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Migration Decision Making, Gender, and Labor Market Outcomes among Immigrant Couples in Australia

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Research Summary

Why was the research done?

Immigrant women are doubly disadvantaged in the labor market; both their gender and immigrant status place them in a poorer labor market position. Across western countries, immigrant women show worse labor market outcomes relative to immigrant men and native-born women and men. Family migration decisions may offer an explanation, specifically as immigrant women are less likely to lead migration and instead follow as spouses or family members. Our study examines how immigrant couples make decisions about migration and the causal effects of those decisions on their labor market outcomes. Limited data on decisionmaking and immigrant couples has hampered efforts to examine immigrants' intentions for migrating and the consequences of those decisions.

What were the key findings?

This study finds that immigrant women are the least likely to lead migration but benefit the most from leading in a skilled immigration policy and achieve greater labor market outcomes than women who do not lead. Immigrant women who lead benefit tremendously from the immigration screening process that privileges human capital and occupations in demand, bypassing many of the broader labor market challenges that hinders immigrant women. In contrast, immigrant men are the most likely to lead migration although they benefit the least from it. We argue that hybrid immigration policies that screen on human capital and address occupational skill shortages are less gender biased. Hybrid policies, in turn, create more equitable opportunities for immigrant women to lead the migration process and experience improved labor market outcomes, and can limit the reproduction of gender inequality.

What does this mean for policy and practice?

Our research has policy implications as well. First, reducing gender bias in selection criteria can generate better outcomes for both individuals in the family. Including occupations with a greater gender balance may be one way to achieve this. Extending early evidence that considering labor market demand reduces immigrants' over-education rates, our study shows that hybrid immigration policies that are less gender biased can also ensure greater employment and lower over-education for all family members, not just individuals who are primary applicants. Given that immigrant men have high rates of labor market participation, regardless of whether they lead or

follow, increasing incentives and opportunities for immigrant women to lead migration can provide better opportunities for the entire family. It can also help combat some of the labor market challenges facing immigrant women who follow.

Our results have implications beyond Australia. As countries become more interested in adopting skilled immigration policies, how such policies are devised has important implications for the labor market integration for all family members. Although family members and secondary applicants are usually treated as an afterthought in skilled immigration policies, careful consideration about their outcomes can provide greater labor market success not just for those who lead migration but for their family members who join them and have plans to engage in paid employment.

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We acknowledge the Traditional Custodians of the lands on which we work and live across Australia. We pay our respects to Elders past and present and recognise their continued connections to land, sea and community.

Introduction

Immigrant women are doubly disadvantaged in the labor market; both their gender and immigrant status place them in a poorer labor market position (Boyd 1984). Across western countries, immigrant women show worse labor market outcomes relative to immigrant men and native-born women and men (Donato et al. 2014). Their poorer labor market outcomes have been attributed to gender differences in accumulated human capital and traditional gender norms towards labor supply and household division of labor. Yet these factors only offer a partial explanation. Family migration decisions may offer another explanation, specifically as immigrant women are less likely to lead migration and instead follow as spouses or family members (Banerjee 2022; Boucher 2007).

Family migration decisions that preference men's careers contribute to women's lower employment among different sex couples who move internally. From this perspective, men initiate family migration that benefit their careers though this is not well-understood among migrant couples moving internationally (Boyle et al. 2009; Sorenson and Dahl 2016). Family considerations and migration decisions likely look different for international migrants given the higher costs of international migration, including different languages, cultures, and institutions (Kreiger 2020). Crucially, decisions to migrate internationally cannot be based purely on preexisting gender norms and preferences about household divisions of labor because they must satisfy the requirements of host country immigration application processes for entry (Bélanger and Candiz 2020; Coustere et al. 2025:1363). Family migration decisions for international moves, therefore, are determined by both immigration policy requirements and household preferences, with the potential to improve women's labor market outcomes. When immigration requirements for entry do not overtly favor men's human capital, women may have more opportunities to lead migration and benefit women's careers.

Understanding immigrants' decision making for migration is challenging and hampered by data limitations. It is uncommon for nationally representative surveys to collect information on the migration motivations and decision making of immigrant couples. Previous approaches to understanding immigrants' migration decisions rely on information about migration timing /sequencing or retrospective questions about migration intentions (He and Gerber 2020; Kreiger 2020). These approaches, however, do not allow researchers to disentangle the role of immigration policy requirements from gender norms and household preferences in family migration decisions.

In light of these limitations, we recreate the migration screening process and observe couples' formal decisions on successful migration applications indicated by whether individuals lead migration as primary applicants or follow migration as secondary applicants. Formal decisions on applications can demonstrate the role of immigration policy on family migration because migrating couples to Australia must satisfy entry requirements and are also required to designate a primary and a secondary applicant. We can further unpack the family migration decision making process using detailed information on both spouses. We then observe the consequences of these decisions by investigating how men-led or women-led migration affects the labor market outcomes for immigrant men and women.

Drawing on a novel dataset with couple-level information of new immigrants in Australia linked with international data on gender egalitarianism in origin countries, we examine the causal effects of immigrant couples' migration decisions on employment and occupational matching. We use a three-step methodological approach. First, we estimate the likelihood that an immigrant leads or follows in the migration process, based on their observed premigration characteristics, which emulates the immigration policy selection system. This 'propensity score' helps ensure that women who lead and follow (or men who lead and follow) are more similar in terms of their premigration characteristics. Second, we

observe the labor market consequences of these decisions using matched groups of similar individuals. We compare employment and occupational outcomes for men and women based on whether they led or followed in the migration process. Using a counterfactual approach, we ask, what would immigrant women's employment and occupational outcomes look like if they had led the migration process and, conversely, how would immigrant men's employment and occupational outcomes differ had they followed in the migration process? This key step allows us to move beyond what other studies have not done—address issues of self-selection among successful immigration applications. Third, we go beyond labor market participation and employment and study how aligned immigrants' skills are with their occupations.

This study makes several key contributions. Using a representative sample of immigrant couples with postsecondary education, we find that immigrant men are more likely to lead migration, especially for those arriving from origin countries with less egalitarian institutions and traditional family structures. Immigrant women are the least likely to lead but benefit the most from leading migration. We find some evidence that immigrant couples' migration decisions are shaped by gender norms as immigrant men from origin countries with more traditional gender norms and structures are more likely to lead, consistent with previous literature.

Yet, gender structures tell only a partial story as we also find that host country immigration policies that consider occupational demand can create more equitable opportunities for immigrant women to lead the migration process and experience improved labor market outcomes. Specifically, immigration policies that are oriented toward labor market demand and address occupational skill shortages prioritize the skills needed in specific occupations regardless of gender. We find that immigrant women who lead migration have better labor market outcomes, similar to those of immigrant men who lead. We argue that by undergoing an immigration screening process that privileges human capital and

occupational demand, immigrant women may bypass many of the labor market challenges that plague their counterparts who are not screened on their skills. Consequently, the poorer labor market position of immigrant women who follow is not a result of their immigration applicant status as secondary applicants, but rather, reflects the broader structural challenges that immigrant women face in the labor market. Our findings show that secondary women do not reach their labor market potential not because of differences in observed human capital but because their skills are not adequately utilized. We only find small differences in the labor market outcomes for immigrant men whether they lead or not. Our findings reveal inefficiencies of skilled immigration policies in maximizing immigrants' labor outcomes and provide clear policy implications for improvement.

Theoretical Background

We draw together two distinct theoretical perspectives linking gender norms, employment, and migration to inform our theoretical model. One perspective, *family migration perspective*, focuses on the family member leading migration and posits that family migrations are self-selected on gender norms that exacerbate or widen gender disparities in employment outcomes. Another perspective, *immigrant status stratification*, posits that immigration policies are gendered institutions that disadvantage women in the migration process and subsequently contribute to gendered labor market outcomes. We draw on both perspectives—each explaining a different part of the migration process—to generate a theoretical model that follows the skilled migrant application process for couples.

