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Marginalized by race and place: A multilevel analysis of occupational sex segregation in post-apartheid South Africa

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Marginalized by race and place

A multilevel analysis of occupational sex segregation in post-apartheid South Africa

Marginalized by
race and place

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Abstract

Purpose – Given South Africa’s apartheid history, studies have primarily focused on racial discrimination in employment outcomes, with lesser attention paid to gender and context. The purpose of this paper is to fill an important gap by examining the combined effect of macro- and micro-level factors on occupational sex segregation in post-apartheid South Africa. Intersections by race are also explored.

Design/methodology/approach – A multilevel multinomial logistic regression is used to examine the influence of various supply and demand variables on women’s placement in white- and blue-collar male-dominated occupations. Data from the 2001 Census and other published sources are used, with women nested in magisterial districts.

Findings – Demand-side results indicate that service sector specialization augments differentiation by increasing women’s opportunities in both white-collar male- and female-dominated occupations. Contrary to expectations, urban residence does not influence women’s, particularly African women’s, placement in any male-type positions, although Whites (white-collar) and Coloureds (blue-collar) fare better. Supply side human capital models are supported in general with African women receiving higher returns from education relative to others, although theories of “maternal incompatibility” are partially disproved. Finally, among all racial groups, African women are least likely to be employed in any male-dominated occupations, highlighting their marginalization and sustained discrimination in the labour market.

Practical implications – An analysis of women’s placement in white- and blue-collar male-dominated occupations by race provides practical information to design equitable work policies by gender and race.

Social implications – Sex-typing of occupations has deleterious consequences such as lower security, wage differentials, and fewer prospects for promotion, that in turn increase labour market rigidity, reduce economic efficiency, and bar women from reaching their full potential.

Originality/value – Very few empirical studies have examined occupational sex segregation (using detailed three-digit data) in developing countries, including South Africa. Methodologically, the paper uses multilevel techniques to correctly estimate ways in which context influences individual outcomes. Finally, it contributes to the literature on intersectionality by examining how gender and race sustain systems of inequality.

Keywords Human capital, South Africa, Race, Multilevel, Blue- and white-collar, Occupational sex segregation

Paper type Research paper

1. Introduction: a multilevel approach

Despite dramatic changes in the family, workplace, and the state, occupational sex segregation or the employment of women and men in occupations different from each other remains a persistent feature of almost all societies (Charles and Grusky, 2004). Because “differentiation is the sine qua non of dominance systems” (Reskin, 1988, p. 64), sex-typing of jobs lays the foundation for other forms of inequalities such as

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wage differentials, lower job security, and fewer prospects for promotion[1]. This, in turn, increases labour market rigidity, reduces economic efficiency, and limits women from reaching their full potential (Anker, 1998). Indeed, the intersection of occupational sex segregation with other sources of stratification such as race, class, or even age has made it a key focus of sociological inquiry (Browne and Misra, 2003).

Studies typically examine this issue through either a macro- or a micro-level lens, although both have their shortcomings. In the former, data aggregation limits the investigation of the effects of crucial characteristics such as race and education, especially in contexts where social structures create and sustain inequality (van der Lippe and van Dijk, 2002). Such broad, often comparative, analyses use summary indices that provide an overall measure, but not patterns, of occupational segregation (Chang, 2004). Micro-level explanations, on the other hand, overlook the influence of structural factors that constrain or enhance women's placement in gendered occupations. Importantly, these standard regression models are not sensitive to the hierarchical or regionally clustered nature of data, e.g. areas as aggregates of households or individuals. Introducing variables measured at multiple levels into a single-level equation can thus lead to aggregation bias and misestimated standard errors (Raudenbusch and Bryk, 2002). While multilevel models correct these methodological problems, very few studies have used them to analyse occupational segregation (Cipollone and D'Ippoliti, 2011).

This paper fills an important gap in the literature by examining the combined effect of macro- and micro-level factors on occupational sex segregation in South Africa. South Africa is an interesting case study because its unique experience with apartheid exacerbated inequalities in employment outcomes across various social groups and geographically that persist till date (Standing *et al.*, 1996). Apartheid also intersected with patriarchal beliefs to marginalize women, with African women being particularly targeted. ("African" instead of "black African" will be used throughout the paper[2].) Yet, given South Africa's history, studies have primarily focused on the failure of the labour market to alleviate racial discrimination in employment outcomes, largely ignoring issues of gender and context (Mwabu and Schultz, 2000; Kingdon and Knight, 2007). A consideration of these important dimensions of stratification is thus warranted.

In the remaining study, the theoretical framework and a background of the South African labour market are first delineated to situate the research hypotheses. Using data from the 2001 Census and other sources, broad occupational patterns among South African women are examined. Multilevel multinomial regressions predicting the likelihood of their placement in white- and blue-collar male-dominated occupations as well as intersections by race are then explored. Several influential studies have used occupational sex composition as a proxy for segregation because it provides practical information to design appropriate gender-equitable policies (Jacobs, 1989; Charles and Buchmann, 1994; England *et al.*, 1996; Anker, 1998; Presser and Yi, 2008; England, 2010). Explanations are advanced and the paper concludes with a discussion of policy implications and future research.

2. Theoretical framework

Theories of occupational sex segregation fall into supply-side explanations based on worker characteristics and preferences, and demand-side perspectives that emphasize a market demand for female labour, organizational discrimination, and labour queuing. Though these frameworks seem mutually exclusive, they are, in fact, closely intertwined.

Supply-side neoclassical theories focus on human capital – the personal, unique, and non-transferable assets such as formal education, skills, experience, and training programmes – that workers invest in to augment their marketable credentials (Becker, 1957). The expectation is that individuals and social groups (e.g. by gender and race) can become perfect substitutes for each other as they converge in the amount and kinds of human capital they possess (Mincer and Polachek, 1974). Race-based approaches to occupational segregation focus on skill deficits or differences in qualifications between racial groups, while gender-based approaches highlight differences in “preferences” between women and men (Kaufman, 2010).

An extension of neoclassical theories is the premise that rational individuals make human capital and/or occupational choices as part of their utility maximizing decisions stemming from diverse, and often conflicting, productive and reproductive roles (Mincer and Polachek, 1974; England, 2005). This “choice” argument is used to explain segregation by sex, but not race. Due to issues of “maternal incompatibility”, women tend to underinvest in their human capital or prefer work positions that accommodate unanticipated career interruptions stemming from life cycle factors such as family structure, composition, and responsibilities (England, 2010). Because childcare standards are invariant, a rational household is one where those with higher human capital, usually men, select into high-status jobs. Concomitantly, women move into positions with lower penalties for temporary withdrawal from the labour force (Trappe and Rosenfeld, 2004).

