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# Skilled migrants and labour market integration: how important is the selection process?

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**Abstract**

Although many OECD countries use skilled migration to boost economic performance, there is surprisingly little direct empirical evidence concerning what effects historical initiatives in this area have had. This study estimates the effects of Australia's recent shift toward a 'hybrid approach' for managing economic migration, which increased the requirements for (supply-driven) independent skilled migrants at the same time that (demand-driven) employer-sponsored migration was expanded. We find that this combination of policy adjustments substantively improved short-term employment outcomes amongst skilled migrants six months after taking up permanent residency.

**JEL Classification:** J15; J61; J24

**Keywords:** Skilled migration; Australia; Migrant employment outcomes; Difference-in-differences

## 1 Introduction

Skilled migration is increasingly understood as an important engine for growth, particularly in context of declining fertility and increased longevity (e.g. Keeley 2009, Czaika and Parsons, 2015, and Spinks, 2010, and Koleth, 2010, for Australia). There is general agreement that language skills, higher education, recognition of qualifications, and social skills all have an important influence on the labour market success of migrants (e.g. Miller and Neo 2003; Cobb-Clark 2003; Cobb-Clark et al. 2005). There is also broad agreement that migrants entering under a skills orientated migration stream differ significantly from, and experience more favourable labour market outcomes to, those entering under other streams (e.g. Antecol et al. 2003; Cobb-Clark 2000; Miller 1999). In comparison, the influence on labour market outcomes of the selection process—including the bodies responsible for selecting successful candidates, associated eligibility criteria, and administrative structures for processing of visa applications—has received little attention. This study sheds light on the role of policy in this context by estimating the effects of recent changes to Australian skilled migration policy on the short-run labour market outcomes of skilled migrants.

An influential report by the International Organization for Migration (IOM, 2002) distinguishes between two models of selecting skilled migrants. The supply-driven model—typically associated with Canada, Australia and New Zealand—uses points-tests to screen in favour of prospective migrants with desirable characteristics who put themselves forward

for consideration. In contrast, the demand-driven model—associated with the US—relies upon employers to identify skilled migrants who are likely to contribute positively to the receiving economy. Although this binary categorisation helps to cut through much of the complexity of skilled migration policy, it does not accommodate recent policy reforms in several OECD countries.

Policy reforms implemented during the last decade suggest that the US, Canada, and Australia are now converging towards a "hybrid" model of skilled migration that selects migrants using both demand- and supply-driven methods (e.g. Papademetriou et al., 2008).

In the US, skilled immigration remains one aspect of policy that continues to enjoy bi-partisan support in context of a generally hostile congress.[1] There is also evidence of growing US interest in the introduction of a points-based scheme, due to data that reveal that the Australian and Canadian systems have successfully screened in favour of highly skilled migrants (e.g. Koslowski, 2013, p. 28).

Canada has a long history of targeting independent skilled migrants through a points-based system, motivated by the premise that migrants with substantial "human capital" are best suited to adapt to evolving modern labour markets (Citizenship and Immigration Canada 1998, p. 29). Recent reforms to Canadian immigration policy have, however, placed greater emphasis on the short-term employment outcomes of migrants. This is in response to growing evidence that many of its skilled migrants have struggled to find employment commensurate with their skills in the short term (e.g. Sweetman and Warman 2013; Aydemir 2011). This short term mismatch between skills and employment carries a well-recognised long-term scarring effect for the affected migrants and hampers the ability of the country to meet specific skill shortages through its migration programme.

In a similar vein, an Australian government audit in the late 1990's concluded that migrant employment outcomes six months post-arrival were predictive of labour market outcomes in the longer term. This basic finding has had an important bearing on Australian immigration policy through to the present day and was one motivation for Australia's recent shift "away from 'supply driven' independent skilled migration towards 'demand-driven' outcomes in the form of employer and government-sponsored skilled migration" (p. 4, Phillips and Spinks, 2012). As in Canada, this shift is designed to get skilled migrants into skilled occupations quickly by better meeting the short-term labour market needs of employers including "soft skills" that are difficult to quantify and assess through a points-based system, e.g. Collet and Zuleeg (2008).

The evidence base underlying contemporary reforms of skilled migration policy predominantly consists of broad statistical comparisons of the relative performance of migrants between countries or through time. An important limitation of this evidence base, however, is that little is known about what effects historical reforms to skilled migration policy have had (Koslowski 2013; Lowell 2005).

In this study we estimate the labour market effects of Australian reforms implemented between 2005 and 2009/10, which transformed Australia's system of skilled migration from a supply-driven into a hybrid model. The Government has credited this policy shift as having substantially improved labour market outcomes of recent immigrants (e.g. Bowen, 2010, 2012). Our analysis considers the empirical support for these claims.

The reforms that we consider tightened the conditions for independent skilled visas at the same time as employer sponsored migration was being promoted by the government. These reforms were motivated by observations that independent (supply-driven) skilled

migrants, particularly (onshore) applicants holding temporary student visas, often found work in low-pay/low-skill occupations (e.g. Koleth, 2010, Spinks, 2010, Hawthorne, 2011).

We use a difference-in-differences estimation approach to consider the impact of Australia's shift in skilled migration policy from 2005 to 2009 on migrant employment rates and occupational outcomes.[2] We find that rates of employment six months after visa take-up amongst selected skilled migrants increased by between 12 and 14 percentage points, with a standard deviation of 2 percentage points. Approximately 5 percentage points of this effect is attributable to a simple shift between (independent) supply and (employer sponsored) demand-driven skilled migratory streams, with the remainder accounted for by changes in the criteria used to select successful visa applicants in the points system. We also find that occupational outcomes improved amongst independent skilled migrants and deteriorated slightly amongst employer-sponsored migrants, leaving the average across these two migrant categories slightly improved.

Section 2 of the paper details the reforms considered for analysis. The data and methods that we use are described in Section 3, and empirical results are reported in Section 4. Section 5 concludes.

## 2 Reforms to Australian skilled migration: 1995 to 2012

Permanent immigration to Australia is primarily administered under the Migration Programme.[3] There are two major streams to the Migration Programme: the Skill Stream is for people with skills that are likely to contribute to the Australian economy; and the Family Stream permits reunion of immediate family members. The only other pathway to Australian permanent residence is through the Humanitarian Programme for refugees.

The Skill Stream of the Migration Programme has grown in prominence since the mid-1980's. This trend accelerated from 1996, when the government announced its intention to use skilled migration to offset population ageing due to below replacement fertility and increased longevity.[4] In this context, migratory policy has been one channel through which the government has sought to meet "the skilled labour market needs of the economy" (Spinks, 2010, p. 1).

Permanent additions to the Australian population have climbed fairly steadily, from 99,000 in the year to June 1996 to a historical high of 190,000 in 2006/7, a rate of migrant arrival not matched outside of two brief peaks in 1949/50 and 1969/70. Since then, the number of annual permanent additions to Australia has continued to grow and was 255,000 in the most recently available data (2012/13). The methods used to select skilled migrants have consequently been the subject of intense policy concern.

The Skill Stream of the Migration Programme is predominantly comprised of two visa categories which are distinguished by whether an applicant is sponsored by an Australian employer. Employer Sponsored visa applicants require a nomination from a sponsoring employer. Sponsoring employers are required to offer a skilled position in the applicant's field that is full time and ongoing for a period of at least two years. The position must pay a market salary rate, and the employer is subject to monitoring by the Department of Immigration for a period of up to five years after they cease to be a sponsor. Furthermore, Employer Sponsored migrants must meet minimum skill, qualification, experience, and language requirements.

Skilled individuals who do not benefit from employer sponsorship can apply to migrate independently to Australia through the General Skilled Migration (GSM)

category. GSM visa applicants are assessed on the basis of a points-test that takes into account a range of characteristics, including the applicant's age, education, skills, occupation, experience, and language ability.

The management of skilled migration to Australia determines the number of migrants entering through constituent visa categories and is administered *via* two policy levers. The first of these is the definition of the eligibility rules for individual visa subclasses. A less obvious, but just as important policy lever is the way that visa applications are processed. This second aspect of the system is deliberately designed to favour some visa subclasses relative to others by reducing processing times and permitting higher numbers of visas granted in any year.

Employer Sponsored visas receive a higher priority for processing than GSM visas. The number of Employer Sponsored visas granted during any year is un-capped and therefore depends upon the number of eligible applicants and processing times. In contrast, the number of GSM visas granted during any year is managed to meet planning numbers for the entire Skill Stream that are issued by Government as part of the federal budget (ending 30 June).[5] This approach to processing implies interesting trade-offs between Skill Stream visa categories. Given a fixed planning number for the Skill Stream, for example, relaxing the eligibility criteria for Employer Sponsored visas will generally imply a compensating tightening of the number of visas issued through the GSM category. As these details are publicly available, they could affect the demand for alternative skilled visa subclasses amongst prospective migrants.

Australian immigration policy has altered substantively during the last two decades in terms of both the regulations governing specific visa subclasses and the constraints imposed on application processing. A useful approach for cutting through the complexity of the detailed policy reforms is to focus on historical variation observed for the numbers and types of visa outcomes. Annual visa outcomes reported for the Migration Programme during the period 1995/96 to 2011/12 are displayed in Fig. 1.

Figure 1 displays the expansion of the Migration Programme that has occurred since the mid 1990's and the extent to which this expansion has been managed through the Skill Stream. The figure reveals that the sharpest shift in the mix between the Family Stream and Skill Stream occurred in the three years from 1995/96 to 1997/98, following the official announcement of a change in policy in July 1996. The share of the Skill Stream continued to increase until 2005/06, by which time it accounted for two thirds of all outcomes administered through the Migration Programme.