How does leading or following the migration process affect employment outcomes?

The family migration perspective posits that traditional gender norms negatively affect women's employment outcomes through family migration. Men initiate moves whereas women and family members move to fulfill men's career or employment goals. Even among dual-earner couples, Sorenson and Dahl (2016) found that couples were more likely to

consider men's prospective wages as opposed to women's in their location and migration decisions. Women's employment subsequently suffers from long-distance moves by reducing or eliminating their engagement in paid work (Boyle et al. 1999:109; Boyle, Feng, and Gayle 2009; Cooke and Speirs 2005; Phan et al. 2015).

If men-led migration is associated with worse employment for immigrant women, then women-led migration is associated with greater employment. He and Gerber (2021:237) and Kreiger (2020:949) found that immigrant women who migrated before their husbands or initiated the migration had higher employment rates than immigrant women who migrated with their husbands. One explanation is that in households with more egalitarian gender norms, women are more likely to work outside the home and may initiate migration (Hofmann 2014). Women leading the migration process, or immigrant men migrating for women's employment transgresses gender boundaries and is contradictory to traditional gender norms (Hoang and Yeoh 2011). From this perspective, couples' premigration gender norms and structures influence their decisions about family migration and who leads migration. These decisions subsequently affect their employment outcomes and individuals leading the migration process have the most to gain economically.

How Immigration Status Stratifies Employment

Another perspective, immigrant status stratification perspective, posits that immigration policies themselves stratify employment outcomes. To illustrate, in the U.S. and Canada, immigrant spouses of certain skilled visas have restricted or no work rights. This may explain primary applicants' favored position in the labor market and for exacerbating gender inequality among immigrants (Balgamwalla 2014; Elrick and Lightman 2016). Additionally, primary applicants through skilled streams are evaluated on their human capital and skills for the migration application process, which is designed to maximize the overall skill level of the incoming immigrant population (Miller 1999). In some cases, primary

applicants arrive with an employer sponsor, further optimizing their labor market success. In contrast, secondary applicants are not subject to the same screening for their human capital or skills nor do they typically arrive with an employer sponsor. In turn, secondary applicants may be less prepared for the labor market. From this perspective, assignment to primary status leads to greater occupational status, employment, and wages than secondary status (Banerjee 2019; Banerjee and Phan 2015:349; Elrick and Lightman 2016:371).

This perspective acknowledges that assignment into immigrant status is gendered and immigration policy potentially disadvantages immigrant women in two key ways. First, immigrant men have greater opportunities to lead skilled migration than immigrant women. Immigrant men are overrepresented as primary applicants because the definition of desired human capital characteristics in immigrant selection policies (skills and occupation) typically favors the human capital of men over women (Kofman 2013:580-81; Lim 2019). Thus, even highly educated or skilled women may encounter challenges when having their skills recognized under immigrant screening policies, which lowers their opportunities to lead migration (Aure 2013; Boucher 2007).

Second, secondary status is particularly detrimental for women. Secondary applicant status is associated with the adoption of a dependent identity for immigrant women. Even highly educated women undertake the majority of childcare and domestic responsibilities and reduce or withdraw from the labor market (Ho 2006; Meares 2010; Raghuram and Kofman 2004). However, this is not true for immigrant men who arrive as secondary applicants and continue to participate in the labor market at high levels (Banerjee and Phan 2015). From this perspective, immigrant applicant status itself has causal effects and intersects with gender to create labor market inequalities between immigrant men and women. Yet, because immigrant applicant status and gender interact in important ways, potential explanations are conflated, making it challenging to establish a causal relationship between immigration policy and labor

market outcomes. We disentangle these underlying mechanisms by accounting for selection differences between primary and secondary applicants through a counterfactual matching approach. This allows us to isolate and identify the causal effects of immigrant applicant status on labor market outcomes.

Beyond Employment

Much of the work exploring the effects of immigrant categories, gender, and labor market outcomes have focused on employment and wages, which present only a partial picture (Barker and Tofts-Len 2024; Guven et al. 2020; Lee 2022). A simple difference in employment rates between primary and secondary applicants may obscure individual differences in labor market participation if we do not consider employment conditional on the desire to work. Additionally, in the context of skilled immigration policies, where immigrants are chronically over-educated, focusing on employment may mask variation in whether immigrants' skills and jobs are well-matched (Kalfa and Piracha 2017; Lu and Hou 2020). Our study extends existing work by also examining realized match quality, as measured by the incidence of over-education, across gender and immigrant applicant status.

Economic Migrants and Selection Policies in Australia

We examine the relationship between applicant status and labor market outcomes by gender in Australia, an ideal case given its immigration policy screening processes, equal entitlement of rights for primary and secondary applicants, and selection of immigrants using a skilled occupation list. Over 70 percent of immigrants are admitted to Australia through its skilled migration program—a hybrid system that screens on human capital and language and experience and training in an occupation list (Department of Home Affairs 2024). Whereas in a pure human capital point system, higher education can give you an advantage to lead migration, when occupations are introduced in the criteria, it makes these relationships less clear. The program uses a points test to assess individual applicants on observable

characteristics including age, English language ability for non-native speakers, and labor market qualifications and experience in an occupation listed in the Skilled Occupation List (hereafter SOL), a list of skilled occupations requiring skilled workers (Hawthorne 2005).[1] Applicants receive points for prearranged employment, educational qualifications in Australia, and work experience in Australia and abroad.

An important aspect of Australia's skilled immigration policy, which differs from those of other countries is the preference for applicants with labor market experience in the occupations on the SOL. Approximately half of these occupations have an Australian-born female share greater than 30%, indicating relative gender balance on the SOL (Table A1). We may, in turn, expect less gendered allocations and outcomes between primary and secondary applicants in Australia.

Men-dominated occupations in the SOL include skilled technicians and trades whereas women-dominated occupations are largely represented by skilled health and service professionals (Table A2). Overwhelmingly, women-dominated occupations on the SOL require university degrees whereas most men-dominated occupations only require an advanced certificate (e.g., vocational degree) and only a small share require a university degree. Although the SOL slightly favors men-dominated occupations, a substantial presence of women-dominated occupations less gender biased than relying solely on educational credentials (Boucher 2007; Kofman 2013, 2014).

Another important feature of Australia's skilled policy is that primary and secondary applicants receive identical employment rights, which differs from several skilled programs in the U.S. (e.g., H1-B programs) and Canada that only provide employment rights to the primary applicant. By observing Australia, we control for differences in employment rights as

[1] SOL is regularly revised following consultation with employers and unions to target current labor market needs.

a potential factor responsible driving differences in labor market outcomes, especially the lower employment outcomes of secondary women. Australia represents an ideal laboratory to disentangle the confounding factors that have plagued previous studies examining immigration policy and labor market outcomes.

Data and Methods

We analyze the *Australian Census and Migrants Integrated Database (ACMID)* which links data from the 2016 Australian Census of Population and Housing with data on permanent immigrants in Australia. ACMID contains individual data on labor market outcomes, employment, and demographic data. Crucially, ACMID includes information about permanent immigrants' visa class, application location (Australia or abroad), and application status for permanent residency (primary or secondary applicant). ACMID also provides detailed spousal characteristics (e.g., spousal education, labor force status, and English proficiency).

