

Women in Economics – in theory, in training, in practice

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Abstract

This paper considers the position of women in economics from the point of view of an economic Ministry. It considers three separate areas. The first is women's (in)visibility within mainstream economic theoretical approaches, in particular, with respect to the conception of "rational man". We look at the degree to which mainstream theory adequately captures the value of the roles typically undertaken by women, especially unpaid care work, and examines how alternative models, such as those based on the mother/child relationship, could improve economic understanding and policy advice in contemporary developed economies.

The second area looks at the pipeline of future economists, particularly women, who might help redress this potential gap in the mainstream approach. It draws on education data from New Zealand and Australia and reflects on the worrying decline of women undertaking secondary school and tertiary qualifications in economics.

The final section looks at women's involvement in economic, financial and regulatory policy institutions, and uses the New Zealand Treasury as a case study. The New Zealand Treasury embraces diversity and inclusion as a means of promoting comprehensive policy advice about intergenerational wellbeing for all New Zealanders. Part of realising this principle is an intention to achieve and maintain a gender balance of 40/60 in its leadership cohort, and to keep within a 45-55 percent range across the organisation as a whole. We look at the experience thus far in the Treasury with initiatives to improve gender diversity.

The paper concludes that the representation of women in economics could be improved across all three areas and argues that this will improve the quality, durability, and relevance of economic policy advice.

JEL classifications: A20, B54, H11, J16, J71

A20 - General / Economic Education and Teaching of Economics

B54 - Feminist Economics / Current Heterodox Approaches

H11 - Structure, Scope, and Performance of Government

J16 - Economics of Gender / Non-labor Discrimination

J71: Discrimination / Labor Discrimination

¹ The Treasury, New Zealand. We thank Kerri Kilner for able assistance with processing the job ads data discussed in the paper.

1. Introduction

This paper considers the position of women in economics from the point of view of the Treasury, an economic Ministry in New Zealand. It provides a picture of women in economics - in theory, in education, and in practice – using New Zealand examples where possible. Our main contribution is to draw together and assess these three key elements of importance to the impact of economics on national wellbeing. We find that the situation is unsatisfactory across all three elements. We report some experience from the Treasury with one tool intended to address gender balance in job applicant pools as a way of illustrating some of the challenges.

Section Two provides a brief summary of how women are represented in economic theory, noting the long-standing critique that the rational individual of economic theory most closely resembles a ‘rational man’. In this section we also review the debate on whether mainstream theory adequately captures the value of the roles typically undertaken by women, especially unpaid care work. We review some models that have been proposed as alternatives.

While the critique of mainstream conceptions of “rational man” in economics research and teaching is not new, it is useful to outline here, as it sets the scene before considering the role that the discipline’s theoretical constructs might play in how women are involved in the economics profession, and how economics practitioners in policy agencies might approach their work.

Section Three draws on education data from New Zealand and Australia and notes an apparent and worrying decline of women undertaking secondary school and tertiary qualifications in economics. This exacerbates the challenges in achieving balanced gender representation in the economics profession and in developing inclusive public policy.

Section Four provides a “firm-level” example drawing on data from the New Zealand Treasury. Our organisation has a number of Strategic Priorities, one of which is improving policy advice to support increased intergenerational wellbeing for all New Zealanders. Gender issues are an integral part of understanding the interplay of the Four Capitals (financial/physical, social, natural, human) at the heart of the Treasury’s Living Standards Framework, and how they work together to support intergenerational wellbeing.

2. Women in economic theory

2.1. “Rational” individuals in economic theory

A well-known trope in economics (and in critiques of economics and of economists) is that of the rational individual, one who is self-interested and seeks to maximise their own welfare, and who is consistently rational in the sense of diligently and correctly applying the calculus of constrained optimisation using complete information. Sometimes this actor is explicitly referred to as a man (especially in writings earlier than the mid-20th century – no doubt at least partly reflecting the linguistic conventions of the time). At other times, it has been argued that this is implicit in the way in which the scope of the subject is defined for the purposes of research or pedagogy (see e.g. Power, 2008). The concept of a “rational man” is present in earlier writings, at least as a way of limiting the scope of the analysis for tractability purposes and to form well-defined theoretical conclusions (Sen, 1977). Subsequently the model of the

family presented by Becker (1981) achieved both influence and notoriety for the application of rational choice theory to “household” matters. Becker’s approach was subject to considerable critique from feminists and others. We briefly recap on this rational man, to illustrate why he might be relevant to the discussion that follows.

While the concept of self-interest was discussed in ancient times by Aristotle and Plato, its application to the operation of markets and modern economics is often dated to Enlightenment writers such as Adam Smith and John Stuart Mill, in the eighteenth and nineteenth centuries respectively (see the discussion in, e.g., Sen (1977); Blaug (2007)). The power of this conception of rationality and personal autonomy grew throughout the 20th century via the Marginal Revolution and its characterisation of “calculating man” (Morgan, 2006), who is a calculus expert, and the subsequent demonstration of his analytical utility in such influential classics as Paul Samuelson’s 1947 *Foundations of Economic Analysis*. Hence the idea of maximisation of self-interest became a broadly promulgated theoretical starting point for beginning economics students (to be sharpened even further subsequently, to include a particular conception of omniscience in rational expectations techniques).

But whose self-interest is being maximised, in what manner, and is this maximising person an appropriate representative agent for contemporary policy analysis? To invoke a caricature inspired by Morgan (2006), the neoclassical rational man is the head of a household or family, and his main function is to interact with the market as a breadwinner. His choice set is constructed from what he can do *externally* to the household, i.e. in the formal labour, goods and investment markets (reinforced by empirical branches of the discipline because this is where his behaviour can be observed and his preferences revealed and measured). One presumes that any consumption of the income from his labour within the family or household is based on him rationally considering need (given the rational approach he takes to everything he does outside the household).

Beginning in the 1960’s, Gary Becker famously turned the camera inward, and modelled neoclassical rational man’s choices within his household. His family is nuclear, with a distribution of labour that sees the woman undertake household activities, such as domestic and caring roles. Becker argued that this division of labour is efficient (Becker, 1991:3). While parents are assumed to be altruistic, this is limited by the recognition that greater spending on their children means less spending on themselves (Becker, 1991:5). In this view, fertility decisions are taken based on income, with families having fewer children when their incomes increase (Becker, 1991:18) and he suggests this model of the family helps to explain inequality between families (Becker, 1991:19).