Figure 1 also indicates that between 1995/96 and 2005/06, the vast majority of the expansion of the Skill Stream was administered through the GSM category. In 1995/96 visa outcomes in the GSM category accounted for just over half of all outcomes administered under the Skill Stream, a fraction that climbed to almost 80% by 2005/06. This disproportionate share of the GSM category is the reason why Australian skilled migration could reasonably be described as "supply-driven" at that time.

However, an important shift in policy is evident from 2005/06, manifested in two features of the data displayed in Fig. 1. First, the Family Stream has grown broadly in line with the Skill Stream during the seven years to 2011/12 so that the relative decline of the Family Stream between 1995/98 and 2005/06 appears to have come to an end. The Family Stream now accounts for approximately one in every three permanent visa outcomes administered through the Migration Programme. Secondly, there is a sharp shift evident

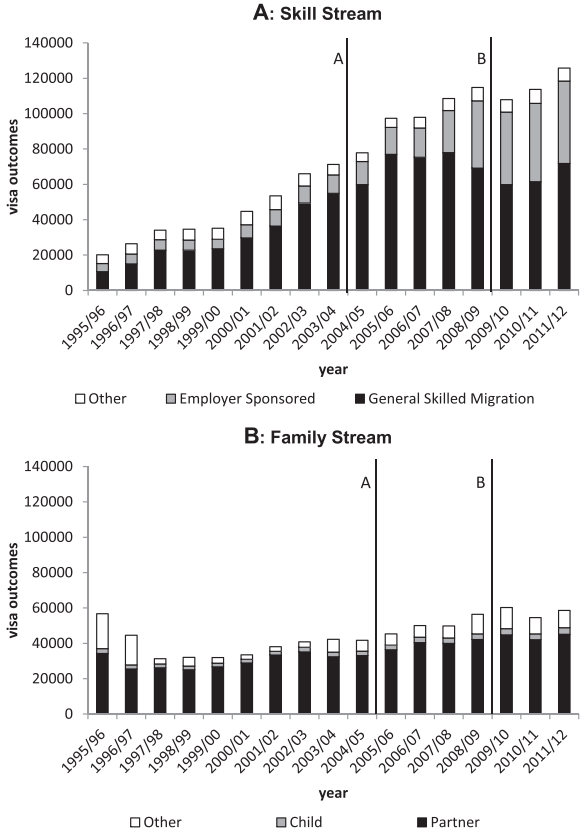


**Fig. 1** Migration Programme outcomes by visa category, 1995/96 to 2011/12. Source: Table 2.1 DIAC (2013), and Table 2.3 DIMIA (2004). Vertical line **a** represents approximate timing of Longitudinal Survey of Immigrants to Australia 3, wave 1. Vertical line **b** represents approximate timing of Continuous Survey of Australia's Migrants, cohorts 1 and 2, wave 1. "visa outcomes" equals visas granted, less visas revoked. Statistics include all applicants on respective visa application (primary applicants and dependents). Other (Skill Stream) comprised of Business Skills and Distinguished Talents visa subclasses. Other (Family Stream) comprised of Parent and non-dependent child visa subclasses

within the Skill Stream in favour of Employer Sponsored visas. The proportion of all Skill Stream outcomes administered through the GSM category fell from approximately 80 per cent in 2005/06 to 50 per cent since 2009/10, with most of the shift into Employer Sponsored visas. Contemporary data consequently suggest that Australian skilled migration is now appropriately referred to as a "hybrid" system.

The shift of the Skill Stream in favour of Employer Sponsored migrants has been achieved by altering policy in relation to both GSM and Employer Sponsored visa subclasses. One important and open-ended feature of reforms to skilled migration policy is the identification of occupations that qualify for skilled migration to Australia. These occupations are defined by official lists (e.g. the Skilled Occupation List, SOL, and the Consolidated Sponsored Occupation List, CSOL) and are under constant review to reflect evolving public priorities and labour market needs.

Beyond lists of eligible occupations GSM and Employer Sponsored visas have been subject to appreciably different sets of policy initiatives. In the case of GSM visas, attention has focussed on the specification of the points test used to identify eligible migrants. In March 2006, Birrell et al. (2006) published a review commissioned by the Government "to examine Australia's selection processes for skilled migrants". At that

time, it was generally concluded that the emphasis placed on Australian education qualifications by the skilled migration system was failing to achieve desirable employment outcomes. Although onshore GSM applicants were commonly working, there was a high incidence of low-skill/low-pay employment (see Hawthorne, 2011).

As noted by Koleth (2010), p.5, "from approximately 2005 onwards it became evident that the interaction between the overseas student program and the general skilled migration program was producing unintended and problematic outcomes. Issues that emerged as a result of this nexus included: a concentration of overseas students in the vocational education sector in the pursuit of permanent residency; the failure of some former overseas students to achieve employment outcomes that were commensurate with their qualifications; and failure to obtain skill levels that would meet Australia's skill needs." The Birrell et al. review consequently recommended that GSM selection criteria should place greater emphasis on English language proficiency and relevant work experience. These recommendations were accepted by the Government, and associated changes to policy became effective from 1 September 2007.

The required English language level was lifted from a score of 5 (vocational) to 6 (competent) on the International English Language Testing System (IELTS) scale for all applicants, except those with recognised trade skills (who required an IELTS score of 5). Language requirements for applicants in trade occupations were also increased in 2009. A substantial fraction of prospective migrants now fail to meet the revised English language requirements (see, e.g. Hawthorne, 2012). Furthermore points awarded for selected occupations were limited to applicants with relevant work experience, including work experience in Australia, and work experience requirements were standardised across all offshore GSM visa subclasses.

At the same time, the list of Australian educational courses eligible for points in the evaluation of GSM applications was tightened. Furthermore, bonus points were introduced for applicants who were 'proficient' in English (IELTS band 7 or above). These changes meant that English, rather than education in an occupation in demand, was made the key determinant for GSM selection. Bonus points were also awarded to graduates with advanced qualifications: most notably those possessing Australian doctoral degrees (25 points) or 3-year qualifications (15 points). Post-course temporary visas were established to provide prospective migrants with an additional 18 months to upgrade their skills for GSM selection, by pursuing relevant work experience, improving their language skills, or completing an additional year of professional study (see Hawthorne, 2012, for related discussion).

Applicants for a GSM visa must also provide evidence that their skills are suitable for work in Australia in their nominated occupation. Each migrant is responsible for contacting the relevant Australian assessing authority and organising an assessment of their skills and qualifications. Despite these conditions, however, it has been recognised that a gap may exist between the migratory assessment and the skills or licencing requirements demanded by Australian employers (Joint Standing Committee on Migration 2006). Recent policy initiatives have sought to further reduce inconsistencies in the skills assessment process and improve the information given to visa applicants.

In contrast, policy initiatives in relation to Employer Sponsored visas generally focussed on simplifying the application procedure and facilitating the matching process between prospective employers and interested migrants. Examples of associated activities engaged in by the government include publicity events held both onshore and offshore and the establishment of dedicated "outreach officers" in regional centres and amongst employers

in selected industries (e.g. Vanstone, 2006). These match-making activities were supported by reforms to fast-track Employer Sponsored permanent migration visas.

The set of reforms that have transformed the Australian system of skilled migration from a supply-driven to a hybrid model were primarily motivated by the desire to achieve improved labour market outcomes amongst skilled migrants, including achieving a better match between the skills of migrants and domestic labour market needs. The reforms have altered the focus of the skill stream in favour of English language skills and work experience while at the same time giving employers a greater say in the migrant selection process.

When these reforms were implemented, it was unclear what effects they would have. It seems reasonable to expect that shifting emphasis toward migrants with a sponsoring employer should have increased rates of employment amongst Skill Stream migrants, at least in the short-term. But what would the scale of the associated effects be? Would promoting Employer Sponsored migrants result in a deterioration in the occupational distribution of the jobs held by these migrants? How would tightening language and experience requirements affect employment outcomes amongst individuals entering through the points-based system? These important questions remain largely unanswered and are the focus of the empirical analysis reported below.

## 3 Data and empirical method

As discussed in Section 2, Australia's system of skilled migration shifted from a supply-driven to a hybrid model during the period between 2005 and 2009, whereas the role of the Family Stream within the Migration Programme stabilised. Our empirical analysis focusses upon effects of the shift in skilled migration policy on short-run employment outcomes of principal applicants six months after they were granted an onshore visa or arrived in Australia on an offshore visa.

Our analysis compares rates of employment and rates of employment in higher occupations reported for Skill Stream and Family Stream migrants. Minimising the time it takes skilled migrants to find work has been a long-term policy objective in Australia which recognises the scaring effects associated with employment gaps. Indeed this was the initial motivation for moving beyond the supply driven model of migration that applied up to the mid-2000s. Recent policy debate has moved beyond employment rates to focus on ensuring that skilled migrants find work commensurate with their qualifications and that these skills meet the needs of the domestic labour market. Our data describe a proxy for the first of these objectives, but not the second. Furthermore, issues concerning data comparability motivate exclusion of wages from the set of employment outcomes considered in the main body of our paper. Our analysis of wages is consequently reported in the technical appendix; we note here that these results are consistent with the general findings presented in Section 4.

No single data source offers the information that we require. Our study is made possible by harmonising variables described by two complementary data sources for Australian migrants: the *Longitudinal Survey of Immigrants to Australia 3* (LSIA 3) reports data for 2005, and the (recently available) *Continuous Survey of Australia's Migrants* (CSAM) reports data for 2009/10. Relative to other publicly available micro-data sources, LSIA 3 and CSAM include large samples of immigrants, are based on almost identical survey

methodologies, and include important variables of interest such as a detailed description of a migrant's visa subclass.