To capture immigrants' employment and job matching, we restrict the sample to individuals aged 25 to 64 in 2016, who currently hold a skilled permanent visa[2], not currently enrolled as students, identify as a couple, and hold a postsecondary educational qualification to measure realized job quality.[3]. We focus on recent immigrants who entered Australia between 2013 and 2016 and were granted permanent residency between 2010–2013. Doing so improves precision in the propensity score matching model that is based on premigration labor market characteristics. Our sample refinement represents a compromise between measuring immigrant characteristics close to the time of migration and visa application submission while utilizing a sufficiently large sample for the analysis. We are confident our

[2] We exclude immigrants who received visas through the family class as it is difficult to allocate primary or secondary status for these immigrants.
[3] Postsecondary education qualifications include a certificate, diploma, or university degree.

analysis includes a subset of immigrants who are likely to be admitted via skilled immigrant screening policies where employment is the main criteria for admission.

Dependent Variables

Our two key outcomes are employment status (a binary indicator of whether the respondent is employed or not) and job quality (a binary indicator of whether the respondent's educational attainment exceeds the educational requirements of their current occupation or not). Our measure compares immigrant workers' education levels to that of native-born workers in the same occupation (Capsada-Munsech 2019). Immigrant workers are classified as over-educated if their education level exceeds the 75th percentile of native-born workers in the occupation.

Independent Variables

We include controls to measure the level of egalitarianism of regulatory environments in immigrants' origin countries. Using the Women, Business, and Law database (WBL) obtained from the World Bank, we measure legal differences in access to economic opportunities across 190 source countries. The WBL contains 36 binary (yes/no) items scored across 8 indicators (mobility, workplace, pay, marriage, parenthood, entrepreneurship, assets, and pensions), which are detailed in Table A3. We create an index by taking the unweighted average for each indicator. A larger index value indicates more egalitarian institutions in the origin country.[4]

We control for local area employment opportunities using by a detrended unemployment rate at the sample date (August 2016). Local area unemployment rate by SA4

[4] Ideally, the WBL data would be matched to the age at immigration data for individuals in the ACMID data. Unfortunately for a given year, there is no variation in the WBL by birth cohort. As an approximation, the index is used to measure differences across origin countries at the time of birth to capture some of the variation overtime. Consequently, the 1970 WBL data is used for immigrants aged 46 and over in 2016 up to the 1991 data for immigrants age 25 in 2016. In general, the mean value of the WBL index is increasing overtime from a sample mean of 45.64 in 1970 254.17 in 1991, indicating that institutions in origin countries have become more egalitarian over time.

region (approximately 100 local areas) is obtained from *ABS Catalogue 6291.0.55.001 Labour Force, Australia detailed*. We generate detrended and seasonally adjusted local area unemployment rates by using a flexible specification with a cubic time trend and a full set of quarterly indicator variables. We also include measures for whether couples are in a registered marriage or not[5], age at immigration (in years) age of children in household (0 to 4 years, 5 to 9 years, 10 to 12 years, 13 to 14 years, and no children as reference), well/very well English language proficiency (not well/very well as reference), and country of birth.

Empirical Strategy

We use a linear probability model to capture employment and over-education.

Consider the following econometric specification:

$$Y_{ig} = \beta_0 + \beta_p \text{PRIM}_{ig} + X_{ig}^T \boldsymbol{\gamma_1} + S_{ig}^T \boldsymbol{\gamma_2} + G_{ig}^T \boldsymbol{\gamma_3} + \lambda_1 ur_{irg} + \sum_{j=2}^{R} \beta_j R_{ijg} + \varepsilon_{ig} \qquad (1)$$

where Y_{ig} is a binary variable indicating the labor market outcome for individual *i* and gender *g* and PRIM is a binary variable indicating whether the immigrant was a primary applicant, **X** represents a vector of individual characteristics (age at immigration, visa type, educational attainment, English proficiency, age of youngest child at immigration, region of residence, the WBL index interacted with birth cohort, religion, and registered marriage), **S** represents a vector of the characteristics of the spouse of individual *i* (employment status, age at immigration, educational attainment, proficiency in English), **G** represents a vector of indicator variables for state of residence and whether the individual resides in a major city, ur_r represents the detrended local area unemployment rate, R_{ijg} represents a full set of indicator variables for region of birth of individual *i* and ε_{ig} is a random error term with an assumed conditional mean of zero.

Self-Selection

[5] Primary applicants are allowed to sponsor common-law spouses as secondary applicants.

A challenge to identifying the causal effects of primary versus secondary immigrant status on employment and labor market outcomes is the role of self-selection. Since immigrants are not randomly assigned to primary or secondary status, individuals have different propensities to become primary or secondary applicants, which can produce differential treatment bias (Morgan and Winship 2015). Non-random selection also means that primary applicants likely have observable and unobservable characteristics that differ systematically from secondary applicants. Primary applicants generally have higher educational attainment and language skills than secondary applicants (Banerjee and Phan 2015:346). In turn, primary applicants' greater observed labor market outcomes may be related to these background characteristics rather than immigrant status. To address this, we use propensity score matching.

In this case β_p in equation (1) is unlikely to represent the (causal) average treatment effect of primary applicant status on employment since it will also include a term reflecting non-random differences between primary and secondary applicants (selection bias). For example, define the average treatment effect (ATE) as the causal effect of interest then and the 'naïve' estimator (simple difference in observed outcomes) is given by:

$$E\left[Y_{ig}^{1}|PRIM_i = 1\right] - E\left[Y_{ig}^{0}|PRIM_i = 0\right] = \text{ATE}$$
$$+\{E\left[Y_{ig}^{0}|PRIM_{ig} = 1\right] - E\left[Y_{ig}^{0}|PRIM_i = 0\right]\} + \ (1-\pi)\{\text{ATT} - \text{ATU}\}$$

where Y_{ig}^{1} represents the (potential) labor market outcome for individual *i* and gender *g* in the treated state (primary applicant), Y_{ig}^{0} represents the (potential) labor market outcome for individuals of gender *g* in the non-treated state (secondary applicant), and PRIM represents the treatment indicator (primary or secondary applicant status). The second term represents a 'selection bias' (the counterfactual difference in the potential outcome for secondary applicants if they were primary applicants relative to the observed potential outcome for secondary applicants). The third term represents the heterogenous treatment effect, the

difference in treatment effect, for the treatment group (primary applicants), relative to the non-treatment group (secondary applicants).

To compare employment outcomes for observably equivalent individuals, we utilize several methods which involve representing applicant status as a treatment. Each treated individual (primary applicant) is compared to an observably equivalent (counterfactual) secondary applicant. This will identify the treatment effect of interest provided the *conditional independence assumption* (CIA) is satisfied:

$$Y_{ig}^{1}, Y_{ig}^{0} \perp \text{PRIM}_{ig} | \mathbf{Z}_{ig}$$

In the case of many control variables in the vector **Z**, conditional independence to the set of control variables implies independence relative to the propensity score $p(\mathbf{Z})$, the probability of being assigned to treatment, conditional on the variables **Z**. Provided there are no systematic unobservable differences between primary and secondary applicants, controlling for **Z** (selection on observables only), this 'matching' procedure will identify the average treatment effect (ATE) when the conditional independence assumption holds.[6] To be valid, the method requires observations in treatment and control groups with similar propensity scores that are based on similar observed characteristics or covariates.

We first estimate a Probit model separately by gender to calculate the propensity score $p(\mathbf{Z})$ or the probability of primary applicant status. This model contains individual and spousal characteristics measured as close as possible to the time of migration application and are intended to mimic the application process that screens applicants on age, education, and English proficiency. Unfortunately, there is no information on whether the individual had premigration labor market experience in an occupation on the SOL.[7]

[6] Effectively, the identifying assumption is that in the presence of unobserved variables, the vector **Z** contains many observable characteristics, potentially correlated with the unobserved characteristics, to sufficiently mitigate the issue of selection on unobservable characteristics.

