How much do migrants account for the unexpected rise in the labour force participation rate in Australia over the past decade?

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Between 2000 and 2010, the labour force participation rate in Australia increased by more than 2 percentage points to reach a record high by the end of the decade. This is remarkable as mainstream forecasters had been projecting a fall. This paper decomposes the change in the participation rate to examine the separate contributions of age, gender and birthplace. There are three strong findings. First, among the Australian-born, increases in the propensity to participate in the labour force – among women and older persons – fully offsets the downward pull of ageing. Second, among the overseas-born, there is both a reverse-ageing effect – reflecting the large influx of young migrants over the past decade – and the same higher propensity to participate among women and older persons. The end result is that migrants added 1.9 percentage points to the aggregate participation rate over the past decade. Third, controlling for age and gender, participation rates for the overseas-born remain lower than they are for the Australian-born. There has been some convergence over the decade for men, but not for women.

Between 2000 and 2010, the Australian labour force grew by 2.1 per cent per annum, a tremendously fast rate. By way of comparison, in the previous decade it grew by 1.3 per cent per annum.

This increase has been quite unexpected. We have been softened up, over the release of what are now three Intergenerational Reports and the Productivity Commission's 2005 report into an ageing Australia, to expect a *decline* in labour force growth. The main factor expected to drive this decline was a projected fall in the aggregate labour force participation rate, as an ever greater share of the population moved into older age groups, ones historically characterised by lower labour force participation rates than younger age groups.

Contrary to expectations, the aggregate labour force participation rate has risen, not fallen. In January 2000 the rate (on a trend basis) stood at 63.1 per cent; by December 2010 it stood at 65.9 per cent, a record high.

To illustrate quite how remarkable this is, Figure 1 compares the mid-decade projections made by the Productivity Commission of the labour force participation rate on an ageing basis and a no-ageing basis with what has transpired since that time. For the moment, the aggregate labour force participation rate is tracking *above* the *no-ageing* scenario.

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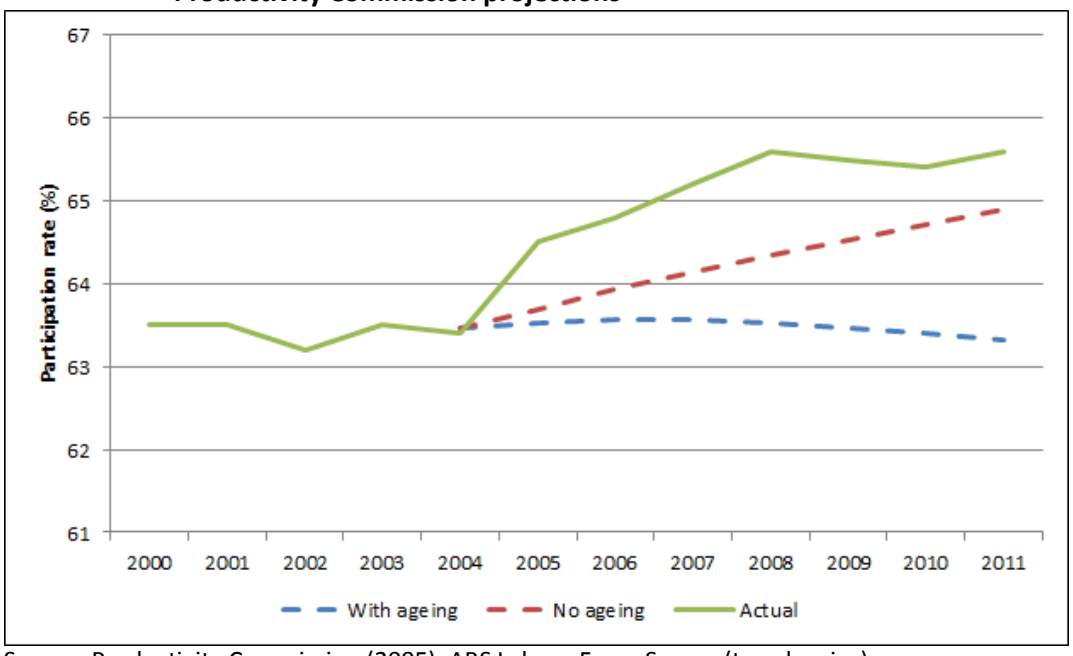
Figure 1 **Aggregate labour force participation rate, 2000 to 2011, actual against Productivity Commission projections**



Source: Productivity Commission (2005), ABS Labour Force Survey (trend series)
Note: Figures are as at June

Setting aside what this says about the heed one ought to pay to projections,[1] it does pose a puzzle for labour market analysts: what is driving this increase in labour force participation? The two main contenders are continued rises in participation rates for women and for older persons. The purpose of this paper is to consider the import of these two factors and, alongside these, a third contender: the impact of migration.