### 3.1 Survey design and methodology

LSIA 3 and CSAM are almost identical surveys conducted by the Department of Immigration and Citizenship. Both surveys adopt visa Primary Applicants—upon whose characteristics a visa application is chiefly assessed—as the basic unit of analysis. The sample frames for both LSIA 3 and CSAM were drawn from the Settlement Database, which is now maintained by the Department for Social Services. The sample populations for both surveys were limited to Primary Applicants for permanent or provisional visas managed under the Migration Programme, who were at least 18 years of age, had an identifiable country of birth, were not New Zealand citizens, and did not have a "special eligibility" visa (a minor visa subclass). Although both surveys only administered questionnaires to Primary Applicants, there are a small number of questions in each survey where Primary Applicants were asked to provide responses on behalf of other members of the household.

The two surveys first contacted Primary Applicants who were granted an onshore visa or arrived in Australia on an offshore visa around six months prior to the respective survey. The sample for LSIA 3 was first surveyed between August and October 2005, cohort 1 of CSAM was surveyed in September 2009, and cohort 2 of CSAM was surveyed in March 2010[6]. We consider data only for the first two cohorts of CSAM (there were five in total), as the initial questionnaire was altered slightly for cohorts 3, 4 and 5, complicating comparisons with LSIA 3. The approximate timings of the sample windows for the respective surveys are indicated by vertical lines displayed in Fig. 1.

Both LSIA 3 and CSAM include a panel dimension with an initial survey administered as a written questionnaire that respondents completed and mailed back and a follow-up survey conducted by telephone interview. Individuals with limited English language ability could obtain access to interpreter services by contacting a toll free number for the initial written surveys, and the follow-up telephone interviews were conducted in a language that was selected using information gained through the initial survey. The follow-up survey was administered 12 months after the initial questionnaire in LSIA 3 and six months after the initial questionnaire in CSAM. The difference in the period between the initial and follow-up surveys reported by LSIA 3 and CSAM limits our analysis to data collected in the first wave of both surveys.

LSIA 3 achieved a completed response rate of 49% and reports data for 9,865 principal applicants. The initial questionnaires for CSAM achieved a similar response rate of 47%. Cohorts 1 and 2 of CSAM together report data for 7,217 respondents.

### 3.2 Construction of variables

The same questionnaires were administered to Primary Applicants in cohorts 1 and 2 of CSAM, which, although very similar, are not identical to those of LSIA 3. Both CSAM and LSIA 3 report a range of variables for Primary Applicants, including their demographic circumstances, education, employment status, receipt of government benefits, and housing arrangements. The initial questionnaire of LSIA 3 comprises more enumerated questions than asked in CSAM (43 relative to 35) and covers a more diverse range of

topics (e.g. sources of visa information accessed, employment experience gained overseas, existing social networks). In contrast, CSAM provides additional detail relative to LSIA 3 concerning the employment arrangements of the partners of Primary Applicants.

Analysis started with the publicly released sample reported for LSIA 3 and the raw data reported for CSAM, from which we calculated a harmonised set of variables for analysis. Some questions asked by the two surveys were identical, facilitating derivation of harmonised data. In cases where the two surveys reported data for different, but related characteristics, care was taken to recover common subsets of data reported by the two surveys. Furthermore, survey non-response to questions could sometimes be mitigated by drawing on responses to related questions. For example, missing information to the question "do you have a partner?" could be imputed if the respondent later in the survey stated that their partner was working. Very few observations (usually less than 1%) were imputed in this way. A complete list of the common sub-set of harmonised data extracted from LSIA 3 and CSAM is reported in the Appendix.

### 3.3 Sample selection and variable summary statistics

Our analysis considers data for individuals aged 18 to 54. Applicants for Skill Stream visas were required to be under age 45 during our period of analysis unless exempt. Our age restriction omits 0.9% of Employer Sponsored and GSM migrants in the pooled LSIA 3/CSAM data. Additionally, our empirical analysis focusses only on migrants within the Family, GSM, and Employer Sponsored visa subclasses. Summary statistics for the harmonised variables of the population subgroups considered for analysis are reported in Table 1.

All of the variables reported in Table 1, except for the sample sizes reported at the bottom of the table, are dummy variables. At the top of the table (under the heading "dependent variables") are statistics that describe our primary focus of interest: the (short-term) employment rates and occupational categories of Primary Applicants of permanent or provisional visas granted for Australia. The remainder of the variables reported in the table (under the heading "covariates") are used to help explain the labour market outcomes.

The characteristics described by covariates for Primary Applicants of visas granted through the Family Stream are strikingly similar between LSIA 3 and CSAM. Only one covariate reports a disparity between the two data sources larger than 5 percentage points (residence in NSW, 7.2 percentage points). The average absolute difference in incidence across all covariates listed in Table 1 for Family Stream migrants is 2.1 percentage points. This finding is consistent with the fact that policy concerning the granting of the Family Stream visas did not alter substantively over the associated time period (discussed in Section 2). This stability in average characteristics across time further suggests that the harmonised data are reasonably comparable between LSIA 3 and CSAM.

The distribution of occupations amongst Primary Applicants granted visas through the Family Stream is also similar between the two surveys. Within the seven occupational categories identified in the harmonised data, Family Stream migrants are reported to find employment predominantly either as 'professionals' or 'labourers' in both surveys. The proportion of these occupations is slightly higher in 2009/10 (CSAM) relative to 2005 (LSIA 3), where labourers account for just over one in every four, and professionals one in every five of employed Family Stream migrants.

**Table 1** Population averages for Primary Applicants of Family Stream and Skill Stream visas aged 18–54, by visa category and survey

| | Family Stream | | General skilled migrant | | Employer sponsored | |
|---|---|---|---|---|---|---|
| | LSIA 3 2005 | CSAM 2009-10 | LSIA 3 2005 | CSAM 2009-10 | LSIA 3 2005 | CSAM 2009-10 |
| Dependent variables | | | | | | |
| At work | 0.567 | 0.495 | 0.818 | 0.890 | 0.991 | 0.954 |
| Occupation (of those at work) | | | | | | |
| Higher occupations | | | | | | |
| Manager | 0.068 | 0.066 | 0.042 | 0.050 | 0.148 | 0.130 |
| Professional | 0.178 | 0.197 | 0.392 | 0.455 | 0.549 | 0.477 |
| Other occupations | | | | | | |
| Technical and trades | 0.133 | 0.109 | 0.108 | 0.175 | 0.133 | 0.188 |
| Community and personal | 0.113 | 0.125 | 0.058 | 0.060 | 0.054 | 0.090 |
| Clerical and administration | 0.151 | 0.136 | 0.184 | 0.093 | 0.070 | 0.037 |
| Sales | 0.109 | 0.079 | 0.120 | 0.045 | 0.030 | 0.014 |
| Machine operator and labourers | 0.248 | 0.288 | 0.097 | 0.121 | 0.017 | 0.065 |
| Covariates | | | | | | |
| Proportion women | 0.669 | 0.693 | 0.442 | 0.376 | 0.301 | 0.294 |
| Age bands | | | | | | |
| 18-34 | 0.691 | 0.696 | 0.785 | 0.618 | 0.351 | 0.324 |
| 35-49 | 0.309 | 0.304 | 0.215 | 0.382 | 0.649 | 0.676 |
| Has a partner | 0.961 | 0.954 | 0.512 | 0.682 | 0.787 | 0.823 |
| Has partner at work in Aus | 0.773 | 0.771 | 0.271 | 0.413 | 0.450 | 0.489 |
| Has children who migrated | 0.167 | 0.169 | 0.211 | 0.371 | 0.459 | 0.583 |
| Country of birth | | | | | | |
| English speaking | 0.178 | 0.169 | 0.109 | 0.289 | 0.532 | 0.398 |
| East Asia | 0.156 | 0.181 | 0.273 | 0.172 | 0.085 | 0.137 |
| South Asia | 0.092 | 0.137 | 0.221 | 0.270 | 0.076 | 0.119 |
| South East Asia | 0.241 | 0.255 | 0.260 | 0.127 | 0.096 | 0.157 |
| Speaks English very well | 0.447 | 0.433 | 0.630 | 0.751 | 0.837 | 0.761 |
| Qualifications | | | | | | |
| No post school qualification | 0.340 | 0.345 | 0.054 | 0.055 | 0.083 | 0.122 |
| First degree or higher | 0.362 | 0.400 | 0.803 | 0.700 | 0.630 | 0.546 |
| Highest qual obtained in Aus | 0.096 | 0.139 | 0.609 | 0.441 | 0.082 | 0.228 |
| Main reason for migrating | | | | | | |
| Better future for family | 0.123 | 0.109 | 0.268 | 0.497 | 0.219 | 0.400 |
| Join family | 0.753 | 0.789 | 0.058 | 0.026 | 0.023 | 0.018 |
| Work opportunities | 0.035 | 0.017 | 0.298 | 0.170 | 0.470 | 0.356 |
| State of residence | | | | | | |
| NSW | 0.432 | 0.361 | 0.408 | 0.223 | 0.379 | 0.243 |
| QLD | 0.122 | 0.141 | 0.095 | 0.118 | 0.118 | 0.191 |
| SA | 0.044 | 0.052 | 0.036 | 0.120 | 0.118 | 0.079 |
| VIC | 0.286 | 0.307 | 0.341 | 0.312 | 0.207 | 0.225 |
| WA | 0.087 | 0.110 | 0.092 | 0.200 | 0.129 | 0.207 |
| Onshore visa | 0.397 | 0.373 | 0.607 | 0.394 | 0.802 | 0.768 |
| Sample size | 5323 | 1966 | 2933 | 2274 | 854 | 1713 |

All statistics calculated using reported survey weights

The largest difference observed between 2005 and 2009/10 statistics for Family Stream migrants relates to the proportions of migrants at work, which fell by 7 percentage points from 57% in the 2005 data to 50% in 2009/10. This fall coincides with the timing of the 2008 financial crisis.