Writing slightly later, and drawing on a behavioural perspective, Becker expanded the theory to include more individual variation. He suggested that self-interest comes from individual’s own values and preferences, so that they seek to maximise welfare as they see it, which could be selfish or altruistic (Becker, 1993:386). He also acknowledged the limitations associated with some of the conclusions that may be drawn from the model. For example, although children and parents would both be better off if the parents invested more in the children in return for a commitment by the children to care for the parents later, he noted that this could not be practically enforced (Becker, 1993:399). Notwithstanding these progressions, he continued to argue that parents can attempt to secure a similar care arrangement, through the installation of guilt in their children (Becker, 1993:400).

A first impression from this “neoclassical” caricature of the family (which is admittedly heavily reliant on Becker as an extreme case) may be of an invisible woman. Hers is a support role, with no market interaction, which is the dominant arena in neoclassical economics. Her reproductive work is not measured, let alone valued, nor is her domestic work, because it does not have a value assigned to it, as it is outside the market.

2.2. Feminist challenge

A number of feminists (and others, such as game theorists, behavioural economists, sociologists etc.) have challenged the concept of neoclassical rational man and the extent to which he is useful as a construct to understand the rich range of social and economic phenomena of interest to policy. They question the assumptions underlying the neoclassical approach, and identify the particular limitations within it pertinent to analysis of gender issues in economic policy. A brief overview of these challenges will be provided here.

A direct critique of Becker’s work was offered by Bergmann (1995). She suggests Becker’s conclusions to be ‘preposterous’ as they depict institutions as benign and government intervention as useless or harmful (Bergmann, 1995:141). She argues that Becker’s failure to include those who do not conform to the heterosexual nuclear family limits the usefulness of the model (Bergmann, 1995:142). Bergmann’s critique is an example of more general critiques of reductionist approaches, and is of course not specific to Becker only, but Becker provides perhaps the easiest target.

Critiques of theoretical models centred on neoclassical rational man, and their treatment of women, often start with women’s invisibility within the model (Sainsbury, 1996) and that the model is male-centred (Beneria, 2003). Others critique the unit of analysis, for example, the concept of an aggregate utility function in unitary household models (Agarwal, 1997:2). One major issue raised by feminists of salience to policy, given continuing change in the opportunities offered by labour markets and policy interest in encouraging more fluidity in gender roles, is the lack of recognition of unpaid work – both care and domestic work – and the theoretical difficulty of accommodating care work into mainstream neoclassical approaches (see, for example, the review in Jefferson and King, 2001).

New Zealand has made a key contribution in this area, with Marilyn Waring’s seminal (1988) book being one of the first to draw international attention to the failure to account for women’s productive activities in the home and on the farm in the National Accounts, and so in Gross Domestic Product (GDP) reporting. A New Zealand authored article published earlier this year revisited Waring’s work and reflected on the changes that have occurred as a result of her contribution. The authors noted that the United Nations System of National Accounts (UNSNA) now includes provision for satellite accounts but reflected that unpaid household work is still excluded (among other exclusions such as the impact on the natural environment; Saunders and Dalziel, 2017:200).

These observations have various policy implications. Not only does the GDP framework ignore the unpaid work undertaken by women, but a focus on market incomes obscures the opportunity cost of paid employment that women could potentially undertake (in effect a transfer within the household), with a more equal distribution of unpaid work between

genders². This burden on women is referred to by Antonopoulus as ‘a systematic time-tax on women throughout their life cycle’ (2009:2). For those women who do enter into paid employment, the dual-burden of paid and unpaid work has been noted by various writers (including Ruth, 1980; Alstott, 1996; Jackson and Jones, 1998; Davis, 2000; Fineman, 2001; Leira, 2002; Mandel and Semyonov, 2006) and paid work is considered further in 2.4.2 below.³

Another aspect of unpaid care and domestic work is why women undertake this work. An argument based on altruism is often proposed (see for example Beneria, 2003; Antonopoulus, 2009). However, research by Agarwal suggests the prioritisation of males within the family (sons, husbands, brother) in various countries is actually self-interest and not altruism. She suggests ‘this appears to be as consistent with self-interest as with altruism’ (Agarwal, 1997:26).

A useful summary of the elements considered by feminist economists was provided by Power, who noted an emerging feminist methodology, which included the following: incorporation of caring and unpaid labour as fundamental economic activities; the use of wellbeing as a measure of economic success; analysis of economic, political, and social processes and power relations; inclusion of ethical goals and values within the analysis; and interrogation of differences by class, race-ethnicity, and other factors⁴ (Power, 2004:3). She suggests that we should analysis economic activities as interdependent social processes, which she calls ‘social provisioning’, as this reflects the fact that economic activity involves the ways people organise themselves collectively to get a living (Power, 2004:6).

2.3. Alternative models

The above critiques from feminists have argued for inclusions or modifications to be made to mainstream approaches based on rational, calculating, formal market-facing man – the recognition of unpaid work being the primary aim – but writers such as Mumford have suggested that a new model is required (2010:33). This is a more fundamental challenge to the accepted paradigm.

Sen argued the superiority of capabilities over utility and resources. He suggested that what people were actually able to do and to be was a more appropriate indicator of quality of life than the standard economic indicator of growth (Nussbaum, 2003:33).

Whilst supporting Sen’s contribution to social and gender justice, Nussbaum offered a critique suggesting that it is necessary to specify a definite set of capabilities as the most important ones to protect, as without it Sen’s perspective of freedom is too vague (2003:33). Her identification that some freedoms limit others and that some freedoms include injustice in their very definition (2003:44, 46) make a valuable contribution to understanding freedom from a gender perspective.

² The potential for a decrease in male labour market participation if such a redistribution of unpaid work was to occur is acknowledged

³ As for the impact of economic activity on the natural environment, some economists have started to consider this issue, and are designing methodologies to value the stocks of natural capital. However that is a topic for another paper...!

⁴ This would now be referred to as intersectionality or gender+

There is a consensus from a number of notable authors that the new paradigm would have the mother / child relationship at its heart as this provides a more accurate depiction of fundamental human interaction.

Both Orloff (2009) and Strassman (1993) identified human's dependency in infancy and old age, and often in between, as unchosen but present. By identifying dependency as natural they resist the negativity now associated with the term. Folbre (1991) considers how this negativity came about and suggests that women's dependency was created as a fact through discourse, in the vocabulary used in the political and economic census, which tied non-earning women to earning or moneyed males.

Held (1990) makes her case by identifying the inherent dependency within the relationship between the mothering person and the child, and based on her observation of children as 'necessarily dependent', she puts this need at the centre of human interaction. Hartsock (1983) makes a similar argument in asserting mother/ infant as the prototypical human interaction. The importance of this relationship is discussed by Fineman (1995) who suggests the classic economic focus on the sexual relationship neuters the mother from her child.

