

Experience matters? Decomposing changes in Australia's gender pay gap within occupations from 2001 to 2017

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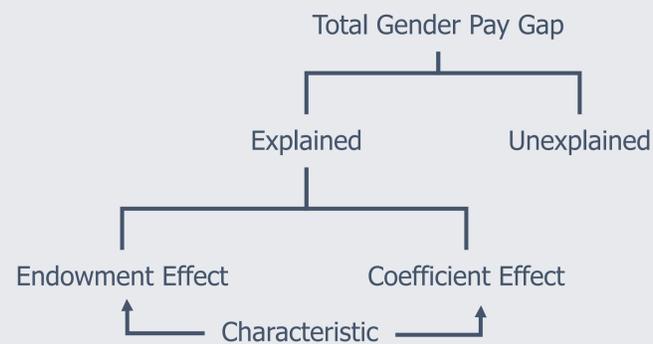
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1. INTRODUCTION

- Using data from the **HILDA** survey, we investigate the leading determinants of changes in the gender pay gap from **2001** (2001-2003) to **2017** (2015-2017).
- We estimate these determinants independently across **eight occupation groups**.

2. MOTIVATION

- Going beyond an issue of equity, the gender pay gap has economic and social implications, with a **persistent gender pay gap discouraging labour force participation** (Cassels et al., 2009).
- Investigating within occupation groups allows us to examine the gender pay gap without relying on mean levels of explanatory variables and coefficients which are estimated across the labour force.



TERMINOLOGY

Characteristics: Independent variables included in the Mincer wage equation which impact wages and therefore the gender pay gap.

Coefficients: The returns which individuals receive from characteristics, represented by coefficients estimated in the OLS equation.

Endowments: The levels of characteristics possessed by an individual.

Total experience: Time the individual has worked in the workforce.

Occupation experience: Time the individual has worked in the occupation they belonged to when they were surveyed.

TABLE 1: SAMPLE SIZE BY OCCUPATION, SEX & TIME

	2001-2003		2015-2017	
	Female	Male	Female	Male
Managers	578	1364	940	1735
Professionals	1575	1726	2305	2070
Technicians & Trade	188	1668	249	1981
Communications & Personal Service	487	415	793	524
Clerical & Administrative	1289	624	1343	619
Sales	267	351	320	309
Machinery Operators & Drivers	62	889	58	1035
Labourers	281	711	226	651

3. METHODOLOGY

Mincer wage equation:

- For each of the occupation groups j we estimate the following equation using OLS, for the two time periods t :

$$w_{ijt} = \beta_{jt}X_{it} + \varepsilon_{it}$$

i : Individual respondent within the sample

w : Log of hourly wages

X : Vector of explanatory variables, including human capital variables and selection terms

β : Vector of coefficients for these explanatory variables

ε : Error term

Selection Terms:

- Heckman selection correction** via the Inverse Mills Ratio to address selection bias arising from the decision to enter the labour force
- Multinomial logit model** to capture the decision of which of the eight occupation groups to enter

Decomposition:

- Methodology in the spirit of **Wellington (1993)**, based on the seminal decompositions by Oaxaca (1973) and Blinder (1973) with the extension of being comparable across time periods. Represented in the below equation:

$$[\hat{\beta}_{16}(\bar{X}_{m16} - \bar{X}_{m01}) - \hat{\beta}_{16}(\bar{X}_{f16} - \bar{X}_{f01})] + [(\hat{\beta}_{16} - \hat{\beta}_{01})\bar{X}_{m01} - (\hat{\beta}_{16} - \hat{\beta}_{01})\bar{X}_{f01}]$$

Endowment Effect

Measures the change in the gender pay gap due to changes in the mean endowments, evaluated at the second period coefficients.

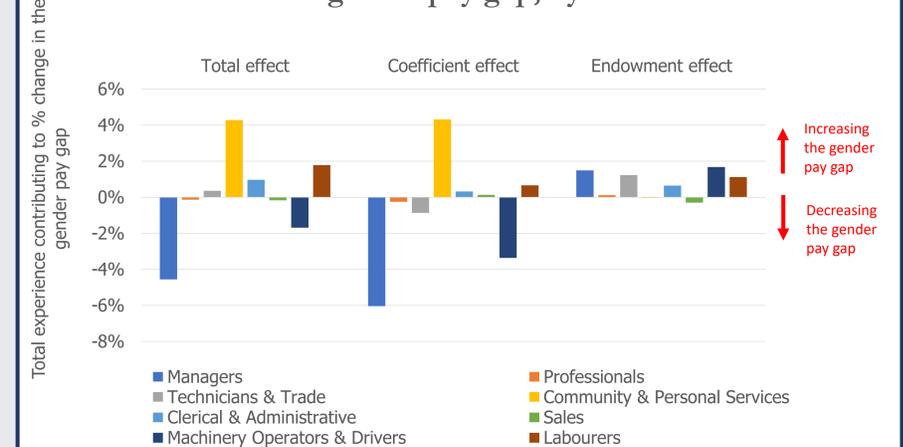
Coefficient Effect

Measures the change in the gender pay gap due to changes in coefficients over time, evaluated at the first period endowments for males and females.

Figure 1: Characteristics contributing to changes in the gender pay gap



Figure 2: Total experience contributing to changes in the gender pay gap, by effects



4. RESULTS

- Total experience** and Education are the **leading characteristics** in causing changes in the gender pay gap between the two periods in almost all occupation groups.
- Predictably Education has contributed to decreases in the gender pay gap in most occupations
- In some occupations the **coefficient effect** of total experience has a **greater impact** than the corresponding endowment effect. Meaning that for these occupations it is not changes in the level of total experience, but rather the **returns to total experience** that is received in the labour force which has primarily driven these changes **in the gender pay gap from 2001 to 2017**.

5. DISCUSSION

- Our results suggest that the returns to total experience have changed from 2001 to 2017 to advantage female wages relative to male wages for some occupations including **Managers**, thus leading to decreases in the gender pay gap.
- At the moment, it is a puzzle as to why the returns to total experience have decreased over this time for selected occupations. What could have caused these changes? Why is the workforce rewarding total experience differently? These questions cannot be answered from our data, and additional research is needed to explore this puzzle further.

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