Headline labour market statistics for Australia display subdued variation through the 2008 financial crisis in contrast to the sharp fluctuations observed in many OECD countries. Seasonally adjusted employment rates for the full population, for example, fell from a peak of 62.9% in June 2008 to a trough of 61.5% in September 2009 (cohort 1 of CSAM), before rising again to 61.7% in March 2010 (cohort 2 of CSAM). This compares with a historical rate of 54 to 63% reported for the Australian employment rate since 1978. Similarly, the unemployment rate (full population) rose from a historical low of 4% in August 2008 to peak at 5.9% in June 2009, before falling away to 4.9% March 2011; the unemployment rate had been as high as 11.1% during the preceding four decades.

However, the subdued variation of headline labour market statistics masks a perceptible rise in economic tension following the 2008 financial crisis. The "current conditions index" of the Westpac-Melbourne Institute Survey of Consumer Sentiment, for example, averaged 120.6 between December 2004 and March 2005 compared with 93.4 between January and May 2009 and 108.2 between July and November 2009, where an index of 100 indicates neutrality. Employment rates of Family Stream migrants in our data follow a similar pattern, falling from 57% in LSIA 3 to 46% in cohort 1 of CSAM, before rising again to 53% in cohort 2 of CSAM.

Similarly, the financial crisis saw a substantive fall in job vacancies, and this has been associated with a coincident fall in migrants entering *via* the temporary (457) skilled visa category. As Cully and Pejoski (2012), p. 66, observe, "The magnitude of the peak-to-trough decline was similar in both series, 55% for job vacancies and 61% for temporary skilled workers. Since the trough, both series rebounded in line with improved labour market conditions during 2010, then fell away again during 2011 as below-trend growth in economic activity moderated the demand for labour."It seems reasonable to expect that similar considerations affected prospective migrants in the permanent visa categories.

Compared with the 7 percentage point decline reported for the employment rate of Family Stream migrants, our data indicate that the proportion of GSMs employed increased by 7 percentage points from 2005 to 2009/10. There is also a trend towards higher occupations in 2009/10 for GSMs. This provides our first indication that policy reforms introduced as part of the shift in skilled migration policy may have resulted in more favourable employment outcomes amongst GSMs, at least when measured relative to migrants through the Family Stream.

Furthermore, in contrast to results for migrants through the Family Stream, the covariate statistics reported for GSMs indicate substantial differences in average migrant characteristics between 2005 and 2009/10. Relative to 2005, the sample of Primary Applicants granted GSM visas in 2009/10 displays a stronger bias in favour of older people granted offshore visas from English speaking countries, who speak English very well, with partners and dependent children. The growth of offshore visas granted to GSMs is interesting because it runs against a broad trend in favour of onshore visas granted through the Migration Programme. There is also a decline in the share of respondents with third level education whose highest degree was obtained in Australia.

It is reasonable to suppose that there is a relationship between the higher share of GSM migrants in 2009/10 who report migrating with children and the substantively higher share who state that their "main reason for migrating" was to provide a "better future for (their) family" (in sharp contrast to the stability of associated responses of Family Stream migrants). Other differences between 2005 and 2009 in the characteristics of Primary Applicants who were granted GSM visas appear to mirror associated changes in policy.

As noted in Section 2, the points system used to determine eligibility for a GSM visa was rebalanced in favour of English language skills and relevant labour market experience at the relative expense of higher education qualifications (from an Australian institution). The reduced emphasis on education meant that fewer (young) foreign students were eligible for permanent residency immediately after their graduation, reducing onshore visa grants and possibly increasing the average age and reducing educational attainment amongst GSMs.[7] There was also a shift in emphasis within the GSM visa class in favour of state/territory sponsored migrants, who are predominantly offshore visa applicants (see, e.g., Table 2.1, DIAC 2013).

In contrast to the statistics reported for GSMs, there is evidence of a slight decline in employment outcomes amongst Employer Sponsored migrants between 2005 and 2009/10. This deterioration can be attributed to the fact that 99% of Employer Sponsored migrants reported being employed in 2005, leaving almost no margin for improvement in later years. The same, however, cannot be said for the distribution of occupations amongst Employer Sponsored migrants in paid employment, which also displays some deterioration between 2005 and 2009/10. The proportion of Employer Sponsored migrants employed in technical, trades, and personal occupations rises by approximately the same margin as the proportion employed as managers and professionals falls; and there is a

**Table 2** Estimated treatment effects on rates of employment of GSM migrants from CSAM cohort 1 to cohort 2

| Sex | Men | | Women | |
|---|---|---|---|---|
| Visa category | Family | GSM | Family | GSM |
| Observations | 555 | 1323 | 1284 | 795 |
| Proportion employed | 0.6541 | 0.9048 | 0.4252 | 0.8679 |
| Linear probability model | | | | |
| Per cent correctly predicted[a] | 0.6212 | 0.8376 | 0.6300 | 0.7943 |
| Of those employed | 0.7104 | 0.9102 | 0.5649 | 0.8815 |
| Of those not employed | 0.4525 | 0.1474 | 0.6781 | 0.2213 |
| Treatment effects[b] | 0.0702 (0.0412) | | −0.0389 (0.0347) | |
| Probit model | | | | |
| Per cent correctly predicted[a] | 0.6276 | 0.8357 | 0.6362 | 0.7918 |
| Of those employed | 0.7130 | 0.9079 | 0.5737 | 0.8796 |
| Of those not employed | 0.4662 | 0.1492 | 0.6825 | 0.2152 |
| Treatment effects[b] | 0.0668 (0.0402) | | −0.0220 (0.0251) | |

Source: Regressions calculated using STATA on pooled data reported for visa principal applicants in the initial waves of cohorts 1 and 2 of CSAM;
Control population refers to Family Stream migrants and treatment population to GSM; migrants treatment period is cohort 2 reported by CSAM;
[a]predicted employment evaluated on basis of point estimates of relevant regression model
[b]treatment effect = population average impact of treatment on probability of employment for treated population in treatment period (see Puhani, 2012) standard errors in parentheses treatment effects calculated using the "predictnl" procedure in Stata

similar re-weighting of Employer Sponsored migrants from clerical, administration, and sales occupations to machine operators and labourers. A consequence of these respective shifts is that the disparities between the employment outcomes reported for GSM and Employer Sponsored migrants generally fell between 2005 and 2009/10.

Further evidence of a convergence in outcomes of GSM and Employer Sponsored migrants from 2005 to 2009/10 is evident throughout the list of characteristics reported in the lower portion of Table 1. Relative to 2005, there is a smaller difference between GSM and Employer Sponsored migrants in 2009/10 for demographics (sex, age, relationship status, and children), country of origin, Australian educational qualifications, and geographic residence.

A potential explanation for the set of observations reported above is that many foreign students graduating from Australian education institutions—particularly those with weaker labour market prospects—who would have applied for a GSM visa in 2005, may have chosen instead to apply for an Employer Sponsored visa in 2009/10. This explanation would be consistent with coincident changes to immigration policy for GSM applicants that were targeted at international students (including tightening of language and educational conditions; e.g. Hawthorne, 2011).

Nevertheless, the timing of our data suggests that—although the reforms to GSM visas may have screened out foreign graduates with the weakest labour market prospects from that visa stream—it is unlikely that these prospective migrants took up employer sponsored visas during the same period. Employer sponsored visa applicants typically require a minimum of 3 years work experience in their nominated occupation, and most recent graduates in our sample are unlikely to have met this criterion in 2010 (e.g. Birrell and Healy, 2010).

Data reported by the Department of Immigration and Border Protection (2014) reveal that the share of (permanent) skilled visas granted to temporary student visa holders declined from 26% in 2007/8 to 8% in 2009/10. There was a coincident increase in the proportion of student visa holders granted a Temporary Graduate visa 485 (introduced in 2007) from 0.3% in 2007/08 to close to 20% in 2009/10. Furthermore, there was no change in the proportion of student visa holders granted a family visa, an employer sponsored visa, or a temporary skilled work visa. The vast majority of employer sponsored visas are awarded to individuals who had previously held a temporary skilled 457 working visa. These summary statistics indicate that most overseas student visa holders moved from GSM to Temporary Graduate Working 485 visas between 2007/8 and 2009/10 and are not among skilled visa holders in our data for 2009/10.

Comparisons between the sample sizes that are reported at the bottom of Table 1 and national aggregates are complicated by the fact that our samples reported for 2005 and 2009/10 focus exclusively on Primary Applicants, whereas national aggregates typically include associated dependents. Nevertheless, it is useful to consider how the raw samples compare, if only to provide an imperfect yardstick for interpreting the empirical analysis reported in Section 4. A key issue in this regard concerns the contribution to the Skill Stream made by the GSM and Employer Sponsored visa categories. Table 1 indicates that the GSM sample accounted for 77% of all GSM and Employer Sponsored Primary Applicants reported by LSIA 3, and for 57% of the sample reported by cohorts 1 and 2 of CSAM. These proportions are close to those implied by data reported in Table 2.1 of DIAC (2013), which reports that GSMs accounted for 83% of all GSM and Employer Sponsored visa outcomes in 2005/06, and 59% of outcomes in 2009/10.

### 3.4 Empirical approach

We use a difference-in-differences (DiD) strategy to estimate the effects of reforms to skilled migration policy implemented between 2005 and 2009 on the short-run labour market outcomes of skilled migrants to Australia. Our treatment group includes GSMs in isolation and is pooled with Employer Sponsored migrants. Our control group is comprised of Family Stream migrants. Pre-treatment outcomes are described by data reported for 2005, and post-treatment outcomes by data reported for 2009/10. We consider two binary employment outcomes: "at work" and "working in a higher occupation".[8] We report estimates for a probit specification (see e.g. Puhani, 2012), noting that results are qualitatively the same if a linear probability specification is used (results can be obtained from the authors upon request).