2.4. Potential policy areas implicated

The implications of the above for policy depend to some extent on the degree to which gender roles and preferences are socially constructed (rather than innate). If the latter, then policy settings (e.g. labour market regulation) have a role not only in recognising different gender roles and preferences, but also in possibly reinforcing or leaning against gender roles that contribute to gender inequality. A more comprehensive microeconomic and measurement approach that incorporates care work would support better analysis of policy settings to promote better gender equality over the longer run. It might also help the profession constructively confront its own prior beliefs more thoroughly (see e.g. Beatrice Cherrier's blog).

As noted previously in 2.2, Waring raised the question in New Zealand about the lack of recognition for the unpaid work undertaken by women, and its absence from our GDP reporting. A question can also be raised about budget reporting and how women's contribution is recognised. There a number of policy areas that are potentially impacted by this issue.

2.4.1. Gender Budgeting

Gender budgeting or gender responsive budgeting, is a way of analysing government expenditure and fiscal policy to promote gender equality. It can take many forms in practice including analysis of budget allocations, the structure of fiscal policies, expenditure tracking and monitoring systems to identify gender bias, whether explicit or implicit (Morrissey, 2018).

One element of gender budgeting is Gender-Impact Analysis. This has been suggested as a way to make the effects of economic policies on gender inequalities transparent and in particular, to uncover the unpaid economy for policy makers, for whom it otherwise tends to be invisible (Himmelweit, 2002:49, 50).

In terms of gender inequalities, Lombardo et al (2017) noted recently that cuts in state spending on welfare, health, and education have negatively affected women, while at the

same time increasing the care burden for women due to the reduction of state provisions (2017:4). Others have noted that austerity measures have disproportionately impacted women (Stewart, 2017).

Although gender budgeting naturally focuses on spending, there are also gender issues that could be considered with respect to other state sector activities, such as regulation and service delivery.

2.4.2. Gender aspects of Labour Market Participation

A number of feminist theorists have noted the value of paid employment for women. It has been suggested as being 'constitutive of citizenship, community, and even personal identity' (Schultz, 2000:1886). It has also been proposed to be a vehicle for participation in society and entitlement to social insurance rights (Lister, 2002:521). Of course paid work also has benefit to women in terms of poverty alleviation (Lawton and Thompson, 2013; Ben-Galim et al, 2014; Thompson and Ben-Galim, 2014).

With respect to those women receiving a transfer from the state, either before or ongoing after moving into some paid employment, there a number of additional issues to consider. Naples notes how the contemporary discourse 'assumes that women's poverty is a consequence of their reluctance to train for and accept paid employment and that women on public assistance need sanctions and other coercive behavioral measures to ensure their cooperation in moving from welfare to work' (Naples, 2003:115). Accordingly, focus on female labour market participation should not come at the expense of applying gender analysis to transfer policies.

2.4.3. Macroeconomics and gender

As well as the more structural aspects of women's participation in the labour market and how that might contribute to wellbeing, the gender aspects of macroeconomic policy and business cycle analysis deserve more attention. As part of this paper, reflecting that one of the authors (Ng) is a macroeconomist by background, we took the opportunity to ask the introspective question how a gender perspective might influence what one should professionally think about in a policy context.

Macroeconomics is perhaps one of the branches of economics which abstracts the most from gender issues, focused as it is on national aggregates and in which the smallest unit of analysis is generally a representative household. Experience within the profession suggests that what goes on inside the household is of little academic interest to macroeconomists relative to other branches of economics, and this sense is supported by the balance of published work in the field. A search on the term "macroeconomics gender" in the IDEAS database on RePEc on 24 May 2018 found 412 hits (out of 57,440 for "macroeconomics" alone), whereas "health gender" found 5,362 (91,801), "labour gender" 3,491 (58,848), "development gender" 9,213 (497,415), "finance gender" 1,287 (120,054), "international gender" 2,718 (209,416), and "game gender" 612 hits (51,235), suggesting that finance, international economics and game theory are similarly subdisciplines where the profession views gender perspectives to be relatively uninteresting.

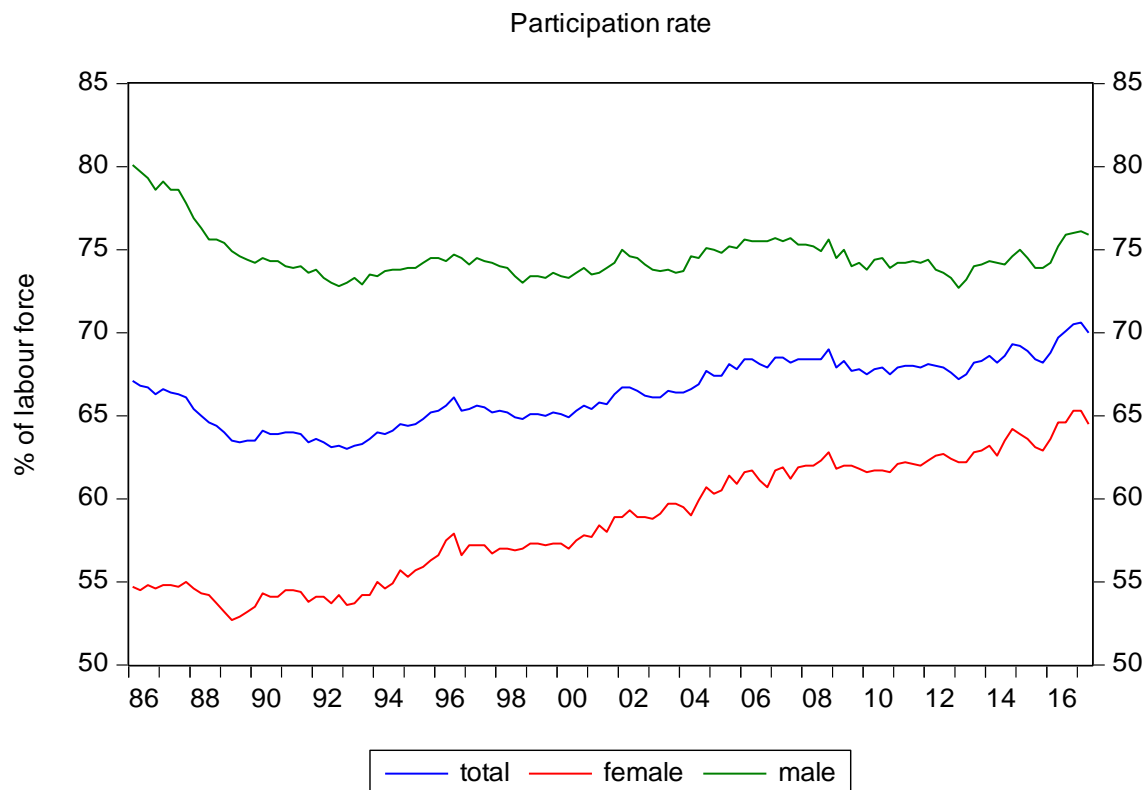
Stotsky (2006) provides a useful review of the question whether macroeconomic policy should in fact ignore gender impacts. The rather small body of literature identified above appears to focus mostly on developing countries, and there is some empirical work on the gendered

impacts of macroeconomic adjustment policies, but apparently little on the gender impacts of more business-as-usual stabilisation policy under “normal” economic conditions. Yet the microeconomic literature gives us reason to believe that labour market and consumption responses of the different genders to changes in macroeconomic conditions may well be different (Stotsky, 2006).