[7] Caliper (radius) matching with radius parameter of 0.01 is used to match treated individuals (primary applicants) with observationally equivalent non-treated individuals (secondary applicants). A common support is imposed by dropping treatment observations with propensity scores greater than the maximum or less than the

For the sample of labor force participants, there is strong evidence that the matched samples achieve improved balancing of covariates relative to the unmatched sample. In the raw (unweighted) sample, standardized differences between treatment and control for some covariates are large and exceed the cutoff of $\pm$0.05. For all covariates in the matched samples, the variance ratio is considerably closer to unity, relative to the unweighted sample.[8]

Second, inverse propensity score weighting with regression adjustments is used to calculate the average treatment effect (ATE):

$$ATE_g = E\left[\left(Y_{ig}^1 - Y_{ig}^0\right)|\text{PRIM}_{ig} = 1, \mathbf{Z}_{ig}\right] = E\left\{\frac{[PRIM_{ig} - p(\mathbf{Z}_{ig})]\, Y_{ig}}{\Pr(\mathbf{Z}_{ig} = 1)\,[1 - p(\mathbf{Z}_{ig})]}\middle|\mathbf{Z}_{ig}\right\}$$

The outcome models in Tables 4 through 6 include controls for spousal current employment status, region of residence, and local area unemployment rates which are excluded from the treatment (PSM) model in Table 3. We conduct all analyses separately for men and women. Table A4 further details the counterfactual decomposition used to calculate potential outcomes.

Descriptive Statistics

Tables 1 and 2 provide summary statistics by gender and applicant status. Table 1 shows that secondary applicant women have the lowest employment rates (48.5%) followed by secondary applicant men (75%), primary applicant women (77.9%), and primary applicant men (85.4%). The mean employment for primary applicant women is significantly higher than secondary applicant men. The unconditional employment gap between primary and secondary applicants is larger among women (77.9-48.5=29.4%) compared to men (85.4-75=13.4%). Interestingly, the mean employment gap between primary men and women (85.4-

minimum propensity score for the control observations. To further reduce bias, we trim the top 5% and bottom 5% of the common support distribution of propensity scores (Sturmer et al. (2021).

[8] Results available from the authors upon request.

77.9=7.5%) is smaller than the employment gap between secondary men and women (75-48.5=26.5%). This suggests that primary women exhibit labor market outcomes that are more like primary men than secondary women. The low employment among secondary women is interesting given that approximately 84.2% have at least a university degree and 94% report having well or very well English proficiency.

TABLE 1 ABOUT HERE

TABLE 2 ABOUT HERE

As anticipated, secondary women have a higher likelihood of non-participation in the labor market. In fact, they are (32.8-6.6) = 26.2% more likely to be not participating in the labor market than secondary men. Primary women also have a higher likelihood of not participating the labor market (10.6%) than primary men. A simple comparison in employment between primary and secondary applicants may obscure individual differences in labor market participation if we do not consider employment conditional on the desire to work.

Table 1 reveals that primary women and primary men are the most educated, and secondary women are significantly more educated than secondary men (84.2% versus 77.2% with a university qualification respectively). Primary women and primary men share similar English proficiency levels, which is consistent with our findings that primary women exhibit labor market outcomes that resemble those of primary men.

In terms of job quality, secondary women (57.8%) and secondary men (58.2%) show similar rates of over-education in their current occupations. However, primary women are considerably less likely to be over-educated (37.0%) compared to primary men (47.5%), a statistically significant gap of 10.5%.[9] Whether women lead migration differs by immigrants'

[9] In additional analyses, we use an alternate measure of skill level that captures the level of formal education and training and work experience required to competently perform the set of tasks required for the occupation. These analyses reveal a relatively similar pattern to the measure of over-education based on the 75th percentile.

region of birth. A considerably larger proportion of immigrant women from the main English-speaking countries (e.g., Canada, New Zealand, Ireland, United Kingdom, and the United States) lead migration (0.256) rather than follow migration (0.174). There is little difference between primary (0.196) and secondary (0.1.94) men in the proportion of immigrants from the main English-speaking countries. To the extent that immigrants from English-speaking countries exhibit superior employment outcomes, this compositional difference for immigrant women could account for the poorer employment outcomes of secondary women.

Primary women are less likely than secondary women (85.1% versus 93.1%) to be in a registered marriage. Primary women are more likely to arrive from origin countries with more egalitarian institutions (mean value of 51.4) compared to secondary women (mean value of 49.7). In contrast, there is no difference among primary and secondary men. Table 1 shows that relative to primary women, secondary women belong to couples with more traditional family structures and arrive from origin countries with less egalitarian regulatory environments for women.

Table 2 illustrates that spousal characteristics also differ by gender and applicant status. Among women who follow, 92.9% of their spouses are employed compared with 80.9% of spouses of secondary men. Moreover, among primary women, 82.7% of their spouses are employed compared with 48.8% of spouses of primary men. Overall, Table 2 shows that women-led migration is associated with greater overall household employment compared with men-led migration.

Results

Who Becomes a Primary Applicant? Determinants of Primary Status

Table 3 provides estimated average marginal effects (AME) for a Probit model that is used to estimate the propensity scores and the probability of being a primary applicant.

$$\Pr\left(\text{PRIM}_{ig} = 1 \middle| \boldsymbol{Z}_{ig}\right) = \Phi\left(\beta_0 + X_{ig}^{T}\gamma_1 + S_{ig}^{T}\gamma_2 + \sum_{j=2}^{R} \delta_j R_{ijg}\right)$$

where Φ(.) represents the standard normal cumulative distribution function, PRIM_i is a binary variable indicating whether the immigrant was a primary applicant, **X** represents a vector of individual characteristics (age at immigration, visa type, offshore applicant, educational attainment, English proficiency, age of youngest child at immigration, WBL index interacted with birth cohort, religion, and registered marriage), **S** represents a vector of the characteristics of the spouse of individual *i* (age at immigration, educational attainment, English proficiency, and spouse born in the same country), and R_{ij} represents a full set of indicator variables for region of birth of individual *i*.

TABLE 3 ABOUT HERE

Table 3 reveals that consistent with Australia's immigrant selection policy, the most important predictors of primary status relate to human capital. All else equal, the probability of being a primary applicant is 31.1 probability points higher for women with English proficiency and 43.8 probability points higher for primary men with English proficiency. Similarly, the probability of primary status grows with increasing individual educational attainment, even after controlling for spousal education attainment. The average marginal effect for educational attainment is greater for women, indicating a greater effect of education on predicting primary status for women relative to men. One explanation is the greater skill level of female-dominated occupations on the SOL. Even under a skilled immigration policy where immigrants are screened on human capital, less educated men apply to become a primary applicant. Our results could also reflect a positive selection of primary women—only exceptional, highly educated women apply as primary applicants.

Our measure of gender attitudes indicates a reduced probability of leading migration for immigrant women from more traditional couples. Similarly, the probability of leading

migration lowers by 12.5 probability points for women in a registered marriage. We find no effect of religion or marriage on men's probability of primary status. Gender norms have little influence on men leading migration though a strong effect on whether women lead migration. The probability of women-led migration is lower for couples with young children in the household while the probability of men-led migration is higher for couples with children though this is not statistically significant.

Applicant Status, Gender, and Employment

Table 4 provides estimates of the average treatment effect (ATE) using the Inverse Probability Weighting estimator, allowing for a 'regression adjustment' in the outcome model that provides for an extended set of controls beyond the treatment model and serves to mitigate any remaining bias in covariate balancing after matching. After imposing a common support, secondary women's probability of labor force participation is 18.76 probability points lower than that of primary women net of controls. In contrast, secondary men's probability of participation is only 3.88 probability points lower than primary men. Looking at the estimated potential mean outcomes reveals considerably lower labor force participation for primary (0.8474) and secondary women (0.6596). Even after comparing similar individuals, secondary women still show lower employment than primary women, indicating that this is unlikely to be driven by observable human capital characteristics.