Why migration? The scale of migration over the decade ending 2010 was very high at 1.8 million net migrants over the period[2] – unexpected enough to derail a range of population projections which assumed a much more modest intake – and could be considered sufficient to constitute a labour supply "shock" given the intake is strongly concentrated among people of prime age. How that has played out in the labour force is of considerable interest.

There are, of course, other factors which are associated with whether people participate in the labour force. One is macro-economic conditions, another is education.

In the wake of the recession of the early 1990s, the Australian economy entered a period characterised as the "jobless recovery", one where GDP growth was strongly positive, but employment growth was insufficient to make inroads into the unemployment rate. This began to turn around in the second half of the 1990s and gather steam in the 2000s with employment growth outstripping population growth, such that by the start of 2008 the unemployment rate fell below 4 per cent, a rate not seen since the heady days of the early 1970s. This low level of unemployment is likely to have induced some discouraged workers to re-join the workforce, and to have stayed the hand of some older persons to not retire and remain in the workforce.

Similarly, it is well known that greater educational attainment is positively associated with labour force participation (Kennedy, Stoney and Vance 2009). One reason,

therefore, for the increase in the participation rate between 2000 and 2010 may be higher levels of educational attainment in the population. This is not immaterial as the proportion of the working-age population with a formal qualification at Certificate III or higher rose from 38 per cent in 2001 to 50 per cent in 2010.[3]

This paper is a partial analysis as it only takes account of three factors: age, gender and birthplace.[4] A fuller analysis, such as that of Austen and Seymour (2006) who deploy a fixed effects panel data regression model, would aid precision in the relative contribution of different components but would not alter the fundamentals of the findings.

There are three strong findings. First, among the Australian-born, increases in the propensity to participate in the labour force among women and older persons fully offsets the down-pulling ageing effect. Second, a large influx in the number of migrants, concentrated among those at younger ages, results in a positive population effect for the overseas-born; that is, the age profile of migrants became younger over the decade. This, in conjunction with the same positive propensity to increase participation observed among the Australian-born for women and for older persons, means that migrants added 1.9 percentage points to the aggregate participation rate over the past decade. Third, controlling for age and gender, participation rates for the overseas-born remain lower than they are for the Australian-born, a situation in play since the mid-1980s. There has been some convergence over the decade for men, but not for women.

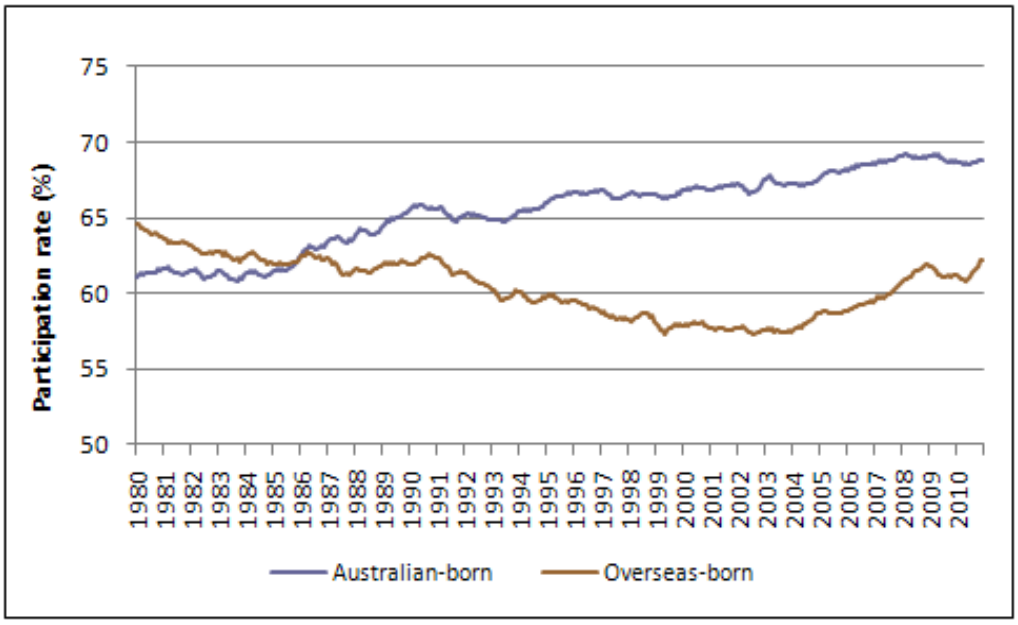
In the next section of the paper, some descriptive statistics are presented on the patterns of labour force participation rates by age, gender, and birthplace and changes in these patterns over time. The following section formally decomposes the change in the aggregate labour force participation rate between 2000 and 2010 using a simple decomposition approach. The final section concludes with some comments on what remains of the puzzle.