To explore this idea a little and see where it might lead, we looked at “macroeconomic” labour market data on unemployment and participation rates in New Zealand, which are commonly looked at as important variables in the measurement and analysis of business cycles and stabilisation policy (e.g. monetary policy and the fiscal stance as an influence on aggregate demand) – and may also be policy targets in their own right (see e.g. the direction of change to legislation underway at the time of writing to codify a dual mandate for monetary policy, with employment outcomes explicitly in the objective function – Robertson, 2018).

Figure 1 shows the total, male and female participation rates for New Zealand over the past three decades. The most evident time-series story over this period is probably the gradual rise in the total participation rate from below 65% to about 70%, which the gender disaggregation shows is driven entirely by female participation rising from slightly below 55% (albeit a level that was already quite high by OECD standards, at least for prime-aged women – Jaumotte, 2004) to about 65%. Explaining and evaluating secular changes in female labour force participation and attributing them to policy interventions of various sorts is a very active area of the literature (see e.g. Jaumotte, 2004).

Figure 1.



What is of more direct interest for business cycle analysis is the cyclical behaviour of the participation rate, which in aggregate generally moves procyclically in New Zealand due to an

“encouraged worker” effect in which a strengthening (weakening) economy induces people to enter (leave) the formal labour force. Taking a gender lens, one might ask the question whether there are differences in the degree to which men and women are encouraged, given the potentially differing consequences on home life and the discharge of care obligations. Could it even be possible that the effect of rising wages in an upturn is enough to *discourage* women from the labour force (because the male in the household is earning more, leading the female to feel less need to work and instead devote more time to care)?

To answer this question requires detrending the data to remove the secular (low frequency) variation evident in Figure 1. Figure 2 shows male, female and total labour force participation detrended via a linear time trend fitted by OLS.

Figure 2.

Participation rate detrended

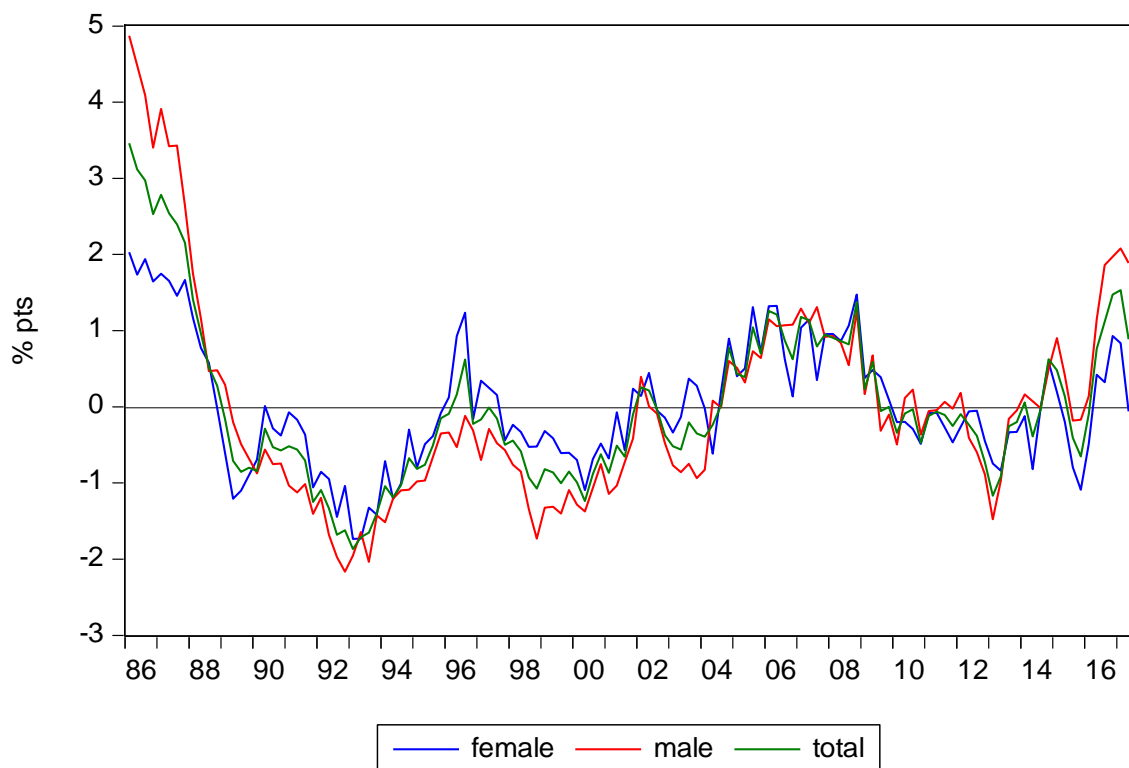
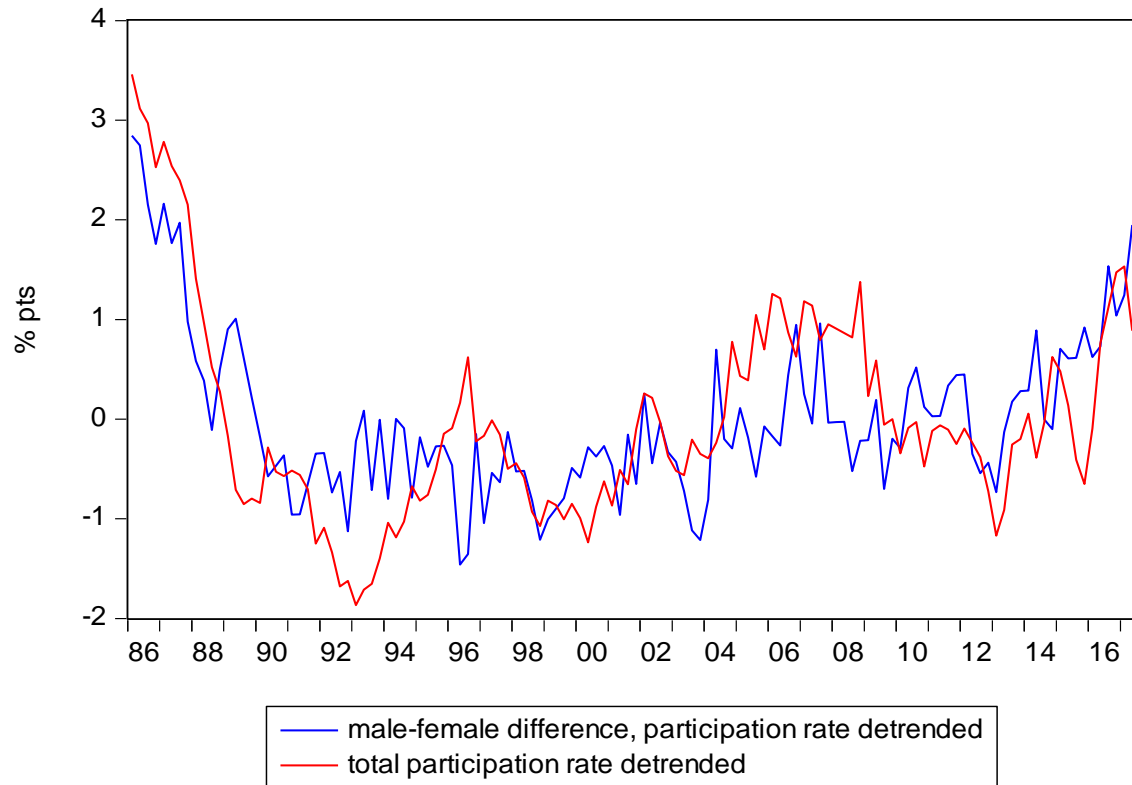