Yet, findings pertaining to the human capital and maternal incompatibility theories are mixed. Expectedly, while women’s upward mobility in white-collar jobs is contingent on tertiary education, it does not have a significant effect on their entry into blue-collar predominantly male positions that require on-the-job training (Bergmann, 2011). Studies from developing countries indicate that women’s educational attainment is positively related to occupational placement, with higher returns at higher levels (Anker, 1998; Buchmann and Hannum, 2001). Because of wide gender gaps in education, basic literacy is required for almost all modern sector jobs and secondary school and higher for high-status jobs. Results from Western countries are less consistent. Occupational segregation has persisted in the USA despite women’s levels of education converging with and even overtaking that of men (Cotter *et al.*, 2011). Studies from Europe, however, find positive support for the theory because of the emphasis placed on vocational training that is often gender specific (Charles and Buchmann, 1994; Bettio, 2008). Returns on educational investments also vary, with women and most minorities generally hitting the glass ceiling at senior positions. In South Africa, educational disparities explain race-based differences in occupational status, but not income (Treiman *et al.*, 1996), a finding echoed in China for ethnic differences (Hannum and Xie, 1998).

In terms of “maternal incompatibility”, while family obligations such as marriage and the presence of children may restrict women’s labour force participation, the effect on their occupational sex-type is still unclear (Rosenfeld and Spencer, 1992; Presser and Yi, 2008). Indeed, social groups may have diverse cultural beliefs concerning gender roles, with implications for occupational choices. In the USA, Okamoto and England (1999) found that motherhood increased the likelihood of White and Hispanic, but not African-American, mothers working in predominately female jobs, although research by Jacobs (1989) did not confirm these results. In certain contexts, the availability of alternative forms of childcare arrangements allows mothers to effectively intermesh work, childbearing, and rearing with little role conflict (Mason and Palan, 1981). As women increasingly become co-equal or sole household earners due to declining

dependence on men's income, changing cultural norms, or the feminization of the workforce, they are more willing to overcome the desire to conform to gender stereotypes (Bergmann, 2011). Hence, women may compete for higher pay by seeking to enter male-dominated jobs, but may also face greater resistance when attempting to enter blue-collar rather than white-collar jobs (Moccio, 2009).

A substantial body of supply-side research also suggests that gendered preferences and behaviours reflect gendered socialization (England, 2010). According to Charles (2003, p. 203), sex segregation is a "principally cultural phenomena reflecting the influence of two deep-rooted ideological tenets". Gender essentialism represents women as more competent than men in services, nurturance, and social interaction, while male primacy embodies men as more status worthy, and accordingly, more befitting for positions of authority. Although biological differences (e.g. women's reproductive role, men's physical strength) may have contributed to the initial development of these principles, they have subsequently become ideologically and institutionally entrenched (Charles and Grusky, 2004). Many occupations, including associated skills and working conditions, are thus either defined as prototypically "female" (requiring dexterity, clerical perception, and nurturance) or "male" (strenuousness, mechanical ability, and high-status interactions), leading to uneven gender representation (Reskin and Roos, 1990).

While worker "preference" for certain jobs is a supply-side socio-cultural explanation, a demand-side perspective highlights employer statistical discrimination and queuing. Based on broad societal stereotypes and past patterns of segregation, employers may intentionally or unconsciously use sex and race as hiring screens, with the belief that group membership, on average, is related to worker qualifications and productivity (Kaufman, 2002; Pager and Quillian, 2005). Statistical discrimination is thus a crucial mechanism by which stereotyping creates segregation. Reskin and Roos' (1990) "queuing" perspective extends this by positing that employers "rank" candidates in the labour queue not only by their human capital but also by a match between their race-sex combination and the race-sex stereotypes associated with job tasks and skills. For instance, stereotypically "black" (or minority) work includes physical manual work, poor working conditions, and deferential tasks, while stereotypical "white" work may require high skill and authority (Bielby and Baron, 1986). Gender appropriate skills are described earlier, with minority women more likely to be stereotyped (e.g. the "strong" black woman) than white women. Because such labels "derive from the content of a job's tasks, they affect the race-sex ordering of the labour queue beyond any real or perceived group differences in productivity or trainability that may trigger statistical discrimination by skill levels" (Kaufman, 2002, p. 550). Queuing thus reserves the best jobs for favoured groups (e.g. whites and men) and relegates other groups (minorities and women) to less desirable ones (Reskin and Roos, 1990).

Finally, economic development has a paradoxical effect on occupational segregation. Technological and social processes such as urbanization, industrial expansion, and increasing education have influenced the nature of work and available work forces, particularly of women (Anker, 1998). An increasing demand for skill, coupled with formalization, rationalization, and efficiency restricts employer subjectivity in hiring job candidates based on ascriptive characteristics such as race and sex (Kmec *et al.*, 2010). When high-skilled positions experience growth, employers must either defer hiring until more members of their "preferred" group obtain training (an economically inefficient process) or hire from race-sex groups further down the labour queue (Kaufman, 2002). Thus, economic growth reduces the importance of potential workers' ascriptive classification, leading to increasing occupational desegregation. However, service sector

specialization counteracts these integrative tendencies by increasing differentiation, primarily in white-collar occupations (Charles, 2003). Although bureaucratization creates new opportunities for skilled women and minorities at the top of the hierarchy, there is also a growth in low-skilled jobs that have functional or symbolic similarities to traditionally domestic activities. Bolstered by organizational adaptations such as part-time flexible scheduling, these jobs cater to women's "preferences" and become feminized "occupational ghettos" in the process (Charles and Grusky, 2004).

Indeed, the service sector represents an important dimension of segregation that is not adequately captured in the segmented or dual (primary and secondary) labour market literature. Compared to the secondary sector, jobs in the primary sector are better in terms of working conditions, opportunities for advancement, and protection that allow employers to attract and retain better-qualified workers (Piore, 1972; Anker, 1998). The difference between both sectors lies in work quality and conditions rather than employee qualifications; thus, workers often face barriers moving from one sector to the other (Kaufman, 2002). Segregation reflects this duality – women and minority groups are concentrated in the secondary sector, while men and privileged social groups in the primary – highlighting employer partiality for workers perceived to possess more stable labour market experience and low turnover rates (Bielby and Baron, 1986; Ridgeway, 2011). Because women and minorities are regarded as investment risks with low returns, employers may be less willing to provide them with on-the-job training, resulting in a self-perpetuating phenomenon of preferential hiring, overcrowding, and segregation (Bergmann, 2011; Tomaskovic-Devey and Stainback, 2012).

3. South Africa: interlocking axes of inequality

A significant factor distinguishing South Africa from other countries is its experience of institutionalized segregationist and apartheid policies that separated Whites from non-Whites (i.e. Africans, Coloureds, and Indians), non-whites from each other, and ethnic groups among Africans. Manifested through the strict division and hierarchy of labour and residences, it socially engineered the landscape through uneven urbanization and the creation of ten predominantly rural tribal homelands. Procedures such as influx control and pass laws, forced resettlement programmes, and strategically located economic "growth points" near homelands restricted African in-migration into White urban centres. Apartheid also helped maintain a migrant labour system that fundamentally shaped their employment patterns. Indians and Coloureds lived in urban townships and/or rural areas where, relative to Africans, they enjoyed preferential access to economic opportunities, but remained disenfranchised and vulnerable to ceilings on job promotions (May, 2000). As a conservative patriarchal system, apartheid also restricted women's participation in public spaces, with racial differences (Bozzoli, 1983).

