



Occupational segregation and gender pay gap dynamics in the formal sector of South Africa



Authors:

Adeboye Adelekan¹ 
Mark H.R. Bussin¹ 

Affiliations:

¹Gordon Institute of Business Science, University of Pretoria, Pretoria, South Africa

Corresponding author:

Mark Bussin,
zadrussin@mweb.co.za

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Orientation: The participation of women in the labour force in South Africa has improved and, whilst the gender pay gap is narrowing, it remains persistent. Gender integration in occupations has been slow, and there remains a strong association between income and factors such as gender and occupations.

Research purpose: This study aimed to investigate the effect of the improved labour force participation of women on occupational gender segregation. The term gender is used synonymously with sex in this article, referring to biological (rather than psychological) gender.

Motivation for study: Status of occupational gender segregation is a good measure of effect of the increased labour force participation of women and narrowing the gender pay gap.

Research approach/design and method: A cross-sectional study with descriptive and analytic components was conducted. The gender representation and pay gap were determined in 10 job families, across six industries.

Main findings: Seven occupations have achieved integration at various levels, and three occupations remain fully segregated. The gender pay gap in favour of men in male-dominated occupations is narrower than in female-dominated occupations. A statistically significantly large gap in favour of women was found in some male-dominated occupations.

Practical/managerial implications: Convergence towards similar pay for work of similar value has been achieved in occupations in various industries.

Contribution/value-add: The number of men in an occupation, whilst still a causal factor in the pay gap, was found to no longer be sufficient to deduce that the income of that occupation would be higher, as postulated in literature.

Keywords: gender pay gap; occupational segregation; industry segregation; wage gap; discrimination; inequality.

Introduction

Research indicates improved labour force participation of women and a narrowed gender pay gap in various countries around the world, including South Africa (Bishu & Alkadry, 2017; Blau, Brummund, & Liu, 2013; Steyn, 2012). A South African study of 1740 respondents from 29 organisations conducted by Steyn and Jackson (2015) found that, whilst the pay of men is mostly higher than that of women, the gap is not statistically significant. A similar trend was observed in a larger study by Adelekan and Bussin (2018) to have emerged at management levels. Although women were found to now be better represented in all salary bands, they remain under-represented (Adelekan & Bussin, 2018). The narrowing of the gender pay gap has been linked to the greater presence of skilled women in formal employment and high-paying occupations (Steyn & Jackson, 2015).

Occupational gender segregation is a well-known causal and sustaining factor in gender pay inequality despite the work being of similar value. However, the extent of the effect of the influx of women into formal employment on the status of occupational segregation, especially in male-dominated occupations in South Africa, is not known. Nevertheless, it is documented in the literature that several occupations that were once male-dominated have become female-dominated (also referred to as 'male occupations' and 'female occupations', respectively) through a large influx of women (Blau et al., 2013; Pan, 2015).

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It is not known if this continuous influx has had the desired effect on occupational gender segregation – neutralising the majority of men in ‘male occupations’ – in South Africa, or even tipped the scales to some occupations now being held by a majority of women. It would also be of interest to know whether any of these effects have been reversed although Pan (2015) posits that female-dominated occupations becoming male-dominated rarely occurs (Pan, 2015).

The disaggregation and analysis of income data at the level of occupation and industry are essential to fully understand the effects of the policies and interventions implemented by the South African government and organisations to close the gender pay gap (Paterson, 2010). This view is complemented by the suggestion of Blau and Kahn (2017) that, because of the continued importance of the effect of occupation and industry in the manifestation of a gender pay gap, more research focusing on gender differences in employment distributions and the causes is needed. It is important to assess the gender pay gap both in occupations and in industries to determine whether there is any truth to the argument of sceptics that a gender pay gap does not exist, or that the pay gap disappears, or at least shrinks substantially, once women’s employment choices are taken into account (Ansel, 2017).

Study objectives

The focus of this study was to investigate the effect of the influx of women into formal employment on occupational gender segregation and the gender pay gap in a wide variety of occupations and across selected industries. The aim was to improve our understanding of the achievements so far and to provide guidance to further strengthen interventions against the gender pay gap through greater precision, with measurable outcomes. Three questions were answered to meet the objectives of the study:

- What is the status of occupational gender segregation?
- What is the status of the gender pay gap in each occupation type?
- How does the gender pay gap in each occupation type vary across industries?

Study methodology

Research approach

A quantitative study approach was followed, and descriptive and inferential statistics were used to answer the research questions.

Research method

The remuneration data analysed in this study were obtained from 21st century (Pty) Ltd., one of the largest reward consultancies in Africa. The data were collected in a survey and the over 700 companies, 10 job families (an occupation comprising similar jobs), and six industries. Assessments of the pay gap and occupational segregation were conducted within occupation types and industries.

The occupation types reported on are: ‘Compliance and risk, Executive management, Financial and accounting, Human capital, Information technology, Logistics and procurement, Marketing and sales, Operational, Secretarial, and Technical and specialist’, as defined by 21st century (2018). The industries reported on are Extractive, Transformative, Distributive Services, Producer Services, Social Services, and Personal Services. Table 1 lists the various industry classifications and key operations within these industries.

Sample

The study sample consisted of 217 902 individuals, predominantly men, with 75 373 (34.6%) women, aged 18 years or older, and used predominantly in the private sector.

Study design

This was a cross-sectional study with descriptive and analytic components. The motivations for the processing of data and quantitative methods used to answer the research questions were as described by Adelekan and Bussin (2018).