Changes in labour force participation rates

The labour force is an economic concept which identifies as participants those who are actively engaged in employment, either by holding down a job, or unemployed. It is common to express labour force participation as a *rate*, by relating it to the size of the (civilian) population aged 15 years or more.

The aggregate labour force participation rate hides a good deal of variance, including that between the Australian-born and the overseas-born. Indeed, over the two decades to 2000, the participation rate for these two groups moved in *opposite* directions to one another, as can be seen in Figure 2. Bridge (2001) attributes this decline to structural change in the economy – biased against industries and occupations in which migrant workers were concentrated, such as manufacturing – and to the older age profile of migrants. However, since around 2000 this relativity began to first stabilise and then reverse, with participation rates for the overseas-born increasing at a faster rate than for the Australian-born. The current differential is narrower than it has been at any time since 1995.

Figure 2 Labour force participation rate, by birthplace, 1980 to 2010



Source: ABS Labour Force Survey data cube LM7
Note: Monthly data with 6 month moving average used to smooth data.

This paper attempts to unpack what has gone on since 2000 to bring about a reversal in the long-term decline of participation rates among the overseas-born. In the first instance, we do so by looking at changes in age-specific participation rates, making a short digression to examine changes in age-standardised participation rates. Finally, in the next section, we bring both elements together by decomposing the change into a propensity to participate component and a population composition component.

Table 1 presents age-specific participation rates by gender by birthplace for both 2000 and 2010, as well as the change over that period. There are several points that can be drawn from this comparison, bearing in mind the limitations from comparing two different populations at two time points.

First, as already identified and counter to expectations, the aggregate participation rate (based on original, not trend data as presented earlier) has increased by 2.1 percentage points over the decade. This aggregate change masks a good deal of heterogeneity – with many sub-population groups experiencing a decline, and others experiencing an increase – to arrive at this point.

Second, the Australian-born have higher participation rates than the overseas-born, though this is not true for all groups. Controlling for gender, the age-specific participation rate in 2010 for the overseas-born was lower than for the Australian-born for all but two groups – males aged 35-44 years and males aged 60-64 years. It is also necessary to control for age, as migrants have a markedly different age distribution to the Australian-born, and participation rates are strongly associated with age, evincing an inverted U-shape. This can be done through deriving age-standardised participation rates. Age-standardised rates, as the name implies, impose the same age distribution over both groups to see how much of the difference in rates is explained by pure age-specific differences. Figure 3 compares age-standardised participation rates controlling