Although the apartheid vision of "separate development for separate groups" ended in 1994 when Nelson Mandela was elected President, South Africa continues to struggle with high levels of inequality and sluggish economic growth. The Gini coefficient increased from 0.59 in 1994 to 0.69 in 2012, making it one of the most unequal countries in the world. Despite being classified as an upper middle-class country, 47 per cent of the South African population was classified as poor in 2012, with disproportionately more Africans than Whites. Rural poverty is concentrated in the former homelands where 72 per cent of the poor, primarily Africans, reside (May, 2000).

Historically, the public sector, agriculture, mining, and, manufacturing dominated formal employment, but since the 1990s, the latter three, particularly manufacturing, have lost ground to the service sector. Although its contribution to GDP has dropped over the past decade, the number of public sector employees has increased (quarter of the formally employed), with a significant proportion working in education and health-related fields. Indeed, post-apartheid deracialization and sectoral compositional changes has widened the opportunities available to African graduates. Besides being their primary source of first employment, the public sector, relative to private, has implemented policies aimed to narrow the gender and race wage gap. The financial, insurance, real estate and business sectors have expanded and require an increasingly skilled and educated workforce, which is in short supply. Finally, the domestic sector has grown, although workers, primarily African women, remain underpaid and legally unprotected (Leibbrandt *et al.*, 2010).

The post-apartheid labour market remains fragmented in terms of gender, race, and region. Unemployment has inched from 23 per cent in 1994 to 24.9 per cent in 2010. An increase in the working-age population has created a large pool of low-skilled African, youth, and women workers (Leibbrandt *et al.*, 2010). Female labour force participation rates are highest among Whites, followed by Coloureds, Africans, and Indians, and have surged primarily due to higher education levels, loss of male employment, HIV/AIDS mortality, and increasing feminization of households and poverty (Kingdon and Knight, 2007). A rural-urban labour divide also exists, which is compounded by an apartheid-era structural imbalance between the geographical locations of jobs with most activity concentrated in Gauteng, KwaZulu-Natal, and Western Cape (Standing *et al.*, 1996). Despite labour legislations that support small, medium, and micro-enterprises and Black Economic Empowerment, historically marginalized groups continue to remain economically excluded.

Some argue that sustained un- and underemployment is an effect of higher wage bargaining by trade unions and the implementation of firmer labour laws that force employers to subcontract or downsize (Bhorat *et al.*, 2002). Others have blamed it to deindustrialization and the government's neoliberal strategies that focus on trade liberalization and intensified domestic competition (Kingdon and Knight, 2007). Capital intensification of traditional resource-based industries and a substitution of skilled workers in various economic activities have further reduced the labour absorption rate (Leibbrandt *et al.*, 2010). Indeed, women who work in labour-intensive industries (e.g. clothing, leather) have borne the short-term costs of restructuring, while longer-term benefits have favoured men. These factors have created a flexible labour market hinged on contingent, part-time, or even home-based low-wage and low-status jobs with limited benefits (Bhorat *et al.*, 2002).

4. Hypotheses

Considering the theoretical framework and South African background delineated in the previous sections, the following hypotheses will now be tested:

- H1. White women have a higher likelihood of being employed in both white- and blue-collar male-dominated occupations, followed by Indians, Coloureds, and finally, Africans.
- H2. Educational attainment increases women's likelihood of being employed in male-dominated occupations, particularly those that are white-collar, with higher returns for Africans compared to other groups.

- H3. Married women are less likely to be employed in both white- and blue-collar male-dominated occupations than those who are single, with a stronger effect for Whites compared to the other racial groups.
- H4. Women with more children are less likely to be employed in both white- and blue-collar male-dominated occupations, with a stronger effect for Whites compared to other racial groups.
- H5. Residence in an urban district increases women's, and particularly African women's, likelihood of being employed in white- and blue-collar male-dominated occupations.
- H6. A high proportion of service industries in an area increases women's likelihood of being employed in white-collar occupations in general, but reduces it in both male-dominated occupations. This effect is hypothesized to be similar for all racial groups.

5. Methods

5.1 Data and sample selection

Due to methodological concerns stemming from the hierarchical nature of some hypotheses, two levels of data are used. Level-1 (individual) data, a 10 per cent publicly available sample of the 2001 Census, is comprised of 253,340 women who reported an occupation. Occupations are coded according to the South African Standard Classification of Occupations, based on the UN International Standard Classification of Occupations (ISCO-1988). The one-digit level has nine occupational groupings (ref: Table I), two-digit level has 27, and three-digit level, 136. Such detailed information, large sampling fraction, and wide geographic coverage provide enough cases per occupation to warrant using the Census rather than smaller labour force surveys for this study (Anker, 1998). Level-2 data includes labour market and demographic indicators for 354 magisterial districts, the smallest geographic unit for which data are available, and is gathered from official published sources and aggregated Census variables. Both levels are merged using unique identifier codes so that women are nested within magisterial districts.

Category	Representative occupations	
	White collar	Blue collar
Male-dominated	Production managers General managers Architects	Miners, shot firers, and stone cutters Building frame/related trade workers Machinery mechanics/fitters
Gender-integrated	Other managers, Business professionals Finance/sales associate professionals	Agricultural, fishery, related workers Mining/construction labourers Manufacturing labourers
Female-dominated	Nursing/midwifery associate professionals Primary education associate professionals Teaching associate professionals	Textile, garment/related trades workers Personal care/related workers Domestic/related helpers

Table I.
Representative
occupations in the
dependent variable
typology

In terms of sample selection, employed women in the prime working years of 25-54 are included. By age 25, a majority have completed their secondary schooling although racial differences persist. 54 years is appropriate for sample restriction because South Africa does not have an official retirement age or state-sponsored retirement scheme that would have acted as an incentive for workers to remain employed. Unclassifiable occupations in the one-digit "998 or undetermined" category and in the "not elsewhere classified" three-digit sub-categories within broad groups are excluded. To reduce selection bias, part- and full-time workers are not disaggregated because female-dominated occupations are likely to offer more part-time options than male ones.

5.2 Key variables

5.2.1 Dependent variable. The dependent variable is a woman's employment in a white- or blue-collar gender-dominated or integrated occupation. As a first step, a variable for sex composition is created, which is a common technique to tap into sex-stereotyping of occupations (Jacobs, 1989; Charles and Buchmann, 1994; England *et al.*, 1996; Anker, 1998; Presser and Yi, 2008; England, 2010). A female-dominated occupation has more than 66 per cent women, male-dominated < 33 per cent, and gender-integrated between 33 and 66 per cent women. Female-dominated and gender-integrated occupations are differentiated rather than merged to study against male-dominated ones because occupation type, not just employment, is critical.