Unit of analysis

The unit of the analysis was gender pay. ‘Pay’ refers to annual income (guaranteed package). *Guaranteed package* is defined as a basic salary plus benefits per year (Adelekan & Bussin, 2018). The median income is used as a reference point in the reporting, unless stated otherwise. The pay gap was calculated as the difference between the income of men and women as a percentage of the income of men (see Williams, 2017)

Data analysis

The analysis of employees’ annual income was conducted using Stata 16.1 statistical software (StataCorp, 2019) and included descriptive and inferential statistics. The study data, received in an Excel spreadsheet, were cleaned and coded,

TABLE 1: Description of industries represented in the study.

Industry	Key operations in industry
Extractive	Agriculture, forestry and paper, mining, oil and gas
Transformative	Construction and building, utilities and energy, manufacturing (food, textiles, metal, electrical, machinery, chemicals, pharmaceutical, automobile manufacture, miscellaneous)
Distributive services	Transportation and logistics, communication, wholesale, retail
Producer services	Banking and financial services, insurance, real estate/property, engineering, accounting, consulting, legal services, research, IT, miscellaneous business services
Social services	Medical and health services, hospital, education, welfare and religious services, non-profit organisations, postal services, government, state-owned enterprises and parastatal regulators, SETAs, miscellaneous social services
Personal services	Domestic services, hotel, eating and drinking, repair services, laundry, barber and beauty services, entertainment and leisure, media and advertising, miscellaneous personal services

Source: 21st Century. (2018). Paterson job evaluation. Retrieved from <https://www.21century.co.za/remuneration-training/paterson-job-evaluation-training-course/> SETAs, Sector Education and Training Authority; IT, information technology.

and missing values were excluded from the analysis. The resulting sample size was 217 902. The gender distribution in the occupations and industries was measured and described. Analysis of the gender pay gap in occupations and industries was conducted at five percentile points (p10, p25, p50, p75, and p95) in the distribution of the guaranteed package of the employees. Median values were used in the measurement of the gender pay gap. The Mann–Whitney rank-sum test was used to conduct the inferential statistics. Measurements were conducted at the 95% confidence level, and a $p \leq 0.05$ signified statistical significance. The gender pay gap with a bigger p -value indicates convergence towards similar pay for work of similar value (see Adelekan & Bussin, 2018).

Ethical considerations

Ethical clearance was obtained from the Gordon Institute of Business Science (GIBS), University of Pretoria, Temp2016-01448

Results

The distribution of the study sample by occupation and gender is contained in Figure 1. The distribution by occupation type ranges from 1.6% in *Executive management* to 33.6% in *Operational*, with 10.3% unmatched. The occupation types *Operational*, *Technical and specialist* and *Financial and accounting* account for 63.7% of the employees.

Gender distribution per occupation type is as follows: *Operational* – 16 787 women and 56 432 men; *Technical and specialist* – 9249 women and 32 279 men; *Financial and accounting* – 16 323 women and 7626 men. Men are in the majority in all occupations, except *Financial and accounting*, *Human capital*, *Marketing and sales* and *Secretarial*, where women are in the majority.

Across all six industries (as shown in Table 2), women were found to be in the majority in the occupation types *Financial and accounting* and *Secretarial*. Women are also in the majority in *Human capital* across the industries, except in *Extractive*. In the occupation type *Marketing and sales*, women are in the majority in three industries: *Personal Services*, *Producer Services* and *Social Services*.

The number of women in female-dominated occupations in the industries *Personal Services*, *Producer Services*, and *Social Services* is mostly more than double the number of men. Whilst women are not in the majority in *Compliance and risk*, they are more in number relative to men in *Compliance and risk* at *Personal Services*, *Producer Services* and *Social Services*. When considering industries only (disregarding occupation types), women are in the majority in *Producer Services* and *Social Services*.

The employees in *Executive management* earn the highest median annual income (see Table 3). The order of occupation types' median annual income, from highest to the lowest, is '*Executive management*, *Information technology*, *Human capital*, *Compliance and risk*, *Technical and specialist*, *Financial and accounting*, *Secretarial*, *Logistics and procurement*, *Marketing and sales*, and *Operational*'.

Men's median pay was found to be higher than that of women in all occupation types, except *Logistics and procurement*, *Operational*, *Secretarial* and *Technical and specialist*. The observed gender pay gap in the occupations is as follows – *Compliance and risk*: 2.9%, *Executive management*: 8.6%, *Financial and accounting*: 19.0%, *Human capital*: 16.4%, *Information technology*: 13.9%, *Marketing and sales*: 3.6%, *Logistics and procurement*: –41.0%, *Operational*:

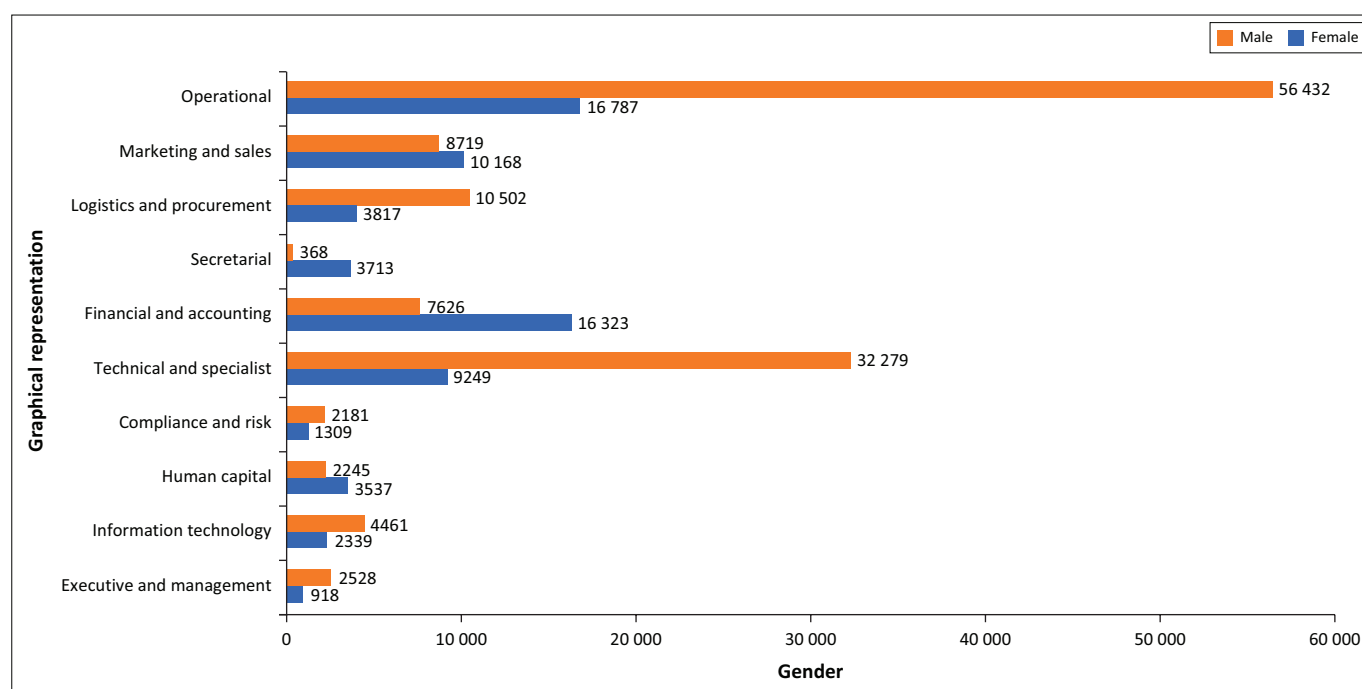


FIGURE 1: Study sample distribution graphical representation.

–60.7%, *Secretarial*: –92.0% and *Technical and specialist* –0.8%. These gaps are all statistically significant, except in *Compliance and risk*.

In occupations where the gender pay gap is in the favour of men, a similar result was observed across the industries, with a few exceptions (Table 4) – *Executive management* in Social Services (–2.0%), *Financial and accounting* in Personal Services (–1.9%), *Marketing and sales* in Distributive Services (–120%) and Personal Services (–15.1%).

Women’s income was found to be superior in *Logistics and procurement*, *Operational*, *Secretarial* and *Technical and specialist* across most of the industries. The gender pay gap favouring women in *Logistics and procurement* ranges from –23.5% (Producer Services) to –55.7% (Transformative), in *Operational* it ranges from –7.1% (Social Services) to –36.6% (Personal Services), in *Secretarial* it ranges from –6.3% (Personal Services) to –67.6% (Social Services) and in *Technical and specialist* it ranges from –1.5% (Transformative) to –18.8% (Personal Services).

Women’s income is not superior in the following occupations and industries (pay gap in brackets): *Logistics and procurement* in Social Services (4.4%), *Operational* in Extractive (2.4%) and Producer Services (0.5%), *Secretarial* in Extractive (3.0%) and *Technical and specialist* in Producer Services (18.9%) and Social Services (17.2%). Whilst in *Marketing and sales*, the overall median income for women is lower than that of men, the income of women in *Marketing and sales* in Distributive Services and Personal Services was found to be higher at every percentile point measured in the income distribution.

Discussion

This section is arranged in accordance with the study questions.

What is the status of occupational gender segregation?

The study found that significantly more men than women are used in the formal sector. The implication is that women are still vastly under-represented in employment,

TABLE 2: Population frequency by gender, job family and industry.

Job family	Industry												Total
	Distributive services		Extractive		Personal services		Producer services		Social services		Transformative		
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	
Compliance and risk	394	1162	70	167	44	41	347	301	193	144	261	366	3490
Executive management	270	681	62	330	44	109	229	693	176	305	137	410	3446
Financial and accounting	4621	2398	822	474	1205	490	4182	1914	2587	1299	2906	1051	23 949
Human capital	692	604	307	348	400	124	793	270	456	269	889	630	5782
Information technology	267	670	110	205	113	314	1135	2272	318	418	396	582	6800
Logistics and procurement	1984	6182	215	903	60	332	197	422	366	634	995	2029	14 319
Marketing and sales	2217	3434	207	315	726	419	4980	2725	721	355	1317	1471	18 887
Operational	6121	16 151	1922	24 280	1352	2469	2571	2835	2503	2898	2318	7799	73 219
Secretarial	668	11	145	5	669	266	890	31	669	34	672	21	4081
Technical and specialist	2047	12 446	546	4488	158	712	521	1866	2366	2015	3611	10 752	41 528
Unmatched	3384	9066	420	1642	581	666	1242	1207	1469	2103	117	504	22 401
Sub-total	22 665	52 805	4826	33 157	5352	5942	17 087	14 536	11 824	10 474	13 619	25 615	-
Total	75 470		37 983		11 294		31 623		22 298		39 234		217 902

TABLE 3: Income distribution trends.