Figure 2 shows that the cycle in male and female participation rates as defined here is broadly similar, and corresponding with the broad episodes of strength and weakness in the NZ economy observed over the period, consistent with the encouraged worker effect being the dominant influence over the period shown for both genders. Indeed if one subtracts the female participation rate cycle from the male cycle (Figure 3), one does not see an obvious relationship with the total participation rate cycle, other than in the first few years of the sample, where most of the variance was likely due to the effects on male participation from the structural reforms of the mid-80s. The correlation coefficient between the two series excluding the data from 1986-1989 (i.e the sample 1990Q1 to 2017Q2) is only 0.4, suggesting that any male-female differences in the participation rate cycle are mostly idiosyncratic rather than strongly related to the factors driving the aggregate participation rate cycle (business conditions in the encouraged worker view). In other words, the data suggest that males and

females are equally encouraged (discouraged) to participate in the labour market when business conditions are strong (weak).

Figure 3.

Male-female difference, participation rate detrended



Conducting the same exercise on the unemployment rate suggests – possibly – a slightly more gendered story. Figure 4 shows the detrended male, female and total unemployment rates, which look like the same cycle. But Figure 5, which shows the male detrended unemployment rate less the female counterpart, plotted with the total detrended unemployment rate, suggests (to our eye) a relationship between the two such that the male unemployment rate cycle is positively correlated with the total unemployment rate cycle. The correlation coefficient between the two series over the same sample as above (1990Q1 – 2017Q2) is 0.7. This is consistent with male unemployed being absorbed into employment more strongly in an upturn, but also losing employment more heavily in a downturn – most obviously evident in the early 90s downturn following the fiscal contraction, the boom period in the mid 90’s, the post Asian crisis downturn in the late 90s and the mid-2000s global expansion.

Figure 4

Unemployment rate detrended

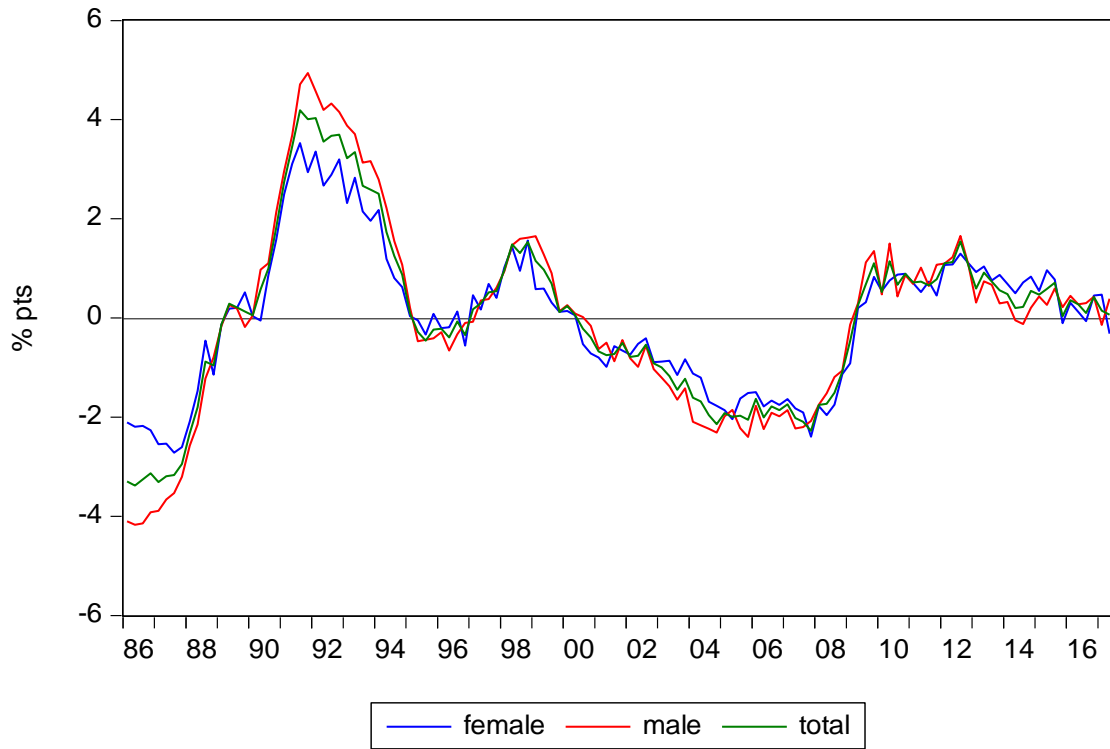
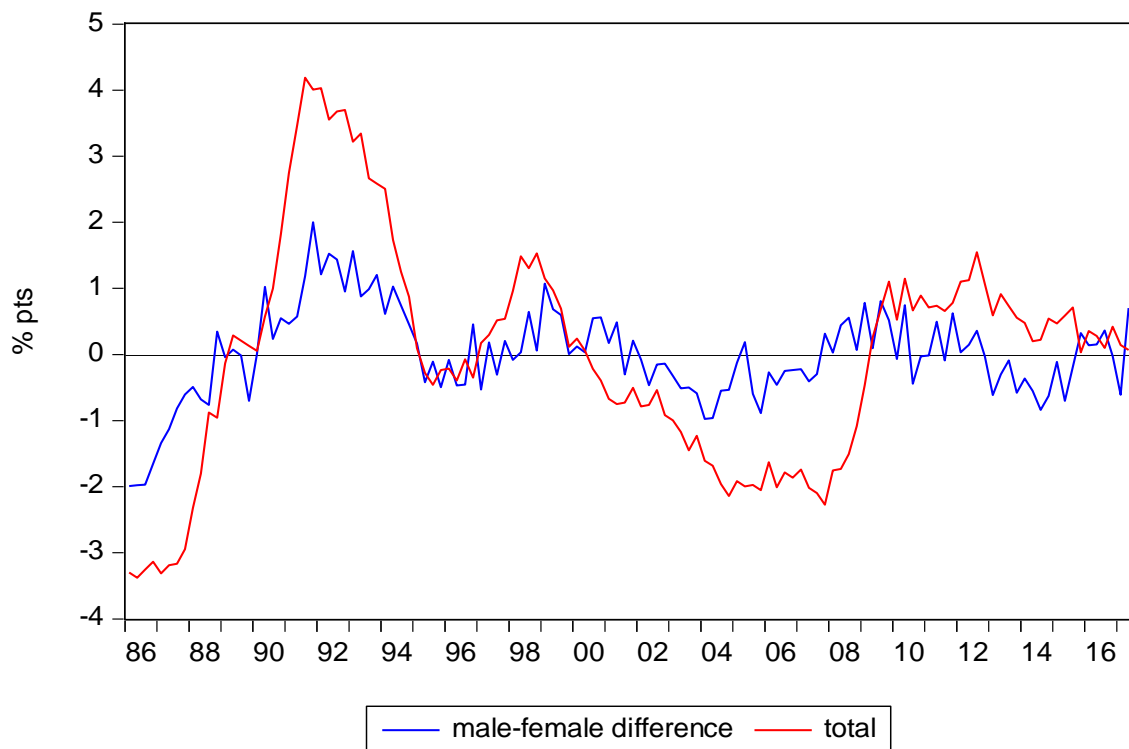