As a second step, the ISCO-1988 coding is used that, by design, differentiates occupations into blue- and white-collar, thus tapping into gender essentialism (Erikson and Goldthorpe, 1992; Ganzeboom and Treiman, 1996). Legislative and Managerial (code 1); Professionals (2); Technicians and Related Support (3); Clerical (4); and some Services/Sales (5); Fashion and Other Models, Shop Salespersons and Demonstrators) are classified as white-collar occupations. Blue-collar include some Services/Sales (5); Travel attendants/related, House-keeping and restaurant services, Protective services, and Personal care/related); Skilled Agriculture and Fishery (6); Precision, Production and Craft Repair (7); Operators, Fabricators, and Labourers (8); and Elementary (9). Select service/elementary occupations are considered blue-collar because of associated skill and earnings in South Africa (Treiman, 2007).

Finally, gender-composition and collar-type variables are merged to create the following categories of the dependent variable:

- (1) blue-collar female-dominated occupation;
- (2) blue-collar gender-integrated occupation;
- (3) blue-collar male-dominated occupation;
- (4) white-collar female-dominated occupation;
- (5) white-collar gender-integrated occupation; and
- (6) white-collar male-dominated occupation.

Instead of running separate models for gender composition by collar-type, both are combined with the justification that such an analytic strategy will allow an exploration of the effects of various covariates across the typological spectrum and highlight patterns of placement. Table I includes a list of representative occupations.

5.2.2 Independent variables. Supply-side (or micro-level) independent variables are organized into two groups: human capital and family status (to test "maternal incompatibility"). Educational attainment, one aspect of human capital, includes: no

schooling (reference category), in or completed primary school, in secondary school, completed secondary school, diploma or certificate, and college/higher. Distinctions between the following are noted: “completed secondary” and “in secondary” because individuals may enrol in but not complete secondary school and “diploma/certificate” and “college and higher” because an increasing proportion of women enrol in vocational courses without a college degree. The education variable, however, reflects quantity, and not quality, particularly for Africans who have suffered inferior levels of schooling under apartheid. Educational attainment is expected to increase one’s chances of being placed in male (white collar) jobs, with higher returns for non-whites than whites. Age (with a quadratic term for non-linearity) is a continuous variable ranging from 25 to 54 years and proxies work experience.

Theories of “maternal incompatibility” are tested through variables that tap into marriage and childbearing. Marital status is dichotomous with currently married and not married (reference category that includes cohabiting, never married, widowed, separated, or divorced). Number of children ever born is a continuous variable that gauges long-term effects of childcare responsibilities. Conversely, presence of children below five, with present and none present (reference category) measures short-term effects of childrearing. Both variables highlight different but equally important aspects of childbearing. Despite concerns of multicollinearity, keeping both or omitting either did not change the results significantly. Regardless of race, married women or those with more or young children may not opt for male-dominated jobs. Family childcare support is proxied through the dichotomous variable, “presence of economically not active women above age 15 in the household”, the absence of which is expected to restrict a mother’s employment in male-type jobs. No data is available for institutional childcare help, a variable that would be useful to include in future Censuses and labour force surveys. Finally, race has four categories: African (reference), Coloured, Indian, and White, with the latter most likely to be in male-dominated jobs. Table II includes descriptive data of the key individual-level independent variables for all women and by race.

Demand-side (or macro-level) variables include whether a magisterial district is urban or rural (reference category), which is a proxy for economic development. Women, irrespective of race, are expected to be in male-type jobs in urban areas. Reflecting a structural feature associated with changes in the sexual division of labour in the economy, “per cent employed in the service sector as a share of the total employed” taps into industrial composition and hence, economic restructuring. Total, rather than just female, employment is used in order to measure the overall occupational structure of the labour market. Finally, “per cent female share of labour force” controls for labour market segmentation along gender lines due to “sex-typed” occupations. An increasing share of women in the labour force and a large service sector in an area may increase occupational segregation due to increasing competition in a tight market and the creation of (white-collar) low-status “feminized” jobs.

5.3 Statistical methods

In terms of estimation, descriptive results are first presented, followed by multivariate analyses. A multilevel multinomial regression model is used because of the hierarchical nature of some hypotheses as well as the categorical dependent variable. A common methodological concern with standard regression techniques is the extent to which large sample sizes result in small effects becoming statistically significant, leading to Type I error. By using maximum likelihood estimation, hierarchical modelling adjusts

Table II.
Descriptive statistics of individual-level variables used in the analysis, all women and women by race, South African, 2001

Variables	All women		African women		Coloured women		Indian women		White women	
	n	%	n	%	n	%	n	%	n	%
<i>Dependent: occupation type</i>										
White-collar male-dominated	12,397	4.9	4,337	2.7	1,392	4.0	910	9.9	5,758	12.6
White-collar gender-integrated	56,435	22.3	24,691	15.1	6,831	19.6	3,547	38.6	21,366	46.7
White-collar female-dominated	58,965	23.3	33,281	20.4	8,151	23.4	2,794	30.4	14,739	32.2
Blue-collar male-dominated	22,739	9.0	15,690	9.6	4,340	12.5	664	7.2	2,045	4.5
Blue-collar gender-integrated	22,295	8.8	16,309	10.0	5,174	14.9	305	3.3	507	1.1
Blue-collar female-dominated	80,509	31.8	69,203	42.3	8,958	25.7	959	10.5	1,389	3.0
<i>Independent variables</i>										
Education										
No schooling	23,053	9.1	21,043	12.9	1,616	4.6	142	1.6	252	0.6
In or completed primary	46,920	18.5	37,815	23.1	8,215	23.6	545	5.9	345	0.8
In secondary	69,576	27.5	46,945	28.7	13,626	39.1	2,491	27.1	6,514	14.2
Completed secondary	63,588	25.1	31,906	19.5	8,063	23.1	3,635	39.6	19,984	43.6
Diploma/Certificate	33,357	13.2	19,021	11.6	2,519	7.2	1,273	13.9	10,544	23.0
College and Higher	16,846	6.7	6,781	4.2	807	2.3	1,093	11.9	8,165	17.8
Age (in years)	Mean=37.9, SD=7.9		Mean=38.1, SD=7.8		Mean=36.9, SD=7.7		Mean=36.5, SD=7.9		Mean=38.3, SD=8.3	
Marital status										
Single	135,285	53.4	100,494	61.5	17,258	49.5	2,880	31.4	14,653	32.0
Currently Married	118,055	46.6	63,017	38.5	17,588	50.5	6,299	68.6	31,151	68.0
Number of children ever born	Mean=2.3, SD=1.7		Mean=2.5, SD=1.7		Mean=2.1, SD=1.4		Mean=1.6, SD=1.2		Mean=1.6, SD=1.1	
Presence of child under age 5										
No	79,526	13.5	54,339	33.2	12,462	35.8	2,477	27.0	10,248	22.4
Yes	173,814	86.5	109,172	66.8	22,384	64.2	6,702	73.0	35,556	77.6
Childcare help available										
No	158,202	62.5	101,663	62.2	21,878	62.8	5,323	58.0	29,338	64.0
Yes	95,138	37.5	61,848	37.8	12,968	37.2	3,856	42.0	16,466	36.0
N=	253,340 (100%)		163,511 (64.5%)		34,846 (13.8%)		9,179 (3.6%)		45,804 (18.1%)	