Job family	Job Family Median	p10		p25		p50		p75		p95		p
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Compliance and risk	391014.5	182855.0	260000.0	291701.0	275100.0	396825.0	385168.0	531481.0	561099.0	948444.0	915875.0	0.05
Executive management	1424263.0	999558.0	861582.0	1198694.0	1059157.0	1454492.0	1330118.0	1829071.0	1655457.0	2841652.0	2360000.0	0.000
Financial and accounting	261792.0	124090.0	99481.0	193368.0	161397.0	304598.0	246736.0	433642.0	352688.0	944935.0	661522.0	0.000
Human capital	407544.0	219305.0	191880.0	330107.0	272616.0	450000.0	376324.0	596275.0	523176.0	960797.0	868567.0	0.000
Information technology	464000.0	166320.0	120978.0	288562.0	221780.0	481500.0	414593.0	722400.0	629041.0	1033900.0	923057.0	0.000
Logistics and procurement	210516.0	81140.0	115862.0	130890.0	181289.0	194302.0	273963.0	271063.0	387852.0	612165.0	715170.0	0.000
Marketing and sales	180248.0	49821.0	45348.0	64089.0	79785.0	186000.0	179220.0	408894.0	333839.5	902934.0	709872.0	0.000
Operational	160204.0	107418.0	92574.0	136335.0	132042.0	145049.0	233078.0	275193.5	373728.0	654688.0	744600.0	0.0000
Secretarial	234247.0	83460.0	112992.0	112639.5	148395.0	130548.0	250700.0	153431.0	327716.0	317798.0	463763.0	0.0000
Technical and specialist	358990.5	155425.0	167201.0	210671.0	255993.0	358512.0	361482.0	498850.0	489512.0	903750.0	792120.0	0.0001
Unmatched	262159.0	136335.0	93491.0	154005.0	121198.5	293272.0	191331.0	321127.0	316485.0	557303.0	648174.0	0.000

p, percentiles in a pay distribution.

TABLE 4: Occupational gender pay gap in the industry.

Job family	Distributive services		Extractive industry		Personal services		Producer services		Social services		Transformative industry	
	%	<i>p</i> -value	%	<i>p</i> -value	%	<i>p</i> -value	%	<i>p</i> -value	%	<i>p</i> -value	%	<i>p</i> -value
Compliance and risk	0.3	0.0594	5.2	0.1805	52.4	0.0033	23.7	< 0.0001	15.6	0.0781	8.8	0.2366
Executive management	9.3	0.0002	9.0	0.0062	24.8	< 0.0001	17.6	< 0.0001	(2.0)	0.6620	1.1	0.3308
Financial and accounting	20.8	< 0.0001	4.9	0.0005	(1.9)	0.6135	24.4	< 0.0001	6.4	< 0.0001	17.1	< 0.0001
Human capital	11.7	< 0.0001	14.1	0.0001	16.0	0.0171	10.4	0.0730	9.5	0.3617	14.2	< 0.0001
Information technology	6.6	0.0011	25.6	0.0143	20.6	0.0826	17.6	< 0.0001	39.1	< 0.0001	6.5	0.0413
Logistics and procurement	(48.6)	< 0.0001	(34.3)	< 0.0001	(48.7)	< 0.0001	(23.5)	0.0920	4.4	0.0757	(55.7)	< 0.0001
Marketing and sales	(120.3)	< 0.0001	10.8	0.0002	(15.1)	< 0.0001	30.6	< 0.0001	3.2	0.1032	21.3	< 0.0001
Operational	(11.6)	< 0.0001	2.4	< 0.0001	(36.6)	0.0018	0.5	0.0777	(7.1)	0.0002	(17.1)	< 0.0001
Secretarial	(20.7)	0.7570	3.0	0.9042	(6.3)	< 0.0001	(28.0)	0.1878	(67.6)	< 0.0001	(21.5)	0.0180
Technical and specialist	(6.9)	< 0.0001	(10.0)	0.0632	(18.8)	0.0015	18.9	0.0004	17.2	< 0.0001	(1.5)	0.0076

p, *p*-value; %, percentage; (), negative percentage.

and discrimination being a factor cannot be ruled out (Gnesi, De Santis, & Cardinaleschi, 2016; Steyn, 2012), as the fact remains that women constitute more than 50% of working-age adults in South Africa (Motsoeneng & Kahn, 2014; Steyn, 2012).

The distribution of the study sample in occupations revealed that some occupations have remained fully segregated along gender lines, whilst others have achieved integration at various levels. An occupation in which the workforce consists of $\geq 75\%$ women is referred to as a *female occupation*, $< 25\%$ women represents a *male occupation* and both are considered *segregated*. A ratio of $< 75\%$ and $> 25\%$ in favour of either gender is considered an *integrated occupation* (Hegewisch & Hartmann, 2014).

The distribution of the employees by gender in the occupations showed that three occupations – *Secretarial*, *Technical and specialist*, and *Operational* – have remained fully segregated. *Secretarial* remained predominantly female (91.0%), whilst *Technical and specialist* (77.7%) and *Operational* (77.1%) are predominantly male. *Financial and accounting*, *Human capital* and *Secretarial* are traditional female occupations, typically in the domains of education, care, clerical work and cashiering (Blau & Kahn, 2017; Gnesi et al., 2016; McDowell, 2015). The following are traditional male occupations: *Marketing and sales*, *Compliance and risk*, *Executive management*, *Information technology*, *Logistics and procurement*, *Operational* and *Technical and specialist* (Blau et al., 2013; New JNCHES Equality Working Group, 2011).