Table 1 indicates that approximately 80 of GSMs and 99% of Employer Sponsored migrants were reported as being employed in 2005. These high rates of employment raise the question of whether there was much scope for improvement following the considered policy reforms (e.g. Blundell and Hoynes, 2004, criticising Eissa and Liebman 1996). Our analysis of employment rates is motivated by two observations. First, a key objective of changes implemented to the eligibility criteria of GSM visas was to improve the match between migrant characteristics and the needs of Australian employers. With one in five GSMs indicated as not employed in 2005, there appears sufficient scope for some improvement to have been achieved in this regard.

Secondly, as noted in the preceding subsection, a sharp deterioration in market sentiment was observed between 2005 and 2009. This deterioration may have dampened short-term employment prospects, which provides a possible explanation for the reduced rates of employment reported for Family Stream migrants during the same period. If true, then this consideration would widen the scope for finding a positive effect of policy on employment rates amongst Skill Stream migrants between 2005 and 2009.

A key issue of concern in relation to any DiD analysis is whether the assumed control population provides a valid basis for screening out the effects on the treatment population of unobserved changes to the economic environment that were coincident with the treatment. Options for testing the validity of Family Stream migrants as a control population for Skill Stream migrants are constrained in our context due the dynamic nature of Australian migration policy and the limited data that are available. Our confidence in the results that we report is based on four key sets of observations.

First, the covariate statistics listed in Table 1 display temporal variation that is consistent with the nature of policy reforms implemented between 2006 and 2009 and is not obviously a product of the 2008 Financial Crisis.

Secondly, an initial concern that we had was that Family Stream migrants might be disproportionately sensitive to the underlying economic environment, relative to other population subgroups (including Skill Stream migrants). This does not appear to be the case in our context. Data reported by the *Education and Work Survey* (EWS) conducted by the Australian Bureau of Statistics, for example, permit rates of employment to be calculated for graduates of Australian education institutions who were aged 23 and left full-time education from age 22.[9] These statistics are interesting because they relate to a population who was in the Australian labour market for a comparable period of time to that of migrants reported in the initial waves of LSIA 3 and CSAM. The focus on individuals who left full-time education at an advanced age is also consistent with our interest in

labour market outcomes of Skill Stream migrants. EWS data indicate that the employment rate for recent graduates was 80% in 2005 and 73% in 2009. The implied fall of 7 percentage points is identical to that described for Family Stream migrants by LSIA 3 and CSAM data during the same period (see Table 1).

Thirdly, Table 1 indicates that our treatment and control populations exhibit potentially important compositional differences. Family Stream migrants are predominantly married and female, whereas Skill Stream migrants display greater variation for marital status and are disproportionately male. Our analysis is designed to accommodate these compositional differences by estimating separate specifications for men and women and by including controls for marital status, children, and onshore visa dummy variables in all of the specifications that we report.[10]

Finally, we conducted a limited out-of-sample test for the validity of Family Stream migrants as a control population for Skill Stream migrants by calculating treatment effects from CSAM cohort 1 to cohort 2. Although some policy variation between cohorts 1 and 2 of CSAM is inevitable, it is reasonable to suppose that this variation is relatively minor. In contrast, buoyancy of the economy did appear to increase sharply between September 2009 and March 2010, as indicated by measures of consumer sentiment (see Fig. 2 for associated detail). As discussed in Section 3.3, employment rates of Family Stream migrants reported for cohorts 1 and 2 of CSAM also increased substantially during this period, by 7 percentage points.

The DiD estimation approach is designed to screen out precisely the type of economic fluctuation that is referred to in the preceding paragraph. We consequently tested the underlying assumptions of the approach by estimating treatment effects for employment rates of GSMs between cohorts 1 and 2 of CSAM. If the assumptions of the model are valid, then estimated treatment effects between cohorts 1 and 2 of CSAM should be insignificant. Selected results are reported in Table 2.

Population sizes are reported for the four population subgroups distinguished by gender and visa category. These statistics are reported because they imposed an important

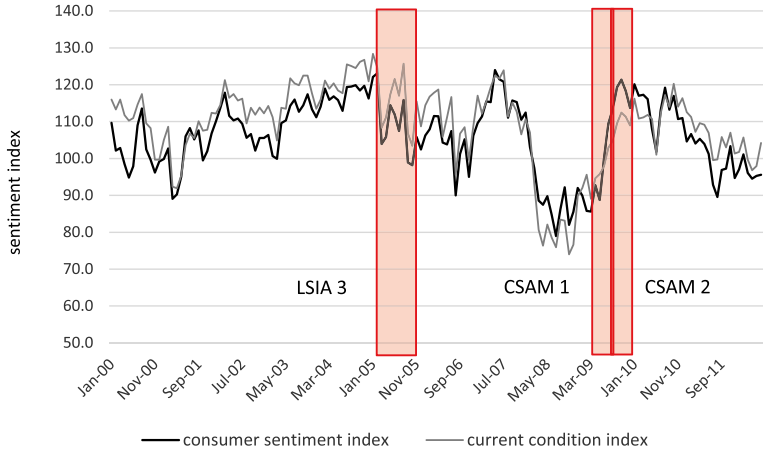


**Fig. 2** Consumer sentiment and survey sampling windows. Source: Westpac-Melbourne Institute Survey of Consumer Sentiment. A sentiment index of 100 indicates neutrality in responses to sentiment questionnaire. Highlighted series indicate windows during which respondents to respective surveys (LSIA 3; CSAM cohort 1 or cohort 2) may have taken-up a permanent or provisional visa to reside in Australia

limitation on the extent to which we could disaggregate effects within our specification and still obtain reliable regression estimates. The next row of Table 2 describes employment rates for the individual population subgroups, and reflects associated summary statistics reported in Table 1. The remainder of the table is divided in two halves, one reporting regression statistics derived from a linear probability model, and another for a probit specification. This is the only table where we report both models, noting that—as in Table 2—qualitatively similar results are derived throughout the study using the two regression specifications.

The treatment effects reported in Table 2 are all not significantly different from zero at the 95% confidence interval. Although the effects for men are (just) significant at the 90% confidence interval, those for women are not significant at any reasonable confidence interval. Hence, the results that we report here do not reject the assumptions underlying our DiD approach, although there is some evidence to suggest that caution should be exercised when interpreting the results reported for men.

One potential issue with our use of a DiD empirical approach is that the reforms to skilled migration policy may have influenced the composition of migrants through the Family and Skill Streams. It is possible, for example, that increasing the conditions for eligibility of the GSM visa category encouraged some individuals to apply for a visa through the Family Stream. We cannot test for this sort of phenomenon, as we do know which Family Stream migrants would have applied through the GSM category prior to the shift in policy. Nevertheless, we expect that this consideration—to the extent that it exists—is likely to dampen the estimated treatment effects with which we are concerned.

A DiD empirical approach has the added advantage in the current context of accommodating non-random survey response that may affect the data reported by LSIA 3 and CSAM. The initial response rates achieved for LSIA 3 and CSAM are not conspicuously lower than those achieved by general population surveys in which participation is voluntary.[11] Nevertheless, there is some cause for concern regarding the representative nature of the data that are reported by these surveys. As the technical report for CSAM acknowledges, although interpreter services were provided as part of each survey's roll-out, "migrants from Non-English speaking backgrounds may have found the form difficult to complete" (Smith et al., 2012, p.21). In this regard, it is important to note that LSIA3 and CSAM employed identical sample and survey methods so that any non-random response is likely to have affected both surveys in a similar way. By focussing on differences taken over comparable survey instruments, we identify effects that can be meaningfully interpreted as valid for a consistent migrant subgroup, even if this "migrant subgroup" is not fully representative of all Australian immigrants.

## 4 Empirical results

As discussed in Section 3, our analysis explores the influence of policy on two key labour market outcomes of skilled migrants to Australia. Section 4.1 quantifies the impact of the shift in skilled migration policy on rates of paid employment. Section 4.2 extends our analysis to consider the influence of the policy change on the occupational distribution of employed migrants. This second set of results helps us to determine how tightening of eligibility requirements for GSM visas and promoting Employer

Sponsored migration have influenced the quality of the jobs held by skilled migrants. Discussion is framed around a series of nested regressions that are designed to draw out how changes to the selection criteria for GSM visa subclasses influenced employment outcomes, contributing to the screening literature following Miller (1999). These two margins focus on the stated objectives of the policy reforms: to facilitate rapid labour market integration of skilled migrants.[12]

### 4.1 Analysis of employment rates

Selected results from our analysis of employment rates are reported in Table 3, and full results are reported in the technical appendix. Measures of fit are reported in the top half of the table, and the lower half of the table reports regression statistics for treatment effects, which we interpret here as being attributable to changes to Skill Stream migration policy implemented between 2005 and 2009. All regression specifications include full interaction effects with a gender dummy. This permits separate treatment effects to be evaluated for men and women, in addition to the treatment effects for the population on average. The left-hand panel of the table reports statistics where the treatment population is comprised exclusively of GSM outcomes, and the right-hand panel reports results when GSM and Employer Sponsored migrants are pooled.