correlation and standard errors among individuals nested within the same geographical areas and uses the appropriate degrees of freedom for higher-level hypotheses (Raudenbush and Bryk, 2002). Thus, problems of heterogeneity of regression, aggregation bias, and misestimated standard errors are corrected. Hierarchical generalized linear modelling, a module for investigating multilevel models in HLM software, is used. It calculates expected occupational placement by considering the likelihood of belonging to each occupational group given responses to various micro- and macro-level predictors. HGLM uses the logit link function, with results presented as the log odds of being in *m*th category relative to the *M*th, the reference category.

After conducting the analysis for all women combined (Table IV), gender-race interactions are tested by running separate models for each racial group, rather than including multiple interactions in a single model that would be too cumbersome to interpret. Due to space constraints, in Table V, only logits for women's placement in white- and blue-collar male-dominated occupations for the four racial groups are included. Important points from the excluded analyses are mentioned in the results section; the full models are available upon request.

6. Results

6.1 Descriptive analyses

According to Table III, South African women, with some exceptions, are clustered in a narrower range of white-collar occupations than men. In all, 70 per cent women (compared to 35.6 per cent men) are employed in three major groups: clerks, technicians and associate professionals (that includes teaching and nursing/medical related jobs), and elementary (primarily domestics). The per cent female share of these categories (63.8, 56.4, and 57.4 per cent, respectively) is considerably higher than the female share of the overall labour force, 43.0 per cent. On the other hand, only 7.9 per cent women, compared to 34.2 per cent men, are engaged in plant/machine operation and assembly and craft/related trades, while 4.1 per cent (vs 7.2 per cent) as legislators and managers.

1-Digit occupational code and category	Total (%)	All men (%)	All women (%)	African (%)	Women		
					Coloured (%)	Indian (%)	White (%)
(1) Legislators; senior officials and managers	5.9	7.2	4.1	1.6	3.0	8.2	11.0
(2) Professionals	7.8	7.6	8.0	4.9	4.4	13.7	19.2
(3) Technicians and associate professionals	10.9	8.2	14.6	13.1	12.1	15.5	19.8
(4) Clerks	11.5	7.2	17.4	12.0	21.5	34.4	34.6
(5) Service workers; shop/market sales workers	10.7	12.0	8.8	9.2	9.7	10.1	10.0
(6) Skilled agriculture and fishery	2.7	3.4	1.7	1.9	1.4	0.1	0.7
(7) Craft and related trades workers	13.3	19.5	4.8	5.5	6.3	5.4	1.7
(8) Plant and machine operators and assemblers	9.8	14.7	3.1	2.9	6.1	7.1	0.6
(9) Elementary occupations	27.5	20.2	37.5	48.9	35.5	5.1	2.6
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>n</i> =	589,476	336,136	253,340	163,511	34,846	9,179	45,804

Table III.
Per cent distribution of employed workers ages 25-54 years by sex and race, across major occupational groups, South Africa, 2001

Finally, the broad service and shop sales category has a lower female share (34.8 per cent) because it includes masculinized protective services and sales supervisor positions as well as mixed occupations (salespersons and assistants).

When disaggregated by race, the crowding of African and Coloured women (48.9 and 35.5 per cent, respectively) into elementary occupations reinforces the racialized nature of the gendered labour market. Coloured (6.1 per cent) and Indian (7.1 per cent) women are also likely to be in plant/machine operation and assembly positions. In contrast, a significantly higher per cent of Whites and Indians are employed in legislative/managerial (11.0 and 8.2 per cent, respectively), professional (19.2 and 13.7 per cent), and clerical (34.6 and 34.4 per cent) jobs. Finally, a comparable proportion of women of all races are technicians and associate professionals.

6.2 Multivariate analysis: conditional marginal effects of individual-level factors

Reflecting the process of labour queuing and male primacy, positive coefficients for “male” in Tables IV and V (top panel; men and women combined) indicate that irrespective of race, men are more likely to hold male-type occupations even after controlling for various supply and demand factors. Larger logits for blue- rather than white-collar occupations also highlight gender essentialism or a preference for men in jobs that embody “male” characteristics such as physicality and strenuousness. Indeed, male workers who resent the idea of women entering such fields may maintain dominance by directly or indirectly influencing their hiring. Finally, among all racial groups, African men and women are most segregated from each other emphasizing their sustained concentration in some jobs, e.g. men in mining and women as domestics or technical and service workers, a finding also supported by other studies (Standing *et al.*, 1996).

The model with women only (Table IV) lends support to the first hypothesis by reemphasizing the relative labour market advantage of some racial groups over others due to queuing preferences and discrimination. The odds of holding white-collar male-dominated occupations (relative to blue-collar female ones) are 25 times ($e^{3.235} = 25$) greater for White, almost 13 times ($e^{2.536} = 12.6$) for Indian, and over three times ($e^{1.295} = 3.6$) for Coloured relative to African women. A similar, but less dramatic pattern is observed for blue-collar male-type occupations: White women are 5.5 times as likely, Indian three times, and Coloured slightly more than twice more likely to be in such jobs than Africans. Thus, compared to women in other racial groups, Africans continue to remain restricted in their employment advancement.

The second hypothesis, based on human capital theories and positing a positive link between educational attainment and women’s employment in male-type occupations, is also supported. According to Table IV, increasing and positive coefficients in both male-dominated categories indicate that, controlling for race, higher education gives women the foothold to enter these occupations. The logit for blue-collar male occupation is, however, much smaller, confirming previous research emphasizing vocational and on-the-job training, rather than college/professional diploma for entry and advancement in such positions. Thus, relative to women with no education and who are in blue-collar female jobs (reference category), those with a college degree are 3.8 times more likely to be in blue-collar and more than 99 times more likely to be in white-collar male-dominated occupations, highlighting the high returns from tertiary education.

