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# Gender in economics: A story in the making
## 25th Colin Clark Memorial Lecture University of Queensland

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## 1. Overview

Clark (1940), in his important book *The Conditions of Economic Progress*, charted the evolution of economic structures over the process of development. Reflecting his long-run emphasis, in this 25th Memorial Lecture I begin with an overview of the evolution of the relative bargaining power between men and women. Then I then consider one aspect of the position of women in Australian labour markets—'glass ceilings', which illustrate the pay gaps between otherwise identical women and men. Next I outline my experiments with coauthors that shed new light on the impact of nature and nurture on behavioural outcomes, and that reveal the importance of one particular aspect of culture. I conclude by drawing inferences about the potential for public policy intervention to improve the position of women.

## 2. The origins of our gender roles: a long view

Has the relative bargaining power between men and women been shaped by our evolutionary history? Millions of years ago our ancestors began to colonise what economist Seabright (2012) terms 'a very risky evolutionary niche: the long childhood'. This needed more cooperation between the sexes in order to ensure the survival of the offspring, and sex became not merely reproduction but also a cooperative venture.

There are profound differences between male and female sex cells. Women's are large, scarce and relatively expensive to make. Men's are small, abundant and cheap to manufacture. Because of the relative scarcity of women's eggs, and their costliness once fertilised, women have to be selective about the source of the sperm. A woman carries and nurtures the foetus in her body for over nine months. Once the baby is born, she has to feed and protect the child for a long time afterwards. She does not want to waste her opportunities on unsuitable men; they have to be screened out. So we have female selectivity on the one hand and male persistence on the other hand.

From Charles Darwin onwards, sexual selection – for reproduction – has been seen as distinct from natural selection—for survival. Large brains are for perception, cooperation, reciprocity and the cognitive challenge of keeping track of mutual obligations. These are functions that might be thought of as for natural selection.[1]

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[1] The human brain has additional capabilities. It can produce works of art as well as complex language skills, wit and humour. These brain functions are not for survival and therefore cannot be thought of as part of natural selection. Many evolutionary biologists and evolutionary psychologists see these functions instead as for sexual selection; that is, for reproduction (for example, see Miller, 2000). Matching (or sexual pairing) based on creative courtship behaviour is a key part of sexual selection in human mental evolution.

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**Table 1**
Gender pay gap increases across the wages distribution.

| | 10% | 25% | 50% | 75% | 90% |
|---|---|---|---|---|---|
| Public sector | 0.11 | 0.12 | 0.13 | 0.14 | 0.16 |
| Private sector | 0.01 | 0.06 | 0.13 | 0.20 | 0.26 |

Notes: (i) HILDA data; (ii) quantile regression estimates controlling for individual and employer attributes; (iii) individuals 18–60 years; (iv) OLS estimated gender gap for public sector is 0.12 and for the private sector is 0.12.

Long childhoods are related to large brains. Because a baby's skull only just fitted through the mother's pelvis, birth had to precede brain and body development. Consequently, complex social arrangements became necessary, for it was costly to feed and protect the child who was dependent for so long. Both mother and child needed meat and calories to support the growing brain. Foraging for this diet required more ambitious and cooperative hunting and gathering arrangements. The longer childhood, even in hunting-gatherer groups, meant greater female cooperation with men.

The differences between male and female hominid brains are very small and there are negligible sex differences in the '*g-factor*' underlying IQ test performance. This does not imply that sexual selection is irrelevant, but rather that both sexes are choosy—and that there is *mutual* mate choice. Brains are good indicators of nutritional state and general health: they represent 2% of body weight but consume over 25% of adult metabolic energy (60% in infancy).

This similarity between male and female hominid brains suggests that they faced equally sophisticated cognitive challenges throughout almost all of our evolutionary history. As Seabright (2012) *argues*:

> On this view, the subordinate and dependent condition of women that has characterised relatively recent centuries cannot have obtained for most of the time since we diverged from the chimpanzees and bonobos.

The relative bargaining power between males and females weakened with the introduction of agricultural cultivation. Danish economist Boserup (1970) distinguished between two forms of soil cultivation to prepare the ground for planting. The first is the labour-intensive *shifting cultivation*, which uses hand-held devices such as the hoe and the digging stick. The second is the more capital-intensive *plough cultivation*, which requires upper-body strength to control the plough. Consequently, the latter form of cultivation gave men a comparative advantage relative to women and led to a division of labour in which men worked in the fields while women specialised in work in and around the home. This gender-based division of labour then gave rise to a culture which codified women's place as being in the home.

Testable predictions of this theory are that cultures based on plough cultivation are characterised by less equal beliefs about gender roles. Some recent economic studies empirically test the hypothesis that different agricultural practices influenced the historical gender division of labour, and that they also contributed to the evolution and persistence of gender norms. One example is the paper by Alesina et al. (2013). The study shows that individuals, ethnicities and countries whose ancestors engaged in plough agriculture are characterised by greater gender inequality today, as well as by lower female participation in a range of activities outside the domestic sphere.

The shift in gender bargaining power in favour of men became codified over time in customs and institutions. Over the past century, these customs slowly altered in response to technological developments making household production more productive and market production less reliant on brawn. Now in western economies we are shifting to a post-industrial world, in which the bargaining power of women is again changing. In many societies we are moving towards greater equality and cooperation between the sexes. Yet some elements of our customs have been hard to change.

This can be illustrated by looking at gender pay gaps across the wages distribution. For all employees in the developed countries for which this type of quantile regression analysis has been undertaken, the gender pay gap is increasing across the wages distribution. Moreover this is typically the case even after controlling for all observable characteristics (see inter alia Albrecht et al., 2003 for Sweden, Kee, 2006 for Australia and Arulampalam et al., 2007 for ten of the eleven European countries they examined).

Let us take a look at Australia, at the study by Kee (2006), which used the Household, Income and Labour Dynamics in Australia (HILDA) Survey data. In her sample, the public sector was about 42% male while the private sector was about 56% male. Each specification was estimated (employing quantile regression techniques) separately by gender and sector, using a sample of fulltime and part time employees. Table 1 summarises the principal results.

These QR estimates show that, even when men and women have the same characteristics, there is an increasing gender gap across the wages distribution due to different returns. This phenomenon – of a gender pay gap that is increasing across the wages distribution and accelerating in the upper tail – is labelled in this literature as a 'glass ceiling' effect. In Australia's private sector, the pay gaps are largest at the top.

## 3. Gender differences in risk attitudes or competitiveness?

It has been suggested that there might be gender differences in risk aversion, feedback preferences or taste for competition, and that these might explain gender differences in observed labour market outcomes such as the pay gaps described above. For example, obtaining promotions and pay raises often involves competition, and it may be that women do not like to compete but men do.