The classification of occupation by gender has changed over time and varies across countries, mainly because of the entry of women into more prestigious and better-paying male occupations. This entry of women is known to have led to integration, tipping and re-segregation of occupations (Blau et al., 2013; Pan, 2015). For example, in the report by New Joint Negotiating Committee for Higher Education Staff (JNCHES) Equality Working Group of 2011, it is indicated that men are in the majority in professional and elementary occupations, whilst women are in the majority in sales and customer service occupations. In South Africa, the opposite is true at the moment (Stats SA, 2020). The classification of occupation types and industries may differ across countries, which makes it difficult to compare findings.

The lesser number of women in *Human capital* in the Extractive industry could be because of the manual and hostile nature of the work, which includes inflexible schedules and long work hours (Hegewisch & Hartmann, 2014; Steyn & Jackson, 2015; Trade and Industry Committee, 2005). Again, bias and discrimination against women in these environments cannot be ruled out as a contributory factor to the low numbers of women (Bishu & Alkadry, 2017). Similarly, the high number of women in female-dominated occupations in the Personal Services, Producer Services and Social Services industries could be because of the nature of the work being more suited to the feminine nature (McGrew, 2016). It is widely posited in the literature that many women prefer and work in service-oriented jobs (Blau & Kahn, 2007; Gnesi et al., 2016; Grybaite, 2006; Luci, Jütting, & Morrisson, 2012; McDowell, 2015).

Whilst the occupation types *Secretarial*, *Technical specialist* and *Operational* remain heavily segregated, the remaining occupations have achieved integration at various levels. The integration observed could be suggesting a decline in occupational gender segregation. The study conducted by Blau et al. (2013) established a decreasing trend of occupational segregation in the United States of America.

In the present study, it was observed that the representation of women in the male-dominated occupations is 37.5% in *Compliance and risk*, 36.6% in *Executive management*, 34.4% in *Information technology* and 26.7% in *Logistics and procurement*. In the female-dominated occupations, the representation of men is 31.8% in *Finance and accounting*, 38.8% in *Human capital* and 46.2% in *Marketing and sales*. *Marketing and sales* could be approaching full integration – 49% representation of men, in line with the composition of the labour force (Weeden, Newhart, & Gelbgiser, 2018).

It is also possible that *Marketing and sales* have reached the tipping point, meaning that it is in the process of becoming a female occupation, at which point it would be considered *re-segregated*. Stats SA (2020) reported that men are in the majority in the ‘Sales and services’ occupation type, which is similar to the occupation type *Marketing and sales* reported in the present study. Moreover, the grouping of jobs into either ‘Sales and services’ or ‘Marketing and sales’ may account for differences in results of comparisons.

Although a level of integration is evident in *Compliance and risk*, *Executive management*, *Financial and accounting*, *Human capital*, *Information technology* and *Logistics and procurement*, these occupation types still have a way to go in achieving full integration status.

What is the status of the gender pay gap in each occupation type?

Hegewisch, Liepman, Hayes and Hartman (2010) and McGrew (2016) posit that a majority of men in an occupation is evidence that the occupation pays better than an occupation in which women are in the majority. In the present study, we found that overrepresentation of men in an occupation is not sufficient to support this assumption.

In the present study, it was found that two scenarios increase the income of an occupation: (1) men being the majority and earning higher median incomes or (2) men earning higher median incomes without being in the majority. This finding differs from the report of Hegewisch, Williams and Harbin (2012), which states:

Women's median earnings are lower than men's in nearly all occupations, whether they work in occupations predominantly done by women, occupations predominantly done by men, or occupations with a more even mix of men and women. (p. 1)

In our study, we found that the median income of women is higher in four occupations, of which three are male-dominated occupations (see Figure 2). Nevertheless, in the occupations where women are the majority and earn higher median incomes, or only earn higher median incomes without being the majority, the income is lower. Furthermore, it was found that, as the ratio of women to men increases in female occupations, the occupation's income decreases.

In the occupation types with the highest income, *Executive management*, followed by *Information technology*, and *Compliance and risk* (in fourth place), men are in the majority and earn higher median incomes. This was found for almost all the industries under study and the percentile points considered in the income distribution.

In *Human capital*, the third-highest income, despite women being in the majority, men earn more than women. Once again, this is the case across all industries and percentile points measured.

In *Technical and specialist*, which has the fifth-highest income, men were found to be in the majority, whilst the median income of women is higher from the 10th to the 50th percentile in five of the six industries. However, the median income in *Technical and specialist* was found to be lower compared with similar male occupations, such as *Executive management*, *Information technology* and *Compliance and risk*, in which women do not earn a higher income.

Financial and accounting was found to be a female occupation sharing similarities with *Human capital*. Women are in the

majority, but the median income of men is higher than that of women at all percentile points and across the industries under study. The only difference is the ratio of women to men, which is 1.6 in *Human capital* and 2.1 in *Financial and accounting*. With more women relative to men in *Financial and accounting* than in *Human capital*, the median income in *Financial and accounting* has dropped to the sixth-highest income, with slightly more than half of the income of *Human capital*.