Table V indicates that although returns from education vary considerably across racial groups, the patterns observed earlier remain consistent, thus adding further

	White-collar male-dominated	White-collar gender-integrated	White-collar female-dominated	Blue-collar male- dominated	Blue-collar gender- integrated
Pooled model with men and women					
Male	2.689*** (0.022)	1.548*** (0.016)	0.391*** (0.018)	3.515*** (0.017)	2.250*** (0.018)
Model with women only					
Micro-level variables					
Race (Ref: African)					
Coloured	1.295*** (0.041)	1.191*** (0.026)	1.273*** (0.026)	0.925*** (0.029)	0.663*** (0.033)
Indian	2.536*** (0.060)	2.212*** (0.048)	1.733*** (0.049)	1.111*** (0.060)	0.763*** (0.076)
White	3.235*** (0.039)	2.937*** (0.032)	2.299*** (0.032)	1.705*** (0.039)	0.620*** (0.056)
Education (ref: no schooling)					
Primary	-0.280*** (0.075)	-0.188*** (0.033)	-0.761*** (0.038)	-0.136*** (0.027)	-0.169*** (0.025)
In secondary	0.783*** (0.065)	0.749*** (0.030)	0.980*** (0.031)	0.277*** (0.027)	-0.095*** (0.025)
Secondary completed	2.238*** (0.065)	2.090*** (0.031)	2.841*** (0.032)	0.884*** (0.031)	0.021 (0.033)
Diploma/certificate	3.459*** (0.070)	3.117*** (0.040)	4.345*** (0.039)	1.191*** (0.046)	-0.257*** (0.064)
BA degree and above	4.605*** (0.086)	4.681*** (0.063)	3.794*** (0.065)	1.355*** (0.083)	-0.225 (0.131)
Currently married	0.313*** (0.023)	0.321*** (0.015)	0.439*** (0.015)	0.086*** (0.017)	-0.051*** (0.018)
Number of children	-0.065*** (0.009)	-0.072*** (0.005)	-0.109*** (0.005)	-0.008 (0.006)	0.028** (0.005)
Child under age 5 present	0.056* (0.027)	0.074*** (0.017)	0.177*** (0.017)	0.126*** (0.019)	0.122*** (0.019)
Childcare available	-0.014	0.043***	0.063***	0.060**	-0.019**

(continued)

Marginalized by
race and place

Table IV.
Hierarchical generalized
linear models (HGLMs) of
occupational placement
for women ages 25-54,
South Africa, 2001

Table IV.

	White-collar male-dominated	White-collar gender-integrated	White-collar female-dominated	Blue-collar male- dominated	Blue-collar gender- integrated
Age	(0.023) 0.096***	(0.015) 0.066***	(0.015) 0.155***	(0.017) -0.026*	(0.018) -0.084***
Age ²	(0.014) -0.001***	(0.009) -0.001***	(0.009) -0.002***	(0.010) 0.000	(0.011) 0.001***
	(0.000) (0.000)	(0.000) (0.000)	(0.000) (0.000)	(0.000) (0.000)	(0.000) (0.000)
Macro-level variables					
Urban district	0.037 (0.077)	0.032 (0.065)	-0.126* (0.060)	0.056 (0.073)	-0.023 (0.109)
Per cent in service sector	0.008** (0.003)	0.007** (0.002)	0.004* (0.002)	-0.017*** (0.003)	-0.032*** (0.004)
Female share of labour force	0.011 (0.009)	0.017* (0.007)	0.031*** (0.007)	0.041*** (0.341)	0.042** (0.012)
Intercept	-4.477*** (0.087)	-2.619*** (0.058)	-2.683*** (0.058)	-2.017*** (0.062)	-1.545*** (0.087)

Notes: Robust standard errors in parenthesis. Significance at * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

	White-collar male-dominated occupation			Blue-collar male-dominated occupation		
	African	Coloured	White	African	Coloured	White
Pooled model with men and women						
Male	1.830*** (0.032)	1.222*** (0.063)	1.390*** (0.097)	2.721*** (0.018)	1.854*** (0.040)	2.100*** (0.066)
Model with women only						
Micro-level variables						
Education (ref: in secondary)						
No schooling	-0.812*** (0.074)	-2.196*** (0.323)	-0.362 (0.342)	-0.244*** (0.028)	-0.831*** (0.088)	-0.817*** (0.283)
Primary	-1.004*** (0.061)	-1.510*** (0.115)	-0.730** (0.203)	-0.367*** (0.023)	-0.558*** (0.043)	-1.069*** (0.213)
Secondary completed	1.372*** (0.044)	1.693*** (0.076)	1.484*** (0.123)	0.597*** (0.026)	0.667*** (0.057)	0.518*** (0.083)
Diploma/Certificate	2.778*** (0.056)	2.497*** (0.131)	1.985*** (0.188)	0.926*** (0.050)	0.549*** (0.142)	0.291** (0.099)
BA degree and above	4.228*** (0.085)	3.319*** (0.229)	3.565*** (0.360)	0.943*** (0.117)	0.292 (0.324)	0.342* (0.132)
Currently married	0.340*** (0.034)	0.490*** (0.064)	0.432*** (0.107)	0.048* (0.019)	0.205* (0.038)	0.196*** (0.071)
Number of children	-0.051*** (0.012)	-0.051 (0.027)	0.023 (0.048)	-0.010 (0.006)	-0.034* (0.015)	-0.060 (0.034)
Child under age 5 present	0.022 (0.038)	-0.157* (0.073)	0.054 (0.128)	0.112** (0.021)	-0.020 (0.044)	0.193 (0.191)
Childcare available	-0.011 (0.034)	0.081 (0.065)	0.002 (0.100)	0.033 (0.019)	0.116 (0.105)	-0.021 (0.067)
Age	0.066** (0.021)	0.123** (0.040)	0.022 (0.063)	0.003 (0.012)	0.000 (0.024)	-0.025 (0.041)
Age ²	-0.001** (0.000)	-0.001** (0.001)	-0.000 (0.001)	0.000 (0.000)	0.000 (0.000)	-0.002 (0.001)

(continued)

Marginalized by
race and place

Table V.
Hierarchical generalized
linear models (HGLMs) of
occupational placement
for women ages 25-54 by
race, South Africa, 2001

Table V.

	White-collar male-dominated occupation				Blue-collar male-dominated occupation			
	African	Coloured	Indian	White	African	Coloured	Indian	White
Macro-level variables								
Urban district	0.028 (0.076)	0.250 (0.205)	-0.100 (0.444)	0.181* (0.116)	0.015 (0.063)	0.294* (0.116)	0.218 (0.271)	-0.137 (0.122)
Per cent in service sector	0.015*** (0.003)	0.041*** (0.004)	0.005 (0.014)	0.013** (0.004)	-0.008** (0.002)	-0.005 (0.004)	-0.007 (0.004)	-0.015*** (0.004)
Female share of labour force	-0.025** (0.009)	-0.006 (0.024)	-0.036 (0.045)	-0.009 (0.012)	0.020** (0.007)	-0.005 (0.014)	-0.005 (0.014)	0.036** (0.013)
Intercept	-3.784*** (0.074)	-2.966*** (0.202)	-0.340 (0.380)	-0.285* (0.120)	-1.877*** (0.054)	-1.523*** (0.116)	-1.231*** (0.135)	-0.039 (0.129)

Notes: Robust standard errors in parenthesis. Significance at * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

support to the second hypothesis. Compared to women of their own race who are in secondary school and in blue-collar female-dominated/integrated occupations, African women with a college degree are 68 times more likely to be employed in white-collar male-dominated ones. For Coloured women, this number is 27 times, Indian women 35 times, and white women 7.5 times. The high returns, especially for post-secondary education, reflect a shortage of well-qualified individuals in historically marginalized groups even as labour demand for tertiary degrees surges due to economic transformations. Indeed, compared to whites, the proportion of Africans with a university education has barely increased since 1994 because of the poor quality and success rate of their secondary schooling (Leibbrandt *et al.*, 2010). Table V goes on to show that returns from education, however, are not the same for placement in blue-collar male occupations. Coloureds and Whites can access such jobs after completing secondary school, but for Africans and Indians, a college degree is required, indicating their relative disadvantage in the labour market.