TABLE 4 ABOUT HERE

Table 4 provides employment probabilities conditional upon labor market participation. The sample is restricted to individuals who are currently employed or not employed but searching for employment (unemployed). We remove self-employed individuals given the challenges of calculating overeducation for this group. We find no evidence that removing self-employed contributes to secondary women's lower employment.

After imposing a common support, the results show that primary women have on average, an employment probability that is 12.73 probability points higher compared to their counterfactual employment probability if they were secondary applicants. In contrast, primary men have an employment probability that is only 4.1 probability points higher compared to their counterfactual employment probability if they were secondary applicants. Primary applicants consistently show higher employment probabilities than secondary applicants even though the two statuses provide identical employment eligibility and rights. Table 4 shows an interactive effect between applicant status and gender as the primary-secondary applicant employment gap is much larger among women than men. While the employment rates of primary women are similar to those of primary men, the larger ATE for women applicants is mainly driven by the poor employment outcomes of secondary women. Being a primary applicant increases the employment probability for women, more than that for men. Since women generally have lower employment rates, primary status helps to reduce the gender employment gap.

We also consider whether the propensity to lead migration varies by birth region by allowing for a different ATE by gender for immigrants from the main English-speaking countries of birth (ESB) and those that are not (NESB). Table 5 shows considerable heterogeneity in ATE for employment between immigrants from English-speaking countries and non-English-speaking countries. Primary women from English-speaking countries have an employment probability that is 4.69 probability points higher compared to their counterfactual employment probability if they were secondary applicants. In contrast, primary women who are from non-English-speaking countries have an employment probability that is 14.91 probability points higher compared to secondary women applicants. The relatively poor employment outcomes for secondary women are mainly driven by immigrants from non-English-speaking countries.

TABLE 5 ABOUT HERE

Who Experiences Over-Education?

We also examine how job quality differs by gender and applicant status. Table 4 provides the probability of over-education associated with primary applicant status and the difference in the conditional mean probability of over-education (conditional upon being employed) for primary applicants relative to secondary applicants. After imposing a common support, primary women's probability of over-education is 20.93 points lower than secondary women, net of controls.

Likewise, Table 4 shows that primary men have an over-education probability that is 15.37 probability points lower than secondary men. Interestingly, primary women's over-education probability is 8.03 points lower than observationally equivalent primary men. Primary women are relatively better matched to jobs that better utilize their educational qualifications, relative to secondary applicant women. Therefore, women-led migration is associated with improved occupational matching for immigrant women.[10]

Primary applicant women, even those from non-English-speaking origin countries, exhibit a lower incidence of over-education compared to both equally skilled secondary applicant women and primary applicant men. One potential explanation relates to the SOL; if it accurately represents occupations experiencing skill shortages, occupations on this list exhibit a greater labor demand. In periods of strong labor demand, employers are more likely to relax skill requirements (Coates et al. 2022; Productivity Commission 2023). Thus, the greater labor demand in the SOL occupations may lower skill requirements and reduce over-

[10] One critique is that secondary women may have a stronger preference for part time work and are willing to accept jobs that are less skilled or are less matched with their skills and thus are more likely to be over- educated in their jobs. We assess this by restricting the sample to full-time employed workers. We find some evidence of a smaller mean difference in the probability of over- education for primary women relative to secondary women (ATE =-0.1569 compared to ATE = -0.2093 for all workers). For the sample of workers, there is a similar difference in the meeting probability of over- education for primary men relative to secondary men (ATE = -0.1290 compared to ATE = -0.15374 all workers).

education rates. Since primary and secondary applicants have access to this labor demand channel, we would expect similar over-education rates for primary and secondary applicants employed in SOL occupations and lower over-education relative to applicants who were not employed in SOL occupations.

The top panel of Table 6 shows that primary women exhibit a greater employment probability in a SOL occupation (0.5043 compared to 0.4631 for primary men) whereas. secondary women have a lower employment probability in a SOL occupation (0.2303 compared to 0.2843 for secondary men). This is consistent with our explanation related to the labor demand channel. Table 6 indicates a lower probability of over-education for applicants employed in a SOL occupation compared to applicants employed in a non-SOL occupation. Among applicants employed in a SOL occupation, women have a lower probability of over-education (0.2543 for secondary applicants and 0.2433 for primary applicants) compared with men (0.3912 for secondary applicants and 0.3716 for primary applicants).

TABLE 6 ABOUT HERE

Among immigrant women employed in a SOL occupation, there is no significant primary-secondary gap in the probability of over-education. Likewise, there is only weak evidence of a significant primary-secondary gap in the probability of over-education for immigrant men employed in a SOL occupation (p=0.036). Overall, Table 6 shows that employment in a SOL occupation is associated with lower rates of over-education.[11]

In Tables A4 and A5, we explore whether primary-secondary differences in overeducation are associated with different occupations. Primary applicant women may be trained in different occupations that offer advantageous labor demand conditions and superior employment outcomes. Indeed, some preliminary calculations suggest that the

[11] In separate analyses (available upon request), we calculate the probability of employment and over-education by educational field. We find that employment in a health field is associated with lower probabilities of overeducation for primary and secondary men and women. We find minimal evidence that differences in the educational field distributions explain the primary-secondary gap in employment and over-education.

estimated (counterfactual) probability of over-education for secondary women might be considerably lower (0.4663 compared to 0.5834 for the actual sample), if their employment distribution across SOL and non-SOL occupations was identical to that of primary applicant women. Thus, primary women's greater employment probability in a SOL occupation is related to their lower over-education.

Discussion and Conclusion

How do immigrant couples make decisions about who leads or follows in the skilled migration process and what are the consequences of these decisions for their labor market outcomes? Using a representative sample of immigrant couples, this study replicates the migration application process for economic immigrants in Australia and uses a counterfactual approach that considers potential outcomes for immigrant women and men. We firstly find that immigrant women are the least likely to lead migration but benefit the most from leading in a skilled immigration policy—a fact that has been overlooked and understudied given the focus on secondary women or immigrant women who follow migration (Banerjee 2022; Banerjee and Phan 2015; Ho 2006). Our findings show that immigrant women who lead are better matched with their skills and their occupations in Australia and show relatively similar employment rates as immigrant men who lead**.** Immigrant women who lead the migration process also have greater labor market outcomes than immigrant women who follow. We find evidence that this gap stems from the benefits of screening for immigrant women who lead and the limited support for immigrant women who follow. Immigrant men, by contrast, are the most likely to lead migration under skilled immigration policies although they benefit the least from it. In fact, immigrant men, whether leading or following, achieve relatively similar employment rates with marginal differences in their job quality. This suggests some inefficiencies in skilled immigration policies in maximizing immigrants' labor market outcomes, particularly those of immigrant women.

We find evidence that couple decision making for international migration differs from that of internal migration. For skilled and educated couples, international migration benefits immigrant women who lead and the effects for men are relatively similar whether they lead or follow. This differs from internal migration scholarship that posits that migration exacerbates gender inequality by negatively affecting women's labor market outcomes and positively affecting men's (Boyle et al. 1999:109; Boyle, Feng, and Gayle 2009; Cooke and Speirs 2005; Phan et al. 2015; Sorenson and Dahl 2016). We argue that Australia's selection policy plays a role. While it is possible that our sample of educated couples may show greater congruence in their decisions about the importance of men and women's careers, these are counterbalanced by the requirements of the skilled immigration application and screening process. As a result, couple decisions on migration applications may skew towards the more gender-egalitarian preferences of Australia's skilled immigration policy.