Secretarial, with the seventh-highest income, is a female occupation, with a women-to-men ratio of 10.1. The median income of women in this occupation across most of the industries and at all percentile points is higher than that of men. The higher proportion of women to men, especially at senior levels, could be attributed to the lower income of these female occupations. This observation is similar to the finding of Weeden et al. (2018) that, as the percentage of women in an occupation increases, the median income in the occupation decreases.

Logistics and procurement, a male occupation, has the eighth-highest income of the occupations, and the income of women at the median is higher than men's in most of the industries and at all percentile points. The presence of women in *Logistics and procurement* is more pronounced than in *Technical and specialist*, hence the lower median income measured in *Logistics and procurement*.

Marketing and sales placed ninth in income. It is a female occupation, but the median income of men was found to be higher in most of the industries and at all percentile points. The relatively lower median income in *Marketing and sales* could be due to the work schedule and structure of income in the occupation, that is, part-time and contract appointments, known to pay less, are common in this occupation type (Aláez-Aller, Longás-García, & Ullibarrí-Arce, 2011; Blau & Kahn, 2017; Gnesi et al., 2016; Nadler & Stockdale, 2012), and the income structure often includes commission instead of, or in addition to, a salary (Torpey, 2015). It is also possible that *Marketing and sales* have not been attracting annual income increases at a level similar to that of other female occupations. Another consideration is that *Marketing and sales*, along with *Human capital* and *Financial and accounting*, may have feminised in recent times, and the new (female) entrants secured predominantly junior positions, whilst men retained their positions at senior levels (Sinden, 2017).

In *Operational*, with the tenth-highest income, men are in the majority, but the income of women is higher at the 50th – 95th percentiles across most of the industries. The structure of income and the concentration of high-earning women in middle to top management may have contributed to the low income of the occupation type, compared with other male occupations.

The gender pay gap in male occupations either narrows within a range of 2.9% – 13.9% or favours women in the range

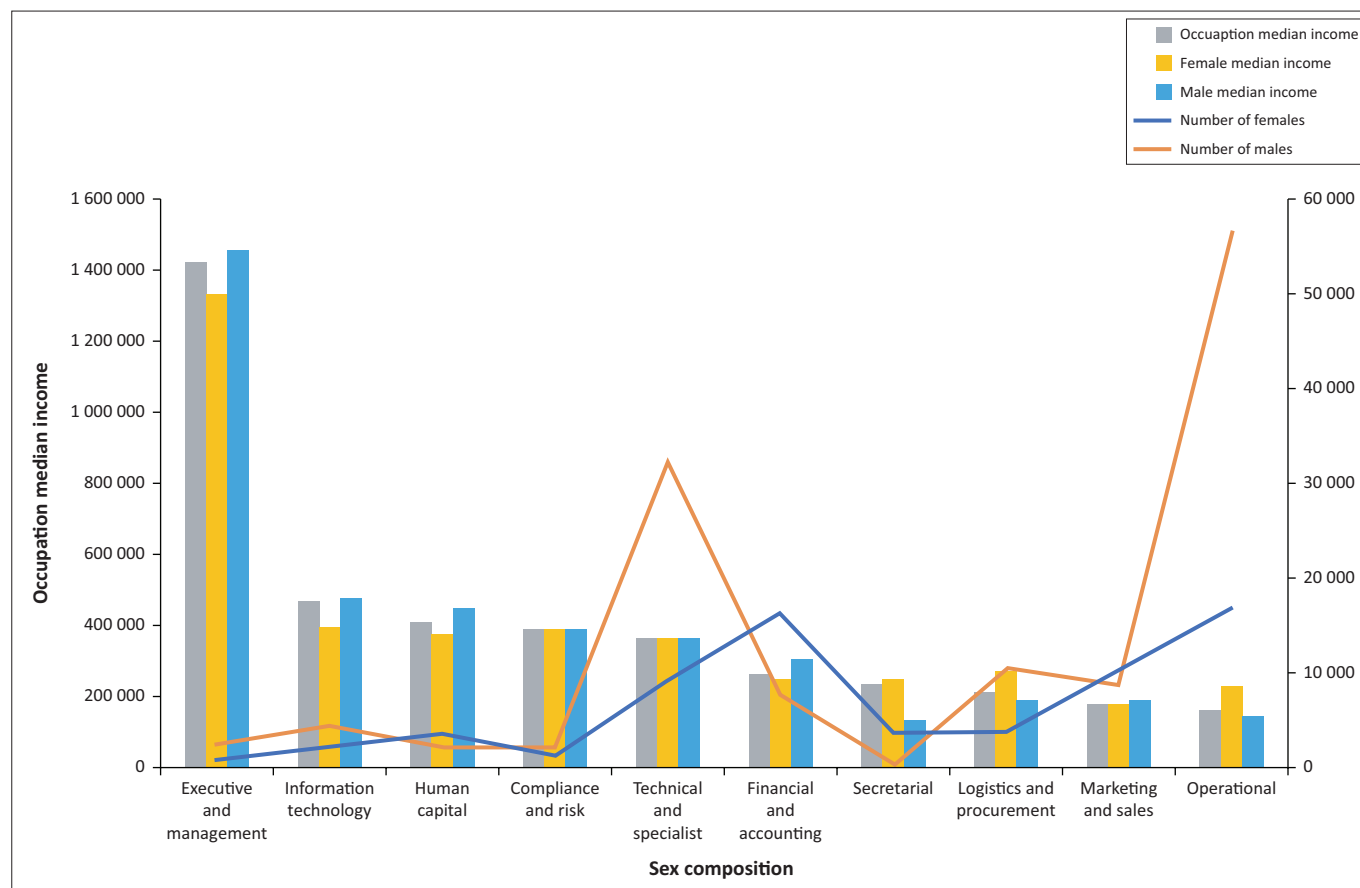


FIGURE 2: Occupation median income and sex composition.

of -0.8% – -60.7% . Despite this narrow status, *Information technology*, *Executive management* and *Compliance and risk* remain male occupations, either in terms of majority and superior income (Hegewisch & Hartmann, 2014). However, the pay gap in *Compliance and risk* is not statistically significant, showing convergence towards similar pay for work of similar value. However, the gender pay gap has widened in favour of women in *Technical and specialist* (by -0.8%), *Logistics and procurement* (by -41.0%) and *Operational* (by -60.7%).