Figure 5.

Unemployment rate detrended



Of course, this descriptive commentary is just that – we are not attempting here to make strong empirical claims about gender differences relevant to the cyclical labour market behaviour. Instead the idea is to simply to illustrate, with a bit of introspection, the directions in which policy thinking – macroeconomic in this case – could be enriched if a gender lens is taken, exploring the possible links between behaviour within the household regarding participating in the labour market vs. other activities, and the possibly gendered impacts of macroeconomic phenomena on employment, which is an important contextual factor for within-household decisions. A public policy which aspires to be relevant to different groups in society, including different genders, and cognisant of the possibly different impacts of policy on those groups, could be strengthened by taking more of this kind of approach.

3. Women in economic education

Education is our critical starting point. Those who study economics will later be those who practise economics, those who work in policy making, and those who undertake economic research. In order to ensure diverse perspectives are represented within that work, particularly with respect to gender and other distributional consequences of economic policy, it is important to have diversity within those who study economics. As this paper specifically focuses on gender, we will consider the position of women in economic education, in particular. Such a focus is supported by New Zealand's international obligations through the Convention on the Elimination of all Forms of Discrimination against Women (CEDAW) and the Sustainable Development Goals (SDGs).

Successfully addressing gender stereotyping or unbalanced representation of economically relevant activities in theoretical economic models and approaches, and consequently in policy application, is likely to be assisted by greater involvement of actual women in economics. Not only is policy development likely to be more comprehensive in meeting the needs of society and better in the sense of more systematically addressing the gender-distributional impacts of economic policy, New Zealand has international obligations to improve in this respect, as a signatory to international instruments such as the Sustainable Development Goals and the Convention on the Elimination of All Forms of Discrimination Against Women.

Moreover, evidence is accumulating that male and female economists exhibit systematic differences in their prior beliefs and value systems about such core policy-relevant propositions as the likelihood that market solutions will be superior to government intervention, that the environment deserves more protection, and that labour market opportunities are unequal (The Economist, 2018). To the extent that these differences in priors and values affect the work that economists do, an unbalanced gender representation in the discipline will lead to unbalanced policy judgement.

The gender balance situation in both the education system, which we briefly summarise in this section, and the economics profession, which we discuss in the next section, is not encouraging.

This section provides data from New Zealand and Australia and notes some other international research on women in economics education.

3.1. High School

The number of students studying economics at high school has declined, which is concerning for the profession generally, but there has also been a disproportionately large decline in the numbers of girls taking the subject in the final year of school⁵.

In New Zealand, there has been a 31% decrease in the number of students sitting Year 13 economics, during the period 2003 to 2012 (Agnew, 2015:34). There has also been a decrease in the number of students studying economics in Years 9-13, with a 9% fall between 2008 and 2012 (Agnew, 2015:38).

Although not a recent study, earlier research revealed a strong male preference for studying economics at high school, and (encouragingly) concluded there were no significant gender biases in performance in examinations between the genders (Keef, 1990).

In Australia, since 1992, there has been a 70% decline in numbers of students taking economics in Year 12. The proportion of girls has fallen from around 50% in 1992 to around 33% in 2016 (Dwyer, 2017:2).

The Reserve Bank of Australia has implemented a number of initiatives in response to this issue, including forming an Educators Advisory Panel, and introducing professional development activities for economics educators. They have also established an Ambassador program, with 50% female Ambassadors, to advocate for economics to teachers and students (Dwyer, 2017:10-11). Major central banks such as the Bank of England, Federal Reserve and ECB are also undertaking similar programmes to improve gender diversity in the economics education system (Tetlow, 2018).

3.2. Tertiary

From 2008 to 2012, the total number of students studying economics at tertiary level in New Zealand decreased by 20%, even though overall tertiary student numbers increased by 15% during the same period (Agnew, 2015:38).

2016 figures for tertiary-level economics students in New Zealand show an overall 59% male and 41% female split. However, women are predominately studying economics at undergraduate rather than postgraduate level, with equal 50% representation at Graduate Certificate or Diploma level but a 67% domination by male students at Doctorate level (Education Counts, 2017).