Reading across the estimated treatment effects reported in Table 3 indicates that the shift in Australian skilled migration policy between 2005 and 2009 resulted in significantly

**Table 3** Selected difference in differences probit regression statistics for the incidence of employment of Primary Applicants of Family Stream and Skill Stream visas aged 18-54

| Treatment population | GSMs only | | | | GSM and employer sponsored migrants | | | |
|---|---|---|---|---|---|---|---|---|
| Regression specification | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Per cent correctly predicted[a] | 0.7502 | 0.7719 | 0.7723 | 0.7758 | 0.7854 | 0.8044 | 0.8057 | 0.8083 |
| Of those employed | 0.8441 | 0.8895 | 0.8837 | 0.8805 | 0.8840 | 0.9133 | 0.9082 | 0.9082 |
| Of those not employed | 0.5550 | 0.5275 | 0.5409 | 0.5584 | 0.5261 | 0.5181 | 0.5362 | 0.5456 |
| Likelihood | −6211.1 | −5846.8 | −5803.2 | −5753.2 | −6612.5 | −6197.4 | −6155.7 | −6101.6 |
| R2 | 0.1772 | 0.2255 | 0.2313 | 0.2379 | 0.2182 | 0.2673 | 0.2722 | 0.2786 |
| Treatment effects[b] | 0.1437 | 0.1158 | 0.1144 | 0.1081 | 0.1205 | 0.0936 | 0.0895 | 0.0853 |
| | (0.0248) | (0.0257) | (0.0263) | (0.0275) | (0.0205) | (0.0205) | (0.0208) | (0.0218) |
| For men | 0.1526 | 0.1289 | 0.1229 | 0.1094 | 0.1162 | 0.0938 | 0.0867 | 0.0788 |
| | (0.0263) | (0.0273) | (0.0279) | (0.0288) | (0.0212) | (0.0210) | (0.0212) | (0.0218) |
| For women | 0.1287 | 0.0941 | 0.1003 | 0.1060 | 0.1288 | 0.0934 | 0.0949 | 0.0979 |
| | (0.0224) | (0.0229) | (0.0235) | (0.0253) | (0.0192) | (0.0195) | (0.0200) | (0.0217) |

Source: Regressions calculated using STATA on pooled data reported for visa principal applicants in the initial waves of LSIA 3 and cohorts 1 and 2 of CSAM;
Control population refers to Family Stream migrants and treatment period reported by CSAM data standard errors in parentheses; pooled sample size is 11,973 for Family Stream and GSM migrants, and 14,367 for Family Stream, GSM and Employer Sponsored migrants; proportion of pooled sample employed is 67.5% for GSMs only, and 72.4% for GSM and Employer Sponsored migrants; treatment effect calculated by evaluating predicted probabilities of employment implied by the estimated model, *via* the "predictnl" Stata command; all models interact all covariates with the gender dummy variable; specification 1 includes covariates for marriage, employed spouse, dependent children, onshore visa, and time in Australia; specification 2 augments specification 1 to include English language and age covariates; specification 3 augments specification 2 to include education qualifications covariates; specification 4 augments specification 3 to include a wide range of covariates including reasons for migrating, country of origin and state of residence;
[a]Predicted employment evaluated using threshold probability of 50%;
[b]Treatment effect = population average impact of treatment on probability of employment for treated population in treatment period (see Puhani, 2012)

higher rates of employment amongst Skill Stream migrants in 2009/10. Point estimates indicate increases in average rates of employment of 10–15 percentage points for Skill Stream migrants, subject to standard deviations of 2–3 percentage points. These results are quite substantial, especially given that employment rates amongst GSMs and Employer Sponsored migrants were in excess of 80% in the 2005 data (see Table 1). Similar treatment effects are estimated for men and women, and in no specification are the differences statistically significant at the 90% confidence interval.

Extending the treatment population to include Employer Sponsored migrants tends to dampen the estimated treatment effects, but otherwise leaves the pattern of treatment effects across regression specifications unchanged. This is true for both population average and gender specific effects. The dampening identified here may appear to contradict the shift in emphasis of skilled migration in favour of Employer Sponsored migrants, who must obtain an offer of employment prior to submitting their visa application. It is, however, a consequence of the disproportionate improvement in employment rates amongst GSMs.

As noted previously, approximately one in every four visas issued through GSM and Employer Sponsored categories was re-allocated from the GSM to the Employer Sponsored category between 2005 and 2009. Furthermore, the employment rate observed for GSMs in 2005 is approximately 0.8, whereas for Employer Sponsored migrants it is close to 1.0. Hence, all else being equal, the shift in weight toward demand-driven Employer Sponsored visas should have increased employment rates by around 5 percentage points (= 0.2 × 0.25). As the treatment effects calculated for GSMs are significantly greater than 5 percentage points, augmenting the regression sample to include Employer Sponsored migrants dampens the magnitude of the estimated treatment effects.

Four nested regression specifications are reported in Table 3, with higher numbered specifications augmenting the set of covariates in a way that is designed to draw out the influence of selected changes implemented to GSM policy.

As noted in Section 3.4, we allow for important compositional differences between our treatment and control populations by including in all regression specifications controls for marriage, dependent children, employed spouses, and onshore visa applicants, in addition to full interactions with a gender dummy. Beyond this basic set of controls, the only characteristics included in specification 1 are the dummy variables that are required for a DiD analysis. This restricted specification is designed to identify a "full" measure of the effects of policy on employment rates on the assumption that policy drives all other temporal variation in underlying characteristics between Family Stream and Skill Stream migrants. The estimates reported in Table 3 for specification 1 indicate full treatment effects of approximately 14 percentage points for GSMs in isolation and 12 percentage points for GSMs pooled with Employer Sponsored migrants.

Specification 2 introduces controls to account for the effects of English language proficiency and experience (proxied by age), which were assigned greater significance in the evaluation of GSM visas between 2005 and 2009. Comparing the estimated treatment effects reported for specification 1 with specification 2 indicates that allowing for observed changes in English language and age reduces the (unexplained) treatment effect by just over 2 percentage points for men, 3.5 percentage points for women, and 2.7 percentage points on average. Although these differences are not statistically significant at the 95 per

cent confidence interval, they do reflect the increases reported for English language skills and age amongst GSMs relative to Family Stream migrants (discussed in Section 3). The results reported here consequently suggest that accounting for the influence of policy on English language and experience can explain approximately one fifth of the total effect on average employment rates of policy change between 2005 and 2009, rising to approximately one quarter of effects estimated for women. Furthermore, related analysis suggests that our proxies for English proficiency (self-reported) and experience (age) are likely to understate the true variation of these characteristics during our sample period (see van de Ven and Voitchovsky, 2015).

The measures of fit reported for each specification indicate that introducing age and English language proficiency improves the regression model's capacity to explain the reported incidence of employment without deteriorating its capacity to explain the reported incidence of non-employment. In contrast, augmenting the set of covariates to include controls for education (specification 3), demographics, and migratory circumstances (specification 4) has relatively little impact on the model's explanatory power.

Specification 3 adds covariates for education, which provides a nice counter-point to specification 2 as education was made relatively less prominent in the selection criteria for GSMs between 2005 and 2009. Introducing educational controls has almost no impact on the estimated treatment effects relative to regression specification 2. This result is consequently broadly supportive of the shift in emphasis in favour of English language skills and experience.

Introducing a broad range of alternative explanatory variables for employment in regression specification 4 generally results in a marginal reduction of the estimated treatment effects, with none of the differences with specifications 2 or 3 exceeding a single standard deviation. The largest deviations are reported for men, amongst whom the wide range of additional controls included in specification 4 help to explain approximately 1 percentage point of the estimated treatment effect relative to specification 3.

The set of covariates that we include for analysis can consequently explain only a fraction of the aggregate treatment effect reported for employment outcomes of Skill Stream migrants observed between 2005 and 2009. In part, this is a reflection of the limited set of harmonised characteristics that are available for analysis. It is also a clear indication of how important nuanced factors that extend beyond standardised language tests and measures of experience are for administering migration policy. Establishment of effective pathways to permanent residence (e.g. the facilitation of conversion from temporary student to independent skilled migrant status), occupational restrictions that are tailored to local labour market conditions, and processes that distinguish useful qualifications and experience are all likely to be important to ensure that migrants "hit the ground running" from a labour market perspective.

### 4.2 Analysis of occupational outcomes

Our empirical analysis of occupational outcomes mirrors that reported for employment rates. Here, however, we focus exclusively on Primary Applicants who were reported to be in paid employment. Furthermore, to facilitate interpretation of results we consider two occupational groups, with the higher occupational group including "managers" and

"professionals" only. The treatment effect is consequently defined as the estimated change in the probability of employment in a higher occupation, given employment, amongst Skill Stream migrants in 2009/10. As in section 4.1, all regression specifications include controls for marriage, dependent children, employed spouses, and onshore visa applicants, in addition to full interactions with a gender dummy.

Empirical results for the incidence of higher occupations are presented in Table 4 in the same format as for employment rates in Table 3. Many of the estimated statistics reported in Table 4 display close similarities with those reported in Table 3. The current discussion consequently focusses upon key issues of interest and important deviations from the results discussed in Section 4.1.

Estimates reported for the treatment effects indicate that the probability of being employed in a higher occupation tended to increase for employed Skill Stream migrants between 2005 and 2009 as a consequence of changes to skilled migration policy. The scale of the effects reported for higher occupations is, however, appreciably smaller than the effects reported for employment rates in Table 3, and some population average effects are not statistically significant at the 95% confidence interval.