Second, we find that immigrant women can lead migration not only by being extraordinary candidates but also through immigration policies that consider occupational demand. Such immigration policies, through their screening and selection processes alongside considerations for occupational shortages provide a migration pathway for women who otherwise might not have an opportunity to migrate. Although gender-conscious policies are an unintentional byproduct of Australia's skilled immigration policy, we nonetheless find that providing immigrant women with more opportunities to lead migration can improve their labor market outcome. We argue that immigrant screening processes that consider occupational demand are less gender biased and mitigate premigration characteristics and gender structures that favor men to lead the migration and provide women from more traditional gender countries and family structures with an opportunity to lead migration.

We identify two aspects of Australia's skilled immigration policy that contribute to the successful employment and job quality of women who lead migration: skills screening and

SOL. By screening primary applicants on their human capital and skills, employment in a SOL occupation, and the SOL where many female-dominated occupations and industries are represented supports the labor market outcomes of immigrant women who lead migration. Without these components in Australia's skilled immigration policies, immigrant women would have fewer opportunities to lead immigration given the pervasiveness of traditional gender structures and preferences for men-led migration in skilled immigration programs that rely solely on human capital (Boucher 2007; Kofman 2013,2014). We extend previous research and show that hybrid immigration policies that consider skill and occupations can reduce gender inequality in the migration application process rather than reproduce it.

A principal reason for the large labor market returns for immigrant women who lead migration is because immigrant women's social position is marked by substantial disadvantage in the Australian labor market. As noted by Haque and Haque (2020) and Lee, Ruppanner, and Perales (2020), immigrant women in Australia, especially from non-English-speaking countries encounter labor market challenges including lower employment, limited networks, a devaluation of their degrees and skills, limited access to good jobs in the primary sector than Australian-born women. Immigrant women are also employed in workplaces where white privilege favors immigrants from White English-speaking countries and native-born Australians (Carangio et al. 2021; Venugopal and Huq 2022). In the absence of screening on human capital and occupations through the migration application process, immigrant women from non-English-speaking countries face an unfriendly labor market. Immigrant women who lead the migration process, however, can bypass many of these challenges by having their credentials recognized and, in some cases, securing employment prior to arrival through the screening process and the SOL (Zikic et al. 2010).

Thirdly, we argue that the lower labor market position among immigrant women who follow is less of an anomaly when we consider the counterfactual (e.g., immigrant women

who lead) and their premigration characteristics and family structures. After matching on a similar sample of primary and secondary women and conditional on labor force participation, we find that the employment probability for secondary women is 78% compared to 90% for primary women and secondary men, and 94% for primary men. On the face of it, this seems surprising. Based on such findings, scholars have argued that immigration policy disadvantages immigrant women who follow given their substantially lower employment rates (Banerjee and Phan 2015; Boucher 2007; Ho 2006; Lim 2019; Meares 2010). By considering potential outcomes, we offer a different interpretation. We argue, instead, that these figures reflect the tremendous advantage that immigration policy and screening offer to immigrant women who lead migration. Using the counterfactual model, we show that the labor market outcomes of immigrant women who follow are more reflective of the average immigrant woman who does not undergo skill screening and occupational demand. The exceptional labor market success of immigrant women who lead has been overlooked because of the focus on immigrant women who follow and because counterfactuals are rarely considered in this work (Elrick and Lightman 2016; Banerjee 2022). From a policy perspective, this is an important distinction because our explanation provides a specific policy recommendation that facilitates labor market success through screening and occupational demand.

Our findings are consistent with He and Gerber (2020) and Hofmann (2014) showing that decisions to migrate are conditioned on gender norms. We find that women who lead belong to origin countries with more egalitarian institutions and also have less traditional family structures whereas immigrant women who follow belong to more traditional family structures than immigrant men who follow and immigrant women who lead. We extend the work focusing on premigration gender norms (Frank and Hou 2015) and migration intentions and sequencing (He and Gerber 2020; Hoang and Yeoh 2011; Kreiger 2020) by showing that

immigration policies and the immigration application process specifically can mitigate the effects of premigration gender structures. Under a hybrid immigration policy, selection criteria based on human capital, occupation, and occupational demands may not align neatly with how couples view decisions about household division of labor. In turn, migration decisions about who leads and who follows are not entirely informed by a couple's gender norms. Although gender norms are often viewed as reflecting cultural values or family practices or carried over from the origin country that subsequently affect immigrants' labor market decisions (Frank and Hou 2015; Polavieja 2015), we find that institutions like immigration policy can play an intervening role between gender norms and labor market outcomes. Crucially, immigration policy can play a key role in limiting the reproduction of gender inequality. While immigration policies cannot necessarily intervene on decisions about household divisions of labor, they can provide more support to immigrant women who follow to facilitate their labor market outcomes.

We acknowledge our study's limitations. Propensity score matching cannot address heterogeneity in unobserved characteristics. Although we control for a rich set of covariates, unobservable causal factors are a possibility. Nonetheless, our approach of using observable characteristics has several advantages. First, our approach mirrors the migration application process that screens immigrants based on their observed characteristics that we also capture in this study. To the extent that selection on unobserved characteristics exists, they are also undetected in the migration application process. Second, we rule out key explanations related to employment rights and visa insecurity as main contributing factors in accounting for secondary women's disadvantage (Banerjee 2019; Elrick and Lightman 2016). Instead, we find that premigration characteristics and family structures are likely to have a bigger impact in shaping secondary women's lower position in the labor market.

We recommend several avenues for future research. There is scope to examine whether leading or following migration is associated with upward or downward mobility over longer periods. We only observe the first three years in Australia in our data, but tracking labor market outcomes over their longer periods in the host country is critical for understanding long-term labor market trajectories as well as diverging trajectories. Additionally, looking beyond labor market outcomes would be a fruitful avenue to understand how immigration policy stratifies other life domains, such as health and wellbeing (Morey et al. 2020; Yeh et al. 2016).

Our research has policy implications as well. First, reducing gender bias in selection criteria can generate better outcomes for both individuals in the family. Including occupations with a greater gender balance may be one way to achieve this. Extending early evidence that considering labor market demand reduces immigrants' over-education rates (Lu and Hou 2020), our study shows that hybrid immigration policies that are less gender biased can also ensure greater employment and lower over-education for all family members, not just individuals who are primary applicants. Given that immigrant men have high rates of labor market participation, regardless of whether they lead or follow, increasing incentives and opportunities for immigrant women to lead migration can provide better opportunities for the entire family. It can also help combat some of the labor market challenges facing immigrant women who follow (Banerjee 2019; Barker and Tofts-Len 2024).

Our results have implications beyond Australia. As countries become more interested in adopting skilled immigration policies, how such policies are devised has important implications for the labor market integration for all family members. Although family members and secondary applicants are usually treated as an afterthought in skilled immigration policies, careful consideration about their outcomes can provide greater labor

market success not just for those who lead migration but for their family members who join them and have plans to engage in paid employment.