A recent study at one New Zealand University sought to understand the role of personality types in economics education. The study found a comparative advantage for males over females in economics. Although females achieved higher scores than males in their non-economics courses, there was no statistically significant difference in scores between the genders in their economic courses. A prevalence of 'T types' in males (denoting a preference for using impersonal objective logic) was noted and the question raised whether economics is taught in a way that appeals more to that group (Hickson, 2016:14).

⁵ The final year of school is Year 13 in New Zealand and Year 12 in Australia

The situation in Australia is very similar. The overall gender split using total numbers of economics students at all tertiary institutions in 2015 is 60% male and 40% female. Unlike New Zealand though, the split remains at approximately 60/40, (specifically 62% / 38%) at both undergraduate and postgraduate level of study (Department of Education and Training).

3.3. International context

The figures from New Zealand and Australia appear to be reflective of international trends.

Recent reporting from the UK indicated that just 28% of economics students are female and that the numbers are trending down (Coyle, 2017). At high school level, the overall number of economics students fell by 51% between 1992 and 2004 (Bachan, 2004:5).

Similarly in the USA, looking at domestic (non-international) students in 2014, only 31.4% of economic doctorate degrees were awarded to women (Bayer and Rouse, 2016:221). With respect to academics, only 23.5% of tenure and tenure-track economics academics are women (Bayer and Rouse, 2016:222).⁶ Similar proportions for undergraduate students were found by Avilova and Goldin (2018), who implemented randomised controlled trials to study the effect of interventions intended to lift the proportion of women economics undergraduates, and reported that other fieldwork appeared to have achieved beneficial effects from deliberate mentoring, sponsorship and role-modelling strategies.

Some of the reasons why there are fewer female economists may have been identified in recent research by a young student at Berkeley. Wu analysed anonymous conversations in an economics web forum and found a stark and disappointing difference in the top words associated with conversations about women and the top words associated with conversations about men (Wu, 2017). Posts about women had 43% significantly less academic or professional terms and 192% more terms about personal information or physical attributes (Wu, 2017:3).

The role of the education system in contributing to perceptions that economics is a “man’s world” is coming under increasing scrutiny. Whereas earlier studies had documented gender stereotyping in school economics textbooks as contributing to a “rational man”-centric view of economic activity (e.g. Hahn and Blankenship, 1983), more recently the spotlight has turned onto the role of economics education in reinforcing perceptions of economists themselves. Stevenson and Zlotnick (2018), for example, examined the main text of eight “leading principles of economics” textbooks and found that the highest female share of economists mentioned in the books they analysed was 13 percent, while the lowest was zero.

What is our impressionistic conclusion about these patterns in participation in economics education by gender? There appears to be a “pipeline” problem with both genders, and some evidence that the proportion of women is falling – a double whammy in terms of the female economist pipeline in particular. Evidence is accumulating on a number of smoking guns relating to the way in which economics itself is taught and perceived, how leaders in the field are presented, and questions about the social construction of our identity as economists. It

⁶ Bayer and Rouse also indicate that economists from ethnic minorities are even rarer than female economists, at 6.3%, which reveals the intersectional issues faced by any minority women academics (Bayer and Rouse, 2016:223).

appears that a lot of work is needed on several fronts to improve the female pipeline into the profession.

4. Women in the economics profession

All of the above leads to the natural question of the role of women in the economics profession itself, as a lever for change to address the issues discussed above, with the discipline's subject matter and what counts as knowledge in economics.

Internationally, although there are a few high profile women in economics (such as Christine Lagarde and Janet Yellen), the female role models for young female economists are not numerous (Coyle, 2017; The Economist, 2018). Perhaps notably, both Lagarde and Yellen are or were practitioners in the financial and macroeconomic policy branches of the discipline (the IMF and the US Federal Reserve respectively), which are branches where gender issues are perhaps least visible (consistent with the RePEc numbers cited above) – possibly making Lagarde and Yellen come to mind even more. A more general issue may be that finance and macroeconomics are the branches of economics that both achieve higher profile in the general public perception (due to media tending to run more publicly-targeted commentary on macroeconomic or financial markets developments, such as featuring stock market commentary on the evening news), and also feature a smaller proportion of women, who may tend to favour more “human centred” branches such as development, health or labour (consistent with the RePEc evidence cited earlier).

This section reports some experience with a programme to increase gender diversity in an economic and financial Ministry, the New Zealand Treasury.

In the context of the now well-established literature on the benefits of diversity for the quality of decision making, as well as an obligation to be a good employer, the Treasury has for some time had an active and comprehensive diversity and inclusion (D&I) programme. The discussion in Section 2 about the (non-)role of women in mainstream economic models and approaches, and the consequences of the potential “blind spots” this might imply for policy development, reinforces the importance of gender diversity in a Ministry focused on economics and finance such as the Treasury. Meanwhile, the gender imbalance in the economist pipeline discussed in Section 3 underlines why the Treasury cannot be complacent about this issue.

As part of the D&I programme, the Treasury has stated its intention to achieve and maintain a gender balance of 40/60 (F/M or M/F) in its leadership cohort, as well as keeping within a 45-55 percent range across the organisation as a whole. Although the Treasury currently achieves the latter, with women making up 47% of all staff, it has some way to go to reach the desired balance in senior management, with only 29% of senior managers (CE, CE's direct reports, and their direct reports) women in 2017 (SSC, 2017). This was the second lowest proportion among the 27 core public sector agencies surveyed by the SSC in that year (a further 10 agencies fell outside the 40/60 range – six male-dominated and five female-dominated, by this measure). The gap between the proportion of women among senior managers and the proportion of women generally at the Treasury, at 18 percentage points, was the sixth largest among these agencies in that year. The great majority of senior managers in charge of the economic policy areas of the Treasury are men.