The treatment effects that are reported for higher occupations are sensitive to both gender and the occupational categorisation that is considered. In terms of gender, the estimated treatment effects for women are approximately twice as large as for men and are almost all statistically significant at the 95% confidence interval (in contrast to the estimates for men). Furthermore, expanding the definition of higher occupations to include "technical and trades" together with managers and professionals (not reported here) produces treatment effects that are highly significant and of comparable magnitudes to the effects reported for employment rates. This sensitivity to the inclusion of technical and trades occupations is to be expected given the statistics reported in Table 1. Table 1 indicates that the proportion of Family Stream migrants employed in technical and trades occupations fell by 2 percentage points between 2005 and 2009, whereas it increased by 7 percentage

**Table 4** Selected difference in differences probit regression statistics for higher occupational classification of employed primary applicants of Family Stream and Skill Stream visas aged 18-54

| Treatment population | GSMs only | | | | GSM and employer sponsored migrants | | | |
|---|---|---|---|---|---|---|---|---|
| Regression specification | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Per cent correctly predicted[a] | 0.6505 | 0.6654 | 0.7201 | 0.7289 | 0.6382 | 0.6656 | 0.7120 | 0.7278 |
| Of those employed | 0.2304 | 0.3257 | 0.5213 | 0.5375 | 0.5807 | 0.5989 | 0.6411 | 0.6486 |
| Of those not employed | 0.8911 | 0.8600 | 0.8340 | 0.8385 | 0.6811 | 0.7154 | 0.7649 | 0.7869 |
| Likelihood | −4981.5 | −4739.5 | −4358.2 | −4274.4 | −6502.4 | −6187.3 | −5627.9 | −5519.7 |
| R2 | 0.0487 | 0.0949 | 0.1677 | 0.1837 | 0.0749 | 0.1198 | 0.1994 | 0.2148 |
| Treatment effects[b] | 0.0655 | 0.0662 | 0.0800 | 0.0984 | 0.0528 | 0.0469 | 0.0583 | 0.0692 |
| | (0.0376) | (0.0384) | (0.0364) | (0.0361) | (0.0347) | (0.0353) | (0.0326) | (0.0323) |
| For men | 0.0383 | 0.0511 | 0.0704 | 0.0960 | 0.0361 | 0.0376 | 0.0527 | 0.0679 |
| | (0.0375) | (0.0389) | (0.0360) | (0.0354) | (0.0350) | (0.0359) | (0.0321) | (0.0316) |
| For women | 0.1126 | 0.0924 | 0.0967 | 0.1026 | 0.0857 | 0.0655 | 0.0694 | 0.0717 |
| | (0.0377) | (0.0376) | (0.0372) | (0.0374) | (0.0343) | (0.0340) | (0.0335) | (0.0336) |

As for Table 3

points for GSMs and increased by 6 percentage points for Employer Sponsored migrants.

Comparing the treatment effects reported in the left and right panels of Table 4 reveals larger (positive) effects estimated for GSMs taken in isolation than for GSM and Employer Sponsored migrants taken together. These results are consistent with the occupational distributions reported in Table 1, which indicate an increase of 7 percentage points in the proportion of employed GSMs working as managers or professionals compared with a decrease of 9 percentage points for Employer Sponsored migrants. Our results consequently suggest that changes to skilled migration policy achieved improved occupational outcomes amongst GSMs and Employer Sponsored migrants taken as a group, with particularly strong effects estimated for women in the GSM visa category.

The treatment effects reported for the nested regression specifications are similar to those reported in Table 3 in the sense that none of the differences within population groups (men/women/all) are statistically significant at the 95% confidence interval. Focussing on the point estimates for treatment effects of women—which are consistently larger than those for men—also reveals similar variation between regression specifications to the variation reported in Table 3. Treatment effects for women fall by approximately one fifth when language and age are added in specification 2, then climb marginally when education controls are included (from specification 2 to 3), and climb again when a broad range of controls are included (from specification 3 to 4).

Of all the regression specifications only those for specification 4 are robustly significant across treatment populations (GSMs only/GSM and Employer Sponsored/male/female/combined). These results suggest that, once all of the observed characteristics are taken into consideration, changes to skill migration policy that are not represented by the set of covariates resulted in a significantly higher probability of employment in a higher occupation for employed Skill Stream migrants.

Taken together with the results reported in Section 4.1, our analysis consequently suggests that changes to skilled migration policy resulted in improved employment rates during our period of analysis without compromising the distribution of occupations amongst skilled migrants, on average. Tightening the eligibility conditions for GSM visas is found to have unambiguously improved both rates of employment and employment in higher occupations of skilled migrants. However, the fact that these effects are subdued for GSM and Employer Sponsored migrants in aggregate, compared with results for GSMs only, suggests that we cannot reject the hypothesis that the reforms to skilled migration policy that were implemented between 2005 and 2009, which tightened the eligibility criteria for GSM visas and promoted Employer Sponsored migration, motivated lower skilled migrants to apply through the Employer Sponsored category.[13]

One key implication of the above observations is that outsourcing migrant selection to employers may ensure high short-term employment rates among immigrants but may imply a trade-off along other dimensions. This is important as employer sponsored migration is commonly found to select migrants with systematically different characteristics to those favoured by points based systems

(e.g. Hawthorne, 2011; Czaika and Parsons, 2015). Furthermore, it has been suggested that tightening independent channels to permanent residency while at the same time expanding the role of employer sponsorship may see a rise in exploitative employment arrangements (Birrell and Healy, 2010), an issue that is complicated by the relative opacity of employer sponsored selection.

These observations suggest that careful attention should be paid to the eligibility criteria applied for Employer Sponsored migrants. Recent Australian evidence in support of this conclusion is reported by Birrell and Healy (2014) and is typified by differences in the skill composition of migrants selected by, for example, the Canadian and US immigration systems (e.g. Borjas, 1993). It is probable that further policy adjustment in this vein will be warranted in the medium term.

Many of the caveats raised by the above discussion could be explored with data that tracks migrants for a longer period than is considered here. Unfortunately the data that we use are not well suited to undertake such an analysis. Exploratory statistics based on data reported for the follow-up interviews administered by LSIA 3 (1 year later) and CSAM (6 months later) broadly suggest that differences between migratory streams observed 6 months after arrival persist into the medium term. Further research of these issues is required.

## 5 Conclusions

Recognition of skilled immigration as a driver of economic growth focusses attention on policies that manage the skilled migrant intake. Recent international trends in skilled migration policy have converged toward so-called hybrid systems in which both supply-driven independent migration and demand-driven employer sponsored migration play significant roles. This study empirically evaluates the influence that Australia's shift from a supply driven system in 2005 toward a hybrid system in 2009 had on the short-term labour market outcomes of migrants.

We find that rates of employment amongst GSM and Employer Sponsored skilled migrants increased statistically significantly by between 12 and 14 percentage points as a result of the shift in policy (slightly larger effects were estimated for GSMs in isolation). Approximately 5 percentage points of this aggregate effect can be attributed to a shift in emphasis of the system in favour of Employer Sponsored migration. The remainder of the effect on employment rates can be attributed to changes in the eligibility criteria for GSM category visas, which were designed to achieve a better match between independent GSM characteristics and the needs of Australian employers.

Important reforms implemented to the eligibility criteria for GSM category visas included increasing English language requirements for a broad range of visas (from IELTS 5, vocational, to 6, competent), adapting qualifying occupation lists in response to changing labour market needs, and shifting emphasis of the points-based system in favour of experience at the expense of education. We find that controlling for self-reported migrant language skills and age (to proxy experience) helps to explain approximately 3 percentage points of the aggregate effect of policy on employment rates amongst Skill Stream migrants. Including additional

controls—including education—is found to have a minor impact on the treatment effects that we estimate. This leaves approximately 4 percentage points of the overall effect on employment rates attributable to other uncontrolled aspects of policy change (see Section 2), including alterations to qualifying occupations and the imperfect nature of age as a proxy for experience.

Amongst the subset of GSMs who report being employed, we find that the shift in skilled migration policy between 2005 and 2009 increased rates of employment in managerial and professional occupations significantly, by 6 percentage points on average, with larger effects identified for women (11 percentage points) than for men (4 percentage points). Controlling for changes in language skills and age helps to explain approximately 4 percentage points of this increase for women, although this is entirely offset after controls for education are included in the regression. Approximately 5 percentage points of the increase in the incidence of managers and professionals amongst all GSM migrants can be attributed to other uncontrolled factors.

Extending the analysis to consider the effects of changes to skilled migration policy on the occupational classifications of GSM and Employer Sponsored migrants as a group results in smaller point estimates that, though positive, are not statistically significant at the 95% confidence interval. Taken together with our other results, our analysis consequently suggests that Australia's shift from a supply-driven to a hybrid system of skilled migration significantly improved rates of employment amongst skilled migrants without compromising their occupational distribution on average. This is an important result, particularly when it is recognised that employment rates amongst GSM and Employer Sponsored migrants were in excess of 80% prior to the changes in policy.

Our results suggest an interesting interpretation of Australia's 2005 to 2009 shift to a hybrid system of skilled migration. The changes implemented to policy tightened the conditions for independent skilled migration at the same time as demand-driven employer sponsored migration was being actively promoted by the government. Our estimates indicate that tightening of the independent GSM visa category successfully screened in favour of migrants who exhibited both higher rates of employment in their first 6 months after take-up of a visa and higher rates of employment as either managers or professionals.

However, our finding of a smaller improvement in the rate of employment as managers or professions amongst GSM and Employer Sponsored migrants as a group suggests that some migrants with weaker labour market skills may have applied for entry to Australia through the Employer Sponsored rather than the GSM category as a result of the shift in policy. Seen from this perspective, Australia's hybrid system of skilled migration can be understood as selecting the strongest candidates for independent skilled migration and requiring weaker candidates to find a sponsoring employer as a pre-condition for the granting of a permanent visa.[14] Our estimates suggest that this approach to policy has helped to improve significantly the short-run employment outcomes of skilled migrants. Of course, the influence on the Australian economy of the aggregate scale of the skilled migrant intake is a more complex question that our analysis does not touch upon and which remains for further research.

## Endnotes

[1]Two pieces of bipartisan legislation are currently before congress, one of which seeks to expand the cap on temporary skilled migration from 65,000 up to 195,000 (in special circumstances), and the other to facilitate immigration by entrepreneurs.

[2]Wages are omitted from our central analysis as the associated data appear less robust. Nevertheless, analysis of the wage data are generally consistent with our findings for employment and occupation and are reported in the technical appendix. Note also that we do not consider questions concerning the aggregate scale of the skilled migrant intake, which are often the subject of heated public debate (e.g., Birrell, 2014).

[3]Migration to Australia is increasingly a two-stage process, whereby a period is spent on temporary visas before a prospective migrant transitions onto a permanent visa category. This paper focuses on policy changes in relation to permanent visas.

[4]See, e.g., comment by James Fox, First Assistant Secretary, Migration and Temporary Entry Division, reported in Birrell *et al.* (2006), p. 10, and the Ministerial "Forward" to annual editions of *Australia's Migration Trends* (*Population Flows* prior to 2011/12), reported by the Department of Immigration and Border Protection.