In Table IV, variations across age, a control variable that proxies seniority or greater work experience in human capital theories, indicates that the odds of employment in white-collar male occupations are lowest among young women, increase with age, and then decline. That is, logits are positive, whilst those for the quadratic term are negative. Despite being better educated than older employees, young entrants in the South African labour market still face immense difficulty getting employed or obtaining high-status positions because of a tight labour market and lack of soft skills/workplace experience (Pauw *et al.*, 2008). Patterns reverse for blue-collar male jobs: negative coefficients for age and positive, but not significant, values for the quadratic term. This indicates that such physically demanding jobs often lack upward mobility that is age or experience related. Results are relatively consistent across race.

Finally, as posited by the third (marriage) and fourth (childbearing) hypotheses, do women's domestic roles influence their occupational placement? Table IV indicates that married women are, in fact, more likely to be in both white- and blue-collar male-dominated occupations than single women, thus disproving one aspect of the "maternal incompatibility" theory. Logits for blue-collar male-dominated jobs are statistically significant, but at a lower significance level. Similar patterns are observed when the data is disaggregated by race. The cultural universality of marriage or the fact that it may be endogenous to occupational placement, i.e. women may get married after they secure good jobs may explain the results for most racial groups. The smaller effect for Africans could possibly indicate the complexities of measuring union status, i.e. "marriage as a process", especially in surveys that are Eurocentric in conceptualization.

Long and short-term childbearing and rearing (fourth hypothesis) has a paradoxical effect of women's occupational placement in general. Holding race constant, as theorized, women with greater familial commitments, as measured by more children through the life course, are less likely to be in white-collar male-dominated occupations. Coefficients for blue-collar jobs are not significant. When disaggregated by race, high fertility reduces White and African women's chances of being in white-collar occupations, and that of Coloured and Indian women in blue-collar male occupations (Table V). Conversely, women with children under age five, indicating short-term childbearing, have a higher chance of being employed in both male-type occupations, although logits are significant at a lower threshold ($p < 0.05$). The presence of young children, however, reduces Coloured women's entry into white-collar male jobs, but increases it for African women in blue-collar ones, which may be a function of household structure (nuclear vs extended). Results for other groups are not significant.

As indicated in the theoretical framework, culturally specific gender norms about motherhood and work may impede white and Indian women's movement into or retention in such "demanding" jobs. For Coloured women who were historically channelled into blue-collar jobs during apartheid, higher fertility may be perceived as overt "femininity" as well as reduced job commitment in a hyper masculinized workplace. Hence, employers and co-workers may preclude them from necessary occupational training and mobility. Indeed, many women in both job-types face physical and temporal constraints such as working in a formal establishment where children are disallowed or childcare is not readily available. They may also reside in a household structure where childrearing becomes an individual function, in contrast to Africans who reside in diverse, fluid, and often extended household structures.

It is noteworthy about the results for all women in Table IV that they refute the enduring presumption that childbearing is a deterrent to occupational placement. While the number of children may impede women's long-term educational or career aspirations due to time constraints, mothers with young children do not always compromise on their work status, as is often assumed by employers and policy-makers. Indeed, growth in the service sector and the increasing commodification of women's household tasks, e.g. food services, childcare, and education, has freed them to avail of increasing opportunities in all job types (Thistle, 2006). The results could also reflect reverse causality – women in male-type jobs or those who compete with men for them may restrict or delay their fertility to stay competitive and avoid discrimination in promotion. Hence, social policies should support working mothers, instead of perceiving them as obstacles to organizational efficiency and growth.

Finally, although a control variable, the issue of childcare requires attention. For all women, availability of childcare had a positive influence on access to blue-collar male-dominated occupations, but is not significant for white-collar ones. It is a mixed bag when disaggregated by race: Indian and white women are less likely to be in white-collar male-dominated jobs if childcare is available, but results are not significant for Africans and Coloureds. As mentioned earlier, the variable may tap into an extended household structure (with attendant cultural norms and expectations) that might have a negative influence on Indian women's placement in "time-consuming" male-dominated jobs. Further analyses with better measures for childcare at both the familial and institutional level are required to disentangle these hitherto "black box" issues.

6.3 Multivariate analysis: the importance of context

Contrary to modernist expectations, results do not support the first part of the fifth hypothesis that residence in an urban district (a proxy for economic development) increases women's placement in male type occupations. Logits for all women in Table IV are not significant, although important variations emerge when disaggregated by race. According to Table V, the odds of White women holding white-collar and Coloured women holding blue-collar male-dominated occupations increase in urban districts, reflecting their privilege regarding residences, access to education and training, and occupational choices. Indeed, as mentioned earlier, both groups were historically channelled into these jobs during apartheid, i.e. Whites into white-collar and Coloureds into blue-collar. Results are not significant for Africans and Indians for either job-type. Methodologically, for Indians, this may stem from a lack of variability in the dependent variable across the independent; the group is completely urbanized. For African women, however, these results are immensely sobering.

After being particularly marginalized during apartheid, their increasing labour force participation and post-apartheid rural-to-urban migration has created a tight urban labour market. Using queuing theories, one could argue that if the number of jobs is relatively fixed in any labour market and if employers assume that a subordinate group lacks desired “attributes”, then that group, for example, African women, is discriminated against and relegated to the bottom. This, in a way, also reflects a dual or segmented labour market where women and minority groups are concentrated at the bottom. Hence, urban residence is not accompanied by an erosion of racial group identification in South Africa. Instead, women compete with men and each other for jobs, and those privileged by their race are placed higher on the queue.

In terms of how industrial restructuring sustains sex segregation (the final hypothesis), women’s odds of being in a blue-collar male-dominated occupation reduce with an increase in service sector output in a magisterial district. Indeed, in Table IV, the coefficient is negative for all blue-collar and positive for all white-collar occupations, which is an effect of the kind of jobs being created and a demand for female labour in the latter job type, i.e. white-collar. Surprisingly, service sector specialization increases the odds of a woman in white-collar male- as well as female-dominated occupations. High educational attainment among women, technological changes that demand skill- and high human-capital, and a constitutional banning of sex discrimination has increased women’s presence in traditionally male-dominated fields such as politics and business. On the other hand, service sector specialization feminizes jobs that may then become low-wage. Results do not vary by race, with the exception of Indians (not significant), which is primarily because a majority of them are in manufacturing jobs.