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Table 1: Descriptive Statistics, by Applicant Type: Individual Characteristics

	Women		Men		Difference			
	Secondary SF Mean	Primary PF Mean	Secondary SM Mean	Primary PM Mean	(SF-SM)	(PF-PM)	(PF-SF)	(PM-SM)
Labour Force Status								
Employee	0.485	0.779	0.750	0.854	-0.266^{***}	-0.075^{***}	0.295^{***}	0.104^{***}
Self-Employed	0.039	0.037	0.086	0.071	-0.047^{***}	-0.034^{***}	-0.002	-0.014^{***}
Unemployed	0.148	0.078	0.099	0.056	0.050^{***}	0.022^{***}	-0.070^{***}	-0.043^{***}
Not in Labour Force	0.328	0.106	0.066	0.019	0.263^{***}	0.087^{***}	-0.223^{***}	-0.047^{***}
Labour Force Status: Participants								
Unemployed	0.234	0.091	0.116	0.062	0.118^{***}	0.030^{***}	-0.143^{***}	-0.055^{***}
Full-time Employed (if employed)	0.585	0.755	0.779	0.910	-0.195^{***}	-0.155^{***}	0.170^{***}	0.130^{***}
Age at Immigration	31.831	32.938	35.077	34.368	-3.246^{***}	-1.430^{***}	1.107^{***}	-0.709^{***}
Visa Type								
Independent	0.641	0.737	0.729	0.719	-0.088^{***}	0.018^{**}	0.096^{***}	-0.010
State & Territory Nominated	0.112	0.081	0.086	0.103	0.026^{***}	-0.022^{***}	-0.031^{***}	0.017^{***}
Employer Sponsored	0.247	0.182	0.185	0.178	0.062^{***}	0.004	-0.065^{***}	-0.007
Offshore Applicant	0.804	0.763	0.815	0.826	-0.011	-0.063^{***}	-0.041^{***}	0.011^{*}
Education								
Certificate & Diploma	0.158	0.073	0.228	0.137	-0.070^{***}	-0.064^{***}	-0.085^{***}	-0.091^{***}
Bachelor's Degree	0.524	0.606	0.487	0.511	0.037^{***}	0.096^{***}	0.083^{***}	0.023^{**}
Post-Graduate Qualification	0.318	0.320	0.285	0.352	0.033^{***}	-0.032^{***}	0.002	0.067^{***}
University Educated	0.842	0.927	0.772	0.863	0.070^{***}	0.064^{***}	0.085^{***}	0.091^{***}
Over-Education (if employed)								
Education Level (cf 75th p'tile Aus. Born)	0.578	0.370	0.582	0.475	-0.004	-0.105^{***}	-0.208^{***}	-0.107^{***}
Educational Field								
STEM	0.296	0.295	0.433	0.645	-0.137^{***}	-0.350^{***}	-0.002	0.212^{***}
Health	0.144	0.292	0.098	0.048	0.046^{***}	0.244^{***}	0.148^{***}	-0.050^{**}
Commerce	0.294	0.234	0.274	0.194	0.019^{**}	0.040^{**}	-0.060^{***}	-0.081^{***}
Education & HASS	0.231	0.154	0.136	0.067	0.096^{***}	0.087^{**}	-0.077^{***}	-0.069^{***}
Other	0.035	0.026	0.059	0.046	-0.024^{**}	-0.021^{**}	-0.009^{***}	-0.013^{***}
English Language Characteristics								
English Proficiency	0.980	0.996	0.973	0.994	0.007^{**}	0.002	0.016^{***}	0.021^{***}
Main English Speaking Countries	0.174	0.256	0.194	0.196	-0.020^{**}	0.059^{***}	0.081^{***}	0.002
Gender Attitudes								
Registered Marriage	0.931	0.851	0.912	0.919	0.019^{***}	-0.068^{***}	-0.079^{***}	0.007
No Religion	0.158	0.212	0.194	0.200	-0.036^{***}	0.012^{*}	0.054^{***}	0.006
Women, Business & Law Index	49.73	51.423	49.592	49.185	0.138	2.238^{***}	1.693^{***}	-0.407^{*}
Primary Applicant	0.398		0.742					

Source: Australian Census and Migrants Integrated Database (ACMID), Women, Business, & Law Database (World Bank).

Note: The sample is restricted to immigrants currently aged 25-64 who arrived in Australia between 2013-2016 through the permanent skilled migration program, with a post secondary educational qualification. With the exception of the first panel, the sample is restricted to individuals currently participating in the labour force (excluding the self-employed and employers).

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$ represent the p-values for a two-sided test for the equality of the means between the two groups.

Table 2: Descriptive Statistics, by Applicant Type: Household & Spousal Characteristics

	Women		Men		Difference			
	Secondary SF Mean	Primary PF Mean	Secondary SM Mean	Primary PM Mean	(SF-SM)	(PF-PM)	(PF-SF)	(PM-SM)
Spouse: Employed	0.929	0.827	0.809	0.488	0.120^{***}	0.340^{***}	-0.102^{***}	-0.322^{***}
Spousal Education								
Spouse: High School or Less	0.021	0.118	0.018	0.104	0.003	0.014^{**}	0.097^{***}	0.086^{***}
Spouse: Certificate & Diploma	0.156	0.211	0.067	0.125	0.089^{***}	0.086^{***}	0.055^{***}	0.058^{***}
Souse:Bachelor's Degree	0.479	0.425	0.599	0.479	-0.120^{***}	-0.054^{***}	-0.055^{***}	-0.120^{***}
Spouse: Post-Graduate Qualification	0.344	0.246	0.316	0.292	0.028^{***}	-0.046^{***}	-0.098^{***}	-0.024^{***}
Spouse over 45	0.087	0.145	0.064	0.059	0.023^{***}	0.086^{***}	0.058^{***}	-0.005^{***}
Spouse: English Proficiency	0.996	0.967	0.995	0.946	0.001	0.021^{***}	-0.029^{***}	-0.049^{***}
Spouse: Main English Speaking Countries	0.183	0.232	0.197	0.175	-0.014^{*}	0.057^{***}	0.049^{***}	-0.022^{***}
Spouse: Same Country of Birth	0.897	0.839	0.900	0.867	-0.003	-0.029^{***}	-0.058^{***}	-0.032^{***}
Youngest Child in Household								
No Children	0.409	0.414	0.352	0.314	0.057^{***}	0.100^{***}	0.005	-0.038^{***}
0-4 years	0.316	0.313	0.370	0.418	-0.054^{***}	-0.106^{***}	-0.003	0.049
5-9 years	0.205	0.200	0.208	0.204	-0.003	-0.005	-0.006	-0.003
10-12 years	0.048	0.052	0.047	0.046	0.002	0.006^{**}	0.004	-0.001^{**}
13-14 years	0.022	0.022	0.024	0.017	-0.002	0.005^{**}	0.000	-0.006^{***}

Source: Australian Census and Migrants Integrated Database (ACMID), Women, Business, & Law Database (World Bank).

Note: The sample is restricted to immigrants currently aged 25-64 who arrived in Australia between 2013-2016 through the permanent skilled migration program, with a post secondary educational qualification. With the exception of the first panel, the sample is restricted to individuals currently participating in the labour force.

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$ represent the p-values for a two-sided test for the equality of the means between the two groups.

Table 3: Determinants of Primary Applicant Status by Gender: Average Marginal Effects

	Women		Men		(W-M) Diff.
Pr(Primary)	ame	se(ame)	ame	se(ame)	diff
Age at Immigration	0.014^{***}	(0.004)	-0.005^{*}	(0.002)	0.015^{**}
Independent	0.117^{***}	(0.234)	-0.047^{*}	(0.010)	0.164^{***}
State Nominated			*Reference*		
Employer Sponsored	−0.029	(0.060)	−0.044	(0.048)	0.015
Offshore Applicant	-0.083^{***}	(0.012)	0.000	(0.010)	-0.084^{***}
English Proficiency	0.311^{***}	(0.017)	0.438^{***}	(0.035)	-0.126^{***}
English-Speaking Country of Birth	0.113^{*}	(0.047)	0.123^{**}	(0.038)	−0.009
Education					
Certificate & Diploma			*Reference*		
Bachelor's Degree	0.258^{***}	(0.034)	0.171^{***}	(0.020)	0.089
Post-Graduate Qualification	0.244^{***}	(0.069)	0.186^{***}	(0.014)	0.061
Youngest Child Under 15 in 2016					
No Children			*Reference*		
0-4 years	0.000	(0.007)	0.026^{**}	(0.008)	-0.026^{*}
5-9 years	-0.045^{***}	(0.009)	0.020^{*}	(0.008)	-0.065^{***}
10-12 years	-0.053^{**}	(0.016)	0.038^{**}	(0.014)	-0.092^{**}
13-14 years	-0.068^{***}	(0.015)	0.000	(0.019)	-0.069^{**}
Gender Attitudes					
Women, Business & Law Index	0.003^{***}	(0.001)	−0.002	(0.001)	0.005^{*}
No Religion	0.007	(0.015)	0.006	(0.011)	0.001
Registered Marriage	-0.154^{***}	(0.032)	0.008	(0.010)	-0.163^{***}
Spousal Characteristics					
Spouse: Over 45	0.141^{***}	(0.015)	0.111^{***}	(0.010)	0.030^{*}
Spouse: University or Higher	-0.247^{***}	(0.022)	-0.216^{***}	(0.029)	−0.032
Spouse: English Proficiency	-0.440^{***}	(0.028)	-0.236^{***}	(0.007)	-0.210^{***}
Spouse: English-Speaking Country of Birth	-0.125^{***}	(0.018)	-0.129^{***}	(0.026)	0.001
Spouse: Same Country of Birth	-0.051^{***}	(0.014)	-0.043^{***}	(0.011)	−0.009
Non-matched Observations	19,968		25,100		