The widened gap in favour of women could be because of the presence of more highly educated and skilled women in senior positions. According to Buhai, Portela, Teulings and Van Vuuren (2014), income increases with seniority, whilst Ebrahim (2017) described seniority as a justification for an income difference, regarded as fair. The entry of highly educated women into male occupations and the effect thereof on the narrowing of the gender pay gap is well documented in the literature (Drolet & Mumford, 2012; Steyn, 2012; Steyn & Jackson, 2015).

The lack of comparably skilled men could have been caused by the men who have moved to other occupations for fear of being stigmatised or due to a loss of occupational prestige as more women moved into the occupation (McGrew, 2016; Pan, 2015). It is also possible that the number of women in these male occupations has reached the critical tipping point described by Pan (2015).

The large gender pay gap favouring women in male occupations could also be an unintended consequence of government's advocacy of employing women in senior positions (Motsoeneng & Kahn, 2014). Women seem to have an established presence and prominence at every management level in *Logistics and procurement*. In *Technical and specialist*, women seem established in junior and middle management, whilst, in *Operational*, women appear well represented in middle and top management. The higher income of these male occupations may have attracted more women (Blau & Kahn, 2017).

The gender pay gap in female occupations varied similarly to those in male occupations. The pay gap in *Marketing and sales*, *Human capital* and *Financial and accounting* was found to be in favour of men. This may be attributable to men enjoying greater promotional opportunities within female occupations, for example, nursing, a phenomenon documented by McDowell (2015) and termed 'the glass escalator' by Williams (1992) and 'gender capital' by Huppatz and Goodwin (2013).

The gender pay gap tends to be larger in female occupations than in male occupations. Amongst the female occupations with the smallest pay gap is *Marketing and sales* (3.6%), where the likelihood of full integration in the near future seems promising. However, this occupation's pay gap is larger than that of *Compliance and*

risk, which showed the smallest gender pay gap of the male occupations.

Similarly, the gender pay gap in *Secretarial* is greater than in *Operational*, whilst the gap in *Human capital*, and *Financial and accounting* is larger than in *Information technology*, in favour of men. The gender pay gap in *Secretarial* (in favour of women) is larger than in *Operational*, and both have the biggest gender pay gap. The narrower gender pay gap in the male-dominated occupations may be due to highly skilled and educated women taking up employment in these occupations (Ansel, 2017; Blau & Kahn, 2007; Drolet & Mumford, 2012; Steyn & Jackson, 2015). However, the relatively large gender pay gaps in female-dominated occupations could be because of either highly skilled professional women preferring not to taking up employment in these occupations, but moving to male occupations where the income is higher, with the rest of the women remaining mostly in junior positions.

Blau and Kahn (2017) reported reduced representation of women in female occupations, including service jobs, whilst their presence is increasing in male occupations. It is worth noting that the income distribution in *Logistics and procurement*, *Operational*, *Secretarial* and *Technical and specialist* revealed three patterns of income superiority of women: a higher income at every point, a higher income from the median to the top point, or a higher income from the lower to the median point.

How does the gender pay gap in each occupation type vary across industries?

The gender pay gap in the occupations was found to vary in proportion, statistical significance, and the gender favoured, across the industries under study. The pay gap in favour of men in *Executive management* was found across the industries and is statistically significant, except in Social Services and Transformative – where it favours women. However, the pay gap in the latter two industries is not statistically significant, indicating convergence towards similar pay for work of similar value.

A superior income was found for men in *Human capital*, *Information technology*, *Compliance and risk*, *Financial and accounting*, and *Marketing and sales* across most oral industries. However, the incomes for *Human capital* in Producer Services and Social Services and for *Information technology* in Personal Services have converged towards similar pay for work of similar value.

Furthermore, the income for *Compliance and risk* has also converged in Distributive Services, Extractive, Social Services and Transformative. For *Financial and accounting*, there has been convergence in Personal Services. The gender pay gap was found to be in favour of men in *Financial and accounting*. However, across the industries, the gender pay gap in Personal Services in favour of women has converged towards similar pay for work of similar value.

Similarly, in *Marketing and sales*, large and statistically significant gender pay gaps in favour of women were observed in Distributive Services and Personal Services. This indicates the presence of women compared to men, in senior positions within the respective industries. The incomes for *Marketing and sales* in Social Services have also converged.

A gender pay gap favouring women was observed for *Logistics and procurement*, *Operational*, *Secretarial*, and *Technical and specialist* in some industries. The gender pay gap favouring women in *Logistics and procurement* is large and statistically significant in more than half of the industries (Distributive Services, Extractive, Personal Services and Transformative). These gaps indicate the presence of few but skilled women in senior positions, whilst men, although in the majority, are mostly in junior positions with a lower income.