Finally, although “female share of the economically labour force” controls for a possible “population” effect, some significant results are included. An important question is whether women’s increasing labour force rate will have an integrative effect on occupational placement, thus reducing segregation. According to Table IV, a higher female share increases women’s likelihood of being in all occupational categories, except white-collar male-dominated. The logit size is much larger for blue-collar than white-collar occupations. Indeed, Semyonov and Shenhav (1988) “economic discrimination” perspective can be used to explain this: when women join the labour force in large numbers, they, by virtue of their minority status, “increase the pool of potential candidates for economic exploitation, ergo their occupational subordination” (p. 977). When disaggregated by race, results are significant for Africans only who have lower odds of being in white collar, but higher odds of being in blue-collar male-dominated occupations. This may partially stem from labour queuing as well as sex-skewed regional composition, particularly in economically depressed areas such as former homelands that have experienced high African male out-migration.

7. Discussion and policy implications

Using the case of South Africa and a multilevel analysis of women’s placement in white- and blue-collar male-dominated occupations by race, this paper makes an important contribution to the body of literature on work and family, intersectionality, and international development. Indeed, a study of occupational sex segregation is important because most research addresses its effect on gender pay differentials, rather than factors that influence it (Anker, 1998). Moreover, with some exceptions, it is a relatively neglected feature of the gendered dimension of work in developing countries. Most quantitative research is, in fact, limited to Western countries (Anker, 1998; Presser and Kishor, 1991;

Presser and Yi, 2008). The present study, however, provides a snapshot of occupational sex segregation, with no assumptions of causality primarily because of data availability and the cross-sectional research design. A longitudinal analysis would be difficult because apartheid-era racial politics have compromised the quality of pre-1994 data available (Caldwell and Caldwell, 1993). With a non-partisan government now in place, future censuses will allow us to conduct a more in-depth panel study of the issue as well as compare across other multi-racial countries such as Brazil and the USA.

As this study highlights, providing women of all races, particularly African women, with tertiary degrees yields high returns in terms of placement in male-type occupations. Although post-1994 redistributive policies have been successful at increasing general education levels, greater effort is still required to reduce school dropout rates and equalize access to good quality learning, particularly in (African) schools and areas disadvantaged during apartheid. However, educational attainment itself may not trigger occupational integration because men and women still remain highly segregated in their fields of study. If gender role socialization plays an important role in career selection, then girls must be provided with advice from a young age to help them to make informed choices about occupations and associated wages. Targeted education and training programmes should support women to obtain non-traditional skills that will facilitate their entry into high-skilled (often male-dominated) occupations in newly emerging science and technology fields as South Africa continues on its path towards post industrialization.

Jobs, however, are socially constructed and the devaluation of women's work reflects gender hierarchies rather than the characteristics of the job itself. This is particularly important with regards to horizontal segregation across white- and blue-collar occupations, which plays to our basic conception of socially defined gender roles and is hence more resistant to integrative change from modern egalitarian pressures (Charles, 2003). A sustained targeting of gender essentialist stereotypes, beliefs and prejudices in social institutions should be prioritized. For instance, schools must be pressured to enrol more girls in craft and shop classes, and union apprenticeship programmes, often covertly reserved for boys, must be desegregated by sex and race (Bergmann, 2011). More state policies are required to reduce sexual harassment in blue-collar masculinized workplaces and enforce employer accountability regarding women's recruitment, training, retention, and safety in these fields. Anti-discrimination laws and job reservations must be enforced in situations where women, and particularly those of colour, are deliberately excluded from some professions. Such policies may be more effective in workplaces and even industrial sectors (e.g. service sector) with greater task differentiation where women may be less likely to advance into higher positions.

Yet, an inherent struggle between cultural expectations and personal aspirations towards work and motherhood often acts as a deterrent to equality. Work-family conflicts can either create split-shift parenting or compromise women's occupational choices towards more flexible (possibly female-dominated) jobs, or force them to drop out of the labour force altogether (Presser, 2003). In fact, studies from the USA now highlight a rising trend of "egalitarian essentialism, combining support for stay-at-home mothering with a continued feminist rhetoric of choice and equality" (Cotter *et al.*, 2011, p. 261). Such an ideology valorizes "opt in" notions of motherhood with implications for stalled occupational integration. Hence, as our findings indicate, because child care plays an important role in freeing up mothers to pursue male-dominated occupations, employer-supported free or subsidized childcare must be

made available to mothers, particularly those who are low-income or single, as a vital public policy issue.

Finally, an important methodological and policy-relevant contribution of the paper, largely overlooked in previous studies, is its use of multilevel techniques to correctly estimate spatial variation as a source of occupational segregation. Contrary to modernist views, residence in urban areas does not increase the likelihood of women's, particularly African women's, placement in any male-type positions, although Whites and Coloureds fare better. An implication of this finding is that employment issues cannot be treated as "spatially neutral", even as labour migration has blurred the distinction between urban and rural areas. Although regionally sustained development is imperative to correct apartheid-era structural imbalances, especially for African women who experience multiple axes of oppression, a more targeted approach must be adopted.

As a first step, there is a need to explore the relationship between occupational and residential segregation in South African urban areas. Small scale surveys indicate that workers, particularly Africans, living in townships that are geographically far from business centres often compromise on their occupational "choices" due to factors such as travel expenses and family responsibilities. High levels of rural to urban migration has, furthermore, created a distended urban labour market that is heavily segmented by race, gender, and age. Hence, decisive state action must be taken to desegregate the landscape and create appropriate housing, transportation, and employment policies. In rural areas, several former homelands are now being developed as tourist spots, e.g. wildlife parks, entertainment spots, and casinos to address un- and underemployment. While this has created several service and managerial positions, the question is whether such a strategy will actually increase occupational segregation, particularly among Africans, because of the types of jobs created. This is an important question for further research studies.

In conclusion, occupational sex segregation is a universal phenomenon that reinforces and perpetuates gender stereotypes, inequalities, and biases in almost all aspects of society. As the study highlights, a multilevel framework allows one to look beyond the boundaries of the individual to capture the complex interactions between personal characteristics, household circumstances, and attributes of the larger milieu. Although it will require time and immense public policy commitment, the issues raised here are an appropriate starting point to understand South African women's work histories that illustrates the combined effects of marginalization by race and place.

Notes

1. Women are sorted into low-paying jobs due to differences in skills and experience or from their own choices; average pay is often lower in jobs with more women in them, and in fact pay does decline after women enter some occupations.
2. During *apartheid*, all South Africans were officially categorized into one of four racial groups: white, black African, Coloured, and Indian/Asians. Although such categories have been abolished, government reports and Censuses still use them extensively.

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