IN-CONFIDENCE

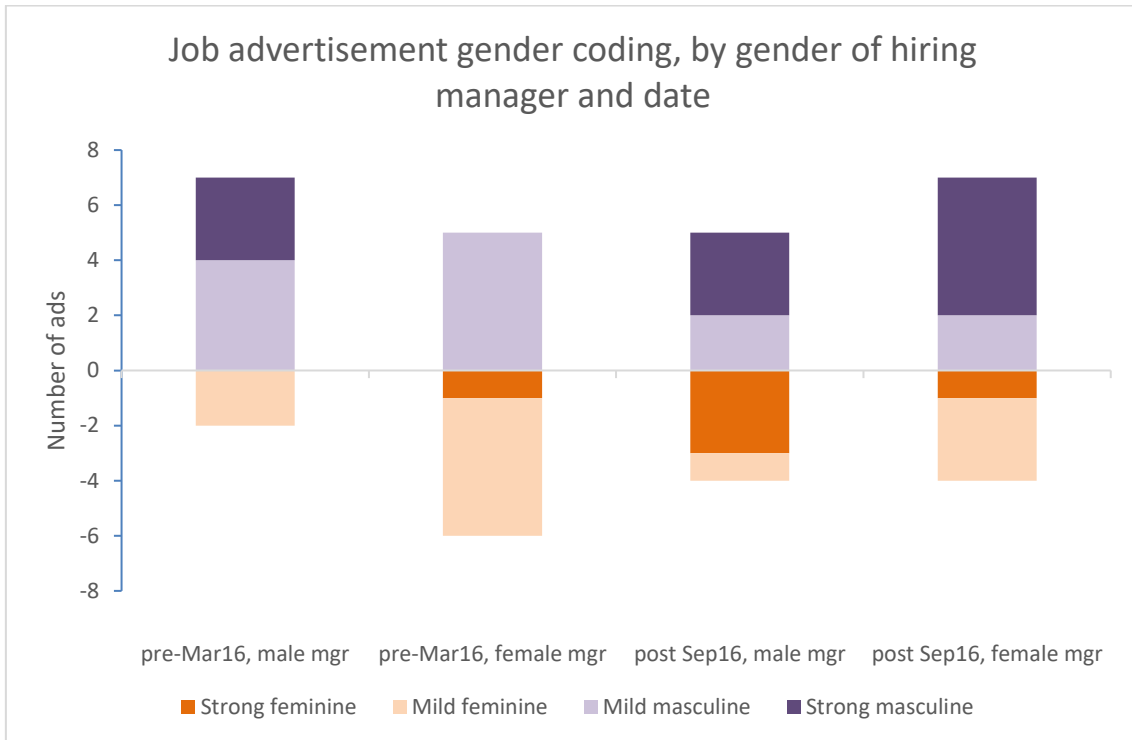
The Treasury's diversity and inclusion programme includes a number of initiatives intended to improve gender diversity, targeting all stages in the pipeline from marketing and recruitment through to support for career development and promotion. As the data above suggest, a clear issue is the lack of women in senior leadership positions, and part of the response includes obligations on managers to have regular career discussions with all staff on a regular basis and for succession planning to more systematically address possible sources of disadvantage for women. Within-grade gender pay gaps are regularly examined and the target of eliminating any such gaps explicitly included as a criterion in annual remuneration reviews. The parental leave and flexible working policies are regularly reviewed to check for gendered impacts.

Application of emerging insights from studies of unconscious bias have been quite influential in this work, and point to certain interventions and relatively simple changes in HR processes that may help to address some of these biases. For this paper, we took the opportunity to explore in some detail the Treasury's recent use of a tool, Kat Matfield's Gender Decoder, which provides an easy way of assessing the potentially different impacts on prospective male and female applicants of language used in job advertisements. The Treasury now has about two years of experience with using this tool as a way of reducing unintended gendered impacts on pools of job applicants; examination of this experience suggests some interesting challenges in the use of the tool.

The Gender Decoder is available on the web at <http://gender-decoder.katmatfield.com/>. This tool is based on the findings of Gaucher *et al.* (2011) which provide evidence that certain words in job ads appeal differently to each gender, which may be a channel to exacerbate existing gender imbalances by profession, especially in traditionally male-dominated occupations. The theoretical mechanism is essentially that words connoting individualism and agency ("leadership", "ambitious", "challenging"), or that reflect stereotyped male traits, tend to appeal more to male applicants, while words connoting communalism or that reflect stereotyped female traits appeal more to female applicants. These authors present evidence that the presence of such gendered words in job advertisements has different impacts on the appeal of the job to male and female applicants and that this impact is mediated through the sense of belonging that an applicant expects to feel in the job.

To look at gendered language in Treasury job ads in general and the possible impact of the use of this tool, we sampled 40 job ads posted by male and female hiring managers, 20 before and 20 after the introduction of the use of the tool in March 2016 as a recommended practice in Treasury recruitment. Figure 6 shows the gender coding of these ads.

Figure 6.



Looking at the pre-2016 ads, it is notable that male and female hiring managers tended to code their ads towards their own gender, with male managers in particular tending to use strongly “masculine” language. Post 2016, male managers showed roughly balanced gender coding in their ads, while female managers showed a dominance of masculine-coded ads. The preponderance of strong gender coding *increased* after the introduction of the use of the tool, the opposite to what one would expect if the tool alerted managers to unintended or unnecessary gendered language in ads and if the managers wanted to attract gender-balanced pools of applicants (as they are encouraged to do by Treasury policy).

Faced with this somewhat surprising result (and bearing in mind that the sample is small and we have not attempted to control for influences on gender coding other than the use of the tool and the gender of the hiring manager), we looked at the nature of the jobs advertised themselves, and this exercise suggested to us some limits to the effect that scrubbing job ads of unintended gendered language can have on the gender split of applicants, including for economics jobs. The masculine-coded ads tended to be for jobs in the analytical functions of the Treasury, and “analysis” is coded as a masculine word by the Gender Decoder. Treasury also routinely presents itself as “ambitious” and a “leader” – another masculine-coded word – in the area of economic policy. The feminine-coded ads tended to be for “support” and corporate jobs, with an emphasis on “collaboration” – both feminine-coded words. These traits are of course desirable in any job, but the business need to be specific when describing a job and to ensure quality in the pool of candidates suggests that de-gendering job ads can only go so far in practice. (Moreover we have not tested for the impact of any de-gendering job ad language on the gender split of applicants since 2016 – this we leave for future research.)

5. Conclusion

This paper has reviewed the position of women in economic theory, economics education and economics practice. We argued that the role of women and care work is insufficiently incorporated into mainstream economic models and approaches, and illustrated how a more gender-sensitive approach could enrich a particularly gender-blind sub-discipline – macroeconomics. We then documented the lack of a deep pipeline of women entering the profession, and the gender imbalance at senior levels in our own economic Ministry. We looked informally at the recent use of a tool to reduce gendered language in Treasury job ads and found that there are likely to be legitimate cases of using gendered language in certain Treasury job ads, which challenge how far this tool could be effective in promoting gender-balanced applicant pools.

We conclude that the position of women in all three areas of economics is unsatisfactory. While the quality of management and decision making in general has been shown to benefit from diversity in general, in the delivery of quality economic policy advice that benefits all New Zealanders, it is particularly important that a diversity of perspectives is represented.

As a profession we have lots of work to do.

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