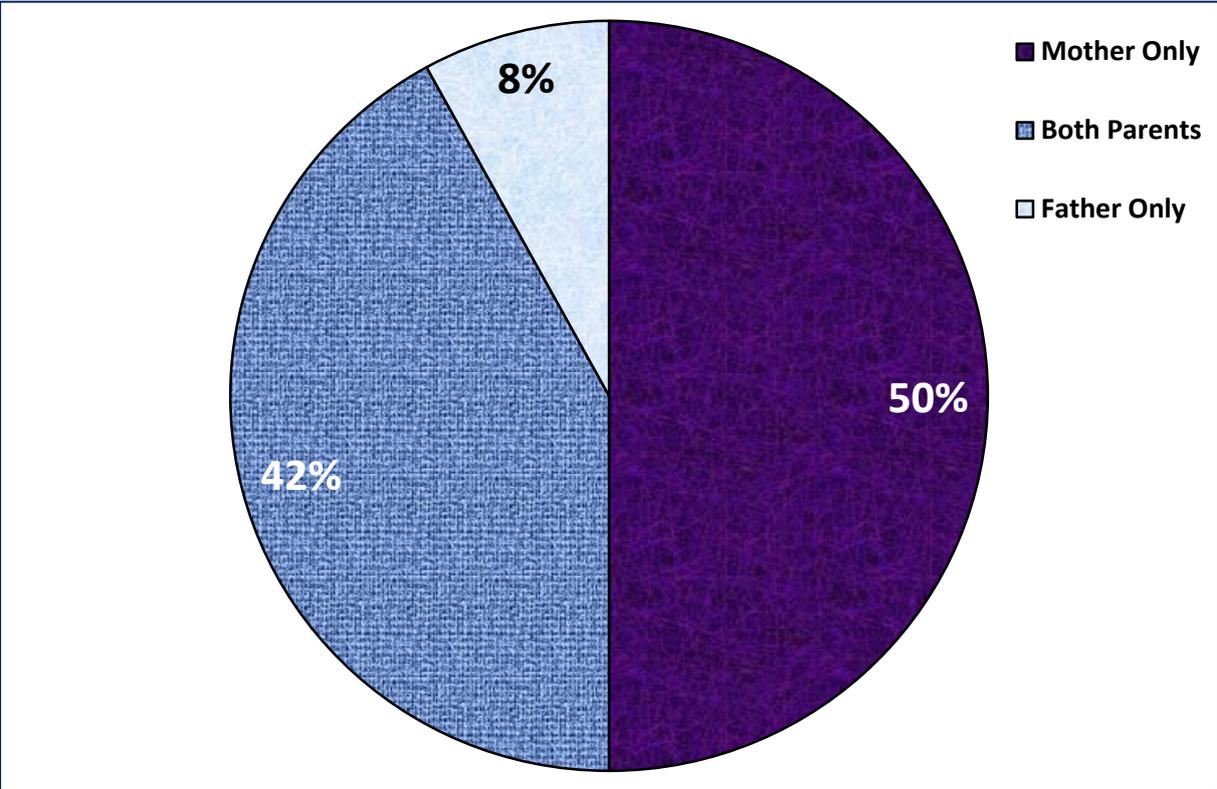
Source: Thomson Reuters Web of Science Cited Reference Search, accessed 15 May 2013.

Figure 1: Percentage of Non-necessary Time Devoted to Primary Activities of Household Work, Childcare and Other Committed Work, Male and Female, Australia 2006 and New Zealand 2009/10



Sources: Australian Bureau of Statistics Time Use Survey 2006, Table 1 and Statistics New Zealand Time Use Survey 2009-10, Table 1.

Figure 2: Time Spent with Children within Couple-and-Children-Only Households with All Children aged under 12, New Zealand 2009-10



Source: Statistics New Zealand Caring for Children 2009-10, Table 4.3.