[5]Among GSM applicants those with skills identified on critical shortage lists also have higher processing priority.

[6]Both cohorts 1 and 2 of CSAM report data for primary applicants who arrived in a four month window centred about 6 months (4–8 months) prior to respective survey (see Smith *et al.*, 2012). LSIA 3 reports data for primary applicants who were surveyed six months after they were granted an onshore visa or arrived in Australia on an offshore visa (see DIAC, 2007).

[7]It is possible that some of the individuals reported in CSAM held one of the new temporary working (485) visas prior to being granted a permanent residency visa (and entering the CSAM sample frame). Note that as the new temporary working visa matures, it may be that the average educational attainment of GSMs will rise to levels similar to those observed in 2005.

[8]Wages are considered in the technical appendix.

[9]The same analysis cannot be conducted for other age groups due to the age bands reported by the Education and Work Survey.

[10]Our results are qualitatively unaffected if separate estimates are calculated for each of the four population subgroups defined by sex and onshore/offshore visas. We focus on separate estimates for sex here, as population sample sizes become small for some groups when more detailed population subdivisions are considered.

[11]The response rate achieved for the Australian Survey of Income and Housing 2010/11, for example, was 67 per cent (including out of scope households), and for the UK Living Cost and Food Survey 2010 was 50%.

[12]There are other margins of interest in relation to any migration programme, but these are not discussed here.

[13]Indeed, this was the motivation for introduction of the 485 temporary working visa for overseas students.

[14]The system has also been adapted to facilitate the pursuit of permanent residency by weaker candidates *via* temporary visa subclasses, including the Temporary Graduate visa 485 introduced in 2007.

## Appendix

Data description and harmonisation.

**Table 5** Description of variables considered for analysis (dependent variables)

| Variables | Description and harmonisation (if any) |
|---|---|
| At work | Whether the person is currently working in a job, business or farm. The wording of the survey questions varies, with CSAM referring explicitly to a "paid job" and LSIA 3 referring only to a "job". It is therefore possible that respondents working as (unpaid) family workers, for example, would report themselves as employed in LSIA 3 but not in CSAM. To control for this possibility, we excluded the (few) observations in LSIA 3 where respondents stated that they had a job with zero earnings. This distinction had no impact on our results. |
| Highly skilled occupations | Whether the person works in highly skilled occupations (dummy). We consider 2 possible groupings of highly skilled occupations based on the 1 digit ANZSCO classification. Highly skilled occupations are defined as "managers and professionals", or as "managers, professionals and technical and trades" in the sensitivity analysis. |
| | Occupation codes at the 4-digit level are reported by LSIA 3 and CSAM and for respondents who are at work. The classification of occupations, however, changed from ASCO in LSIA3 to ANZSCO in CSAM. Translation tables are provided by the Australian Bureau of Statistics at the 4 digit occupation level. These tables were used to recode the ASCO codes reported by LSIA 3 into ANZSCO codes. To ensure the highest possible degree of comparability between the major occupation groups (1 digit level) in ASCO and ANZSCO, further attention was devoted to the 35 instances where the 4 digit ASCO codes can be translated into several 4 digit ANZSCO codes that spanned 2 or more 1 digit occupation groups in ANZSCO. This situation concerned 19% of people at work in LSIA3. |
| | For example, ASCO 2231 (Computing Professionals) can be translated into ANZSCO 1351 (ICT Managers), ANZSCO 2611–33 (ICT Business and Systems Analysts and other ICT professionals) or ANZSCO 3131 (ICT Support Technicians). Allocating the ASCO 2231 code reported by LSIA 3 is therefore complicated by the fact that we do not know to which of the three constituent ANZSCO codes any individual belongs. Furthermore, this choice will affect whether Computing Professionals (people with ASCO 2231) in LSIA3 end up working as Managers (group 1), Professionals (group 2) or as Technicians (groups 3) in the ANSCO classification used in CSAM. We addressed this issue by analysing the distribution across the constituent ANZSCO codes of observations reported by CSAM (in conjunction with the label of the occupation in ASCO. In the example above, CSAM reports 3 ICT managers, no ICT technicians, and 173 respondents classified as ICT professionals. In this case, we therefore allocated all observations with ASCO 2231 to ANZSCO 2611 (ICT professionals). Prima facie evidence in support of this approach is given by the close similarities between the population distributions of the ANZSCO codes imputed from LSIA 3 data and those reported by CSAM data for Family Stream migrants, as reported in Table 1. |
| Visa categories | Based on their visa number, respondents are classified into 6 visa categories. |
| | 1) Family visa (family) |
| | 2) Family/State/Territory sponsored visas (GSM) |
| | 3) Independent visas (GSM) |
| | 4) Employer visa, incl. LA and ENS (employer sponsored) |
| | 5) Business and distinguished talents visas (excluded from the analysis) |
| | 6) Graduate visas, temporary – only in CSAM (excluded from the analysis) |
| Covariates | Variable description and harmonisation (if any) |
| Age bands | Constructed from age, where age is defined as the difference between the year of the survey and the year of birth (year defined as 2005 for LSIA3, 2009 for CSAM cohort 1, and 2010 for CSAM cohort 2) |
| | • 18 – 24 |
| | • 25 – 34 |
| | • 35 – 44 |
| | • 45 – 54 |

**Table 5** Description of variables considered for analysis (dependent variables) *(Continued)*

| | |
|---|---|
| Male | male = 1; female = 0 |
| Has a partner | Dummy variable. Equal to 1 if the respondent has a partner either in Australia or abroad. This question is asked directly in LSIA3. In CSAM the related question is whether the respondent applied to migrate with a partner. Other questions in CSAM ask about "the current relationship status" with their migrating partner, or about details of their "current partner". These questions were used to impute a partner variable consistent with the question directly asked in LSIA3. |
| Partner working in Australia | Dummy variable. Whether the respondent currently has a partner who is at work in Australia. Exclude cases where the partner is at work abroad. Question directly asked in LSIA3. In CSAM, the labour market question refers to the respondent's current partner without specifying their geographic location. From this we exclude cases where respondents report that their partner has not yet arrived in Australia to ensure greater consistency with the wording used in the question in LSIA3. |
| Number of children who migrated with PA | The number of the respondent's children who migrated to Australia with the respondents (Primary Applicant) and are still living with the respondent. This variable imperfectly account for the number of children living in the household with the respondent. This definition captures the only common information regarding children, between the two surveys. Another related variable "Child in HH likely" was constructed for the sensitivity analysis, see below. |
| Has children who migrated | Dummy version of the variable above, except that it is coded 0/1 on whether there are children or not. |
| Child in HH likely | Dummy variable. Uses all the information available in each survey to impute whether a child is likely to be present in the respondent's household. This includes information on the respondent's and partner's details of social benefits (child care rebate, parenting payments, etc.). Variable used in the sensitivity analysis only |
| Highest qualification | Refers to the highest post-school qualification obtained (in Australia or abroad). In LSIA3 the question was asked directly. In CSAM, respondents were asked about their highest qualification as well as their highest Australian qualification. Whichever qualification was highest was used in this case. Qualifications were harmonised under the following groups: [a]<br>1) No post school qualification (incl. no schooling)<br>2) AQF Certificate I-IV and other; AQF level 1–4<br>3) Diploma and advanced diplomas; AQF level 5–6<br>4) Bachelor and post-graduate Diploma (together in LSIA); AQF level 7–8<br>5) Master's level degree; AQF level 9<br>6) Doctorate; AQF level 10 |
| Highest qualification obtained in Australia | Dummy variable equal to 1 if the highest qualification was obtained in Australia. |
| State | Current state of residence: ACT, NSW, NT, QLD, SA, TAS, VIC, WA |
| On-shore visa application | Dummy variable: visa application onshore = 1 |
| English proficiency | Respondents' self-reported spoken English proficiency. Exactly the same question format and wording was used by both LSIA2 and CSAM. Answers were classified into three groups:<br>1) Very well (including English reported as best language spoken)<br>2) Well<br>3) Not well or not at all |
| Reason for migrating | Reason for migrating to Australia. The question uses the exact same wording in LSIA3 and CSAM. The possible answers are<br>1) Better future for family<br>2) A higher standard of living<br>3) Australia's features – beaches, climate, lifestyle, etc.,<br>4) To join family or relatives |

**Table 5** Description of variables considered for analysis (dependent variables) *(Continued)*

| | |
|---|---|
| | 5) Work or business opportunities |
| Region of birth | Variable constructed from the reported country of birth. The regions considered are:<br>• Born in an English speaking country (Australia, Canada, Ireland Republic, New Zealand, South Africa, the United Kingdom, or the United States)<br>• Born in East Asia (China, Hong Kong, Japan, Macau, Mongolia, South Korea, North Korea, or Taiwan)<br>• Born in South Asia (Bangladesh, India, the Maldives, Nepal, Pakistan, or Sri Lanka)<br>• Born in South East Asia (Brunei, Burma, Cambodia, East Timor, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, or Vietnam)<br>• Born in the rest of the world |
| Current housing arrangement | The same question (exact words) was asked in both surveys but the choice of answers was worded slightly differently<br>1) Owns home outright<br>2) Mortgage<br>3) Renting<br>4) Lives with relatives<br>5) other |
| Has a partner in Australia | Dummy variable. Whether the respondent has a partner in Australia. Excluded observations here respondent states having a partner abroad. |
| Time in Australia | Dummy variable. Equal to 1 if in Australia for 1.5 years or more. The comparability of this variable between LSIA and CSAM is questionable due to differences in the data that each survey reports. |

[a]AQF denotes "Australian Qualifications Framework"

**Competing interests**
The IZA Journal of Migration is committed to the IZA Guiding Principles of Research Integrity. The authors declare that they have observed these principles.

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