Note: The sample is restricted to immigrants currently aged 25-64 who arrived in Australia between 2013-2016 through the permanent skilled migration program, and are currently participating in the labour market, with a post-secondary school educational qualification.

Robust standard errors, clustered by country of birth are shown in parentheses, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$ represent the p-values (z-distribution) for a two-sided test for the average marginal effect equal to zero (columns 2 and 4),and p-values ($\chi^2(1)$ distribution) for a test of the equality of the average marginal effects for female and male applicants (column 5).

Table 4: Probability of Employment: Average Treatment Effects (ATE) for Primary Application Status

	Women		Men	
	Est.	Std. Err	Est.	Std. Err
Prob(Participation)				
ATE	0.1876***	(0.0140)	0.0388***	(0.0054)
Potential Outcome Means				
Secondary	0.6598	(0.0225)	0.8721	(0.0145)
Primary	0.8474	(0.0201)	0.9109	(0.0128)
Observations	25,339		25,244	
Prob(Employment—LF Participation)				
ATE	0.1273***	(0.0255)	0.0410***	(0.0097)
Potential Outcome Means				
Secondary	0.7755	(0.0308)	0.8994	(0.0104)
Primary	0.9028	(0.0100)	0.9404	(0.0052)
Observations	17,947		22,555	
Prob(Over Education—Employed)				
ATE	−0.2093***	(0.0239)	−0.1537***	(0.0239)
Potential Outcome Means				
Secondary	0.5930	(0.0331)	0.6177	(0.0388)
Primary	0.3837	(0.0330)	0.4640	(0.)0308
Observations	14,698		20,846	

Robust Standard errors, clustered by country of birth, in parentheses.

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

Notes: The sample is restricted to immigrants currently aged 25-64 who arrived in Australia between 2013-2016 through the permanent skilled migration program, and are currently participating in the labour market, with a post-secondary school educational qualification.. Each estimated model includes a basic set of individual controls (age at immigration, education, English language proficiency, offshore applicant, visa type, age of youngest child, registered marriage, no religion, WBL index, state, capital city, local area unemployment rate), spousal characteristics (educational attainment, English proficiency, spouse over 45, spouse employed), and a set of region of birth controls. All models are estimated using an Inverse Probability Weighting (IPW) Estimator, weighted by the propensity scores.

Table 5: Probability of Employment: Average Treatment Effects (ATE) for Primary Application Status, by Main English Speaking Source Countries

	Women		Men	
	Est.	Std. Err	Est.	Std. Err
Prob(Employment—LF Participation)				
Main English Speaking Countries				
ATE	0.0469***	(0.0082)	0.0072	(0.0062)
Potential Outcome Means				
Secondary	0.9279	(0.0055)	0.9661	(0.0032)
Primary	0.9747	(0.0048)	0.9734	(0.0058)
Observations	2,760		3,210	
Not Main English Speaking Countries				
ATE	0.1491***	(0.0178)	0.0506***	(0.0075)
Potential Outcome Means				
Secondary	0.7414	(0.0218)	0.8825	(0.0082)
Primary	0.8905	(0.0098)	0.9332	(0.0072)
Observations	15,146		19,359	
Prob(Over Education—Employed)				
Main English Speaking Countries				
ATE	−0.1717***	(0.0077)	−0.0698***	(0.0136)
Potential Outcome Means				
Secondary	0.3952	(0.0155)	0.3183	(0.)0155
Primary	0.2234	(0.0145)	0.2434	(0.0049)
Observations	2,608		3,111	
Not Main English Speaking Countries				
ATE	−0.2040***	(0.0267)	−0.1676***	(0.0139)
Potential Outcome Means				
Secondary	0.6241	(0.0241)	0.6654	(0.0168)
Primary	0.4202	(0.0300)	0.4978	(0.0224)
Observations	12,096		17,749	

Robust Standard errors, clustered by country of birth, in parentheses.

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

Notes: The sample is restricted to immigrants currently aged 25-64 who arrived in Australia between 2013-2016 through the permanent skilled migration program, and are currently participating in the labour market, with a post-secondary school educational qualification. Main English-speaking countries include Canada, New Zealand, Ireland, United Kingdom, and the USA. Each estimated model includes a basic set of individual controls (age at immigration, education, English language proficiency, offshore applicant, visa type, age of youngest child, registered marriage, no religion, WBL index, state, capital city, local area unemployment rate), spousal characteristics (educational attainment, English proficiency, spouse over 45, spouse employed), and a set of region of birth controls. All models are estimated using an Inverse Probability Weighting (IPW) Estimator, weighted by the propensity scores.

Table 6: Probability of Over-Education: Average Treatment Effects (ATE) for Primary Application Status, by Skilled Occupation List (SOL) Occupation

	Women		Men	
	Est.	Std. Err	Est.	Std. Err
Prob(SOL Occupation—Employed)				
ATE	0.2740***	(0.0156)	0.1788***	(0.0136)
Potential Outcome Means				
Secondary	0.2303	(0.0231)	0.2843	(0.0124)
Primary	0.5043	(0.0140)	0.4631	(0.0083)
Observations	14,721		20,852	
Prob(Over Education—Employed)				
Not SOL Occupations				
ATE	−0.1659***	(0.0151)	−0.1575***	(0.0097)
Potential Outcome Means				
Secondary	0.6819	(0.0472)	0.7029	(0.0423)
Primary	0.5160	(0.0436)	0.5454	(0.0382)
Observations	9,603		12,240	
SOL Occupation				
ATE	−0.0110	(0.0074)	−0.0196*	(0.0094)
Potential Outcome Means				
Secondary	0.2543	(0.0238)	0.3912	(0.0277)
Primary	0.2433	(0.0278)	0.3716	(0.0259)
Observations	3,852		4,387	

Robust Standard errors, clustered by country of birth, in parentheses.

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

Notes: The sample is restricted to immigrants currently aged 25-64 who arrived in Australia between 2013-2016 through the permanent skilled migration program, and are currently participating in the labour market, with a post-secondary school educational qualification. Main English-speaking countries include Canada, New Zealand, Ireland, United Kingdom, and the USA. Each estimated model includes a basic set of individual controls (age at immigration, education, English language proficiency, offshore applicant, visa type, age of youngest child, registered marriage, no religion, WBL index, state, capital city, local area unemployment rate), spousal characteristics (educational attainment, English proficiency, spouse over 45, spouse employed), and a set of region of birth controls. All models are estimated using an Inverse Probability Weighting (IPW) Estimator, weighted by the propensity scores.