Furthermore, the gender pay gap in Producer Services and Social Services is not statistically significant, showing that women's and men's incomes in *Logistics and procurement* in these industries have converged towards similar pay for work of similar value. The gender pay gap in favour of women in *Operational* was found to be very large. Across the industries, the gender pay gap in favour of women ranged from small to large – but statistically significant – in Distributive Services, Personal Services, Social Services and Transformative.

The gender pay gap in Extractive is statistically significant and in favour of men, whilst in Personal Services, although the pay gap is in favour of men, the genders' incomes have converged. For *Technical and specialist*, a gender pay gap in favour of women was found for Distributive Services, Extractive, Personal Services and Transformative. The gender pay gap in Producer Services and Social Services is in favour of men. The gender pay gap is statistically significant across all industries, except in Extractive, which showed pay convergence.

In *Secretarial*, the gender pay gap was found to be in favour of women in five industries. The gender pay gap is statistically significant in three industries (Personal Services, Social Services, and Transformative), whilst the incomes have converged towards similar pay for work of similar value in Distributive Services and Producer Services.

The gender pay gap in Extractive was found to be in favour of men but has converged towards similar pay for work of similar value. Although men have a small representation in *Secretarial*, they earn an income comparable with that of women in Extractive, Distributive Services and Producer Services. This observation could be associated with the gender capital or glass escalator phenomenon.

Limitations of the study

The study data could not be used to measure trends in occupational gender composition and the gender pay gap

over time. Although the study sample was very large, generalisation of the findings should be done with caution, as the degree to which the sample is representative of the formal sector in South Africa is not known. The results may be more applicable to the private sector than the public sector, as most of the organisations represented in the study were in the private sector. Variations in the classification of jobs into occupation type and industry should be factored in when processing and applying the findings of this study. Also, bias due to unclassified data could not be ruled out.

Areas where further studies are required

Similar studies are needed in the future to monitor progress towards targets and to refine interventions as needed. Also, the reasons why statistically significant gender pay gaps favouring women emerged in male-dominated occupations need to be determined. Could this be the unintended consequence of interventions, or is it attributable to the way in which these are implemented? Such research would be useful in ensuring the desired goals are achieved. Given the history of apartheid, it is also necessary to conduct research on the gender pay gap amongst and within race groups.

Implications for management

The efforts of government and business in promoting gender equality and similar pay for work of similar value are bearing fruit. Transformation has taken place but at a slow pace and have not met expectations. Women have been able to move into male occupations, and the gender pay gap has narrowed. Desegregation is coming into effect, as this study found that only a few occupations have remained fully segregated (less than 25% women), whilst one occupation is nearing full integration. Achieving gender equality in all occupations is still far off target, evident in the gender composition of most of the occupations not being near full integration.

The income in only one of the occupations has converged towards similar pay for work of similar value, and the gender pay gap in the other occupations and across industries varies. The gender pay gap in each occupation has remedied to similar pay for work of similar value in at least one industry.

The detailed status of the gender pay gap in occupations and across industries reported in this study can be used to measure current gains and future progress towards gender equality in representation and similar pay for work of similar value. The results may also guide the refinement of targeted interventions and assist in monitoring the outcomes.

Recommendations

The number of women in employment is still lower than it should be. Transformation in gender composition and pay needs to be monitored more actively and addressed proactively. Tax incentives could be introduced to promote gender representativity and similar pay for work of similar value at all levels in occupations and across industries.

However, equity in pay and representation should also be targeted at attracting and retaining men in positions in occupations and across industries where an emerging large gender pay gap in favour of women is evident.

Conclusion

Evidence from this study suggests a decline in occupational segregation. However, three occupations have remained fully segregated – either predominantly female (*Secretarial*) or predominantly male (*Operational* and *Technical and specialist*). The remaining occupations have achieved integration at various levels although these have retained either a female or male identity based on a majority gender. *Marketing and sales* may either be re-segregating or approaching full integration. The number of men in an occupation alone is no longer sufficient grounds to assume that it pays better than another occupation.

Men's income was found to be higher in the male occupations *Executive management*, *Information technology* and *Compliance and risk* at most or all percentile points in the income distribution and across industries. The female occupation *Secretarial* showed inverse characteristics, with the income of women being higher than that of men at all percentile points and across industries. Income was found to be higher in male occupations where the median income gap favours men, followed by female occupations, where men enjoy a superior median income.

The lowest-paying occupation was a male occupation, where women have a superior median income. Men being in the majority and receiving a superior median income enhances the income of the occupation. Furthermore, the presence of men with a superior median income in a female occupation was found to enhance the income of the occupation. However, income is lower in male occupations where women hold senior positions. The reductive effect of the entry of women into male occupations becomes clear as women ascend to senior positions, particularly evident in a superior income at the median of the income distribution.

It was further found that, as the number of women in a female occupation increases, the income decreases. The lack of men at comparable levels in *Secretarial*, *Logistics and procurement*, and *Operational* may have tipped the income scale, evident in the emergence of a large gender pay gap in favour of women. *Logistics and procurement* and *Operational* run the risk of becoming feminised overtime if interventions are not implemented to neutralise the gender pay gap in favour of women.

A statistically significant gender pay gap in favour of either men or women persists in all occupations, except *Compliance and risk*, where the incomes have converged towards similar pay for work of similar value. The pay in each occupation has achieved a measure of convergence towards similar pay for work of similar value in at least one industry.

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Data availability

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