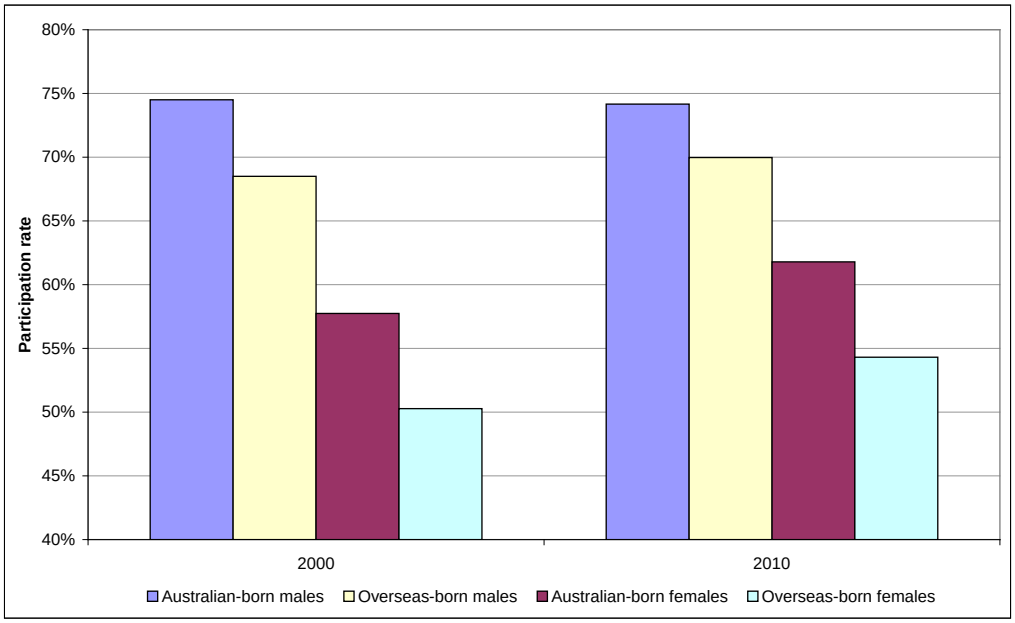
Table 1 **Labour force participation rate, by age and gender and birthplace, 2000 and 2010**

	2000 (per cent)			2010 (per cent)			Change 2000-2010 (percentage points)		
Age group	**Aust born**	**O'seas born**	**Total**	**Aust born**	**O'seas born**	**Total**	**Aust born**	**O'seas born**	**Total**
Males									
15-19	62.4	40.7	59.6	57.5	40.6	55.4	-4.9	-0.2	-4.1
20-24	90.1	71.5	86.8	87.2	70.4	83.6	-3.0	-1.1	-3.1
25-34	93.4	89.3	92.5	92.7	89.0	91.6	-0.8	-0.3	-0.9
35-44	92.2	91.4	92.0	91.4	92.3	91.7	-0.8	0.9	-0.3
45-54	87.8	86.5	87.3	89.4	88.5	89.1	1.6	2.0	1.7
55-59	74.1	70.7	72.9	81.0	79.7	80.6	6.9	9.1	7.7
60-64	48.9	44.2	47.1	61.0	63.5	61.9	12.1	19.3	14.9
65 plus	12.6	7.2	10.7	17.6	13.9	16.2	5.0	6.7	5.6
All males	75.6	66.9	73.2	75.0	69.1	73.3	-0.6	2.1	0.1
Females									
15-19	62.8	47.0	60.9	60.2	43.1	58.1	-2.6	-3.9	-2.8
20-24	80.4	67.6	78.0	80.1	62.2	76.0	-0.3	-5.4	-2.1
25-34	71.6	64.1	69.9	74.9	68.3	73.0	3.4	4.3	3.1
35-44	73.1	67.1	71.3	76.5	69.4	74.4	3.5	2.3	3.1
45-54	73.2	65.8	70.7	80.2	74.8	78.5	7.0	9.0	7.7
55-59	49.7	42.1	47.3	67.2	59.8	64.8	17.5	17.7	17.5
60-64	24.6	17.1	21.9	45.1	39.4	43.1	20.5	22.3	21.1
65 plus	4.1	2.1	3.5	7.9	6.6	7.4	3.8	4.5	4.0
All females	58.5	48.9	55.9	62.4	53.7	59.8	3.9	4.8	3.9
Total	66.9	57.9	64.4	68.6	61.3	66.5	1.7	3.3	2.1

Source: author's calculations based on ABS Labour Force Survey, data cube LM5

Note: participation rates are averages for year based on original data to take account of month-to-month volatility. Total excludes those whose birthplace is recorded as institutionalised. Changes in participation rates may not add due to rounding.

Figure 3 **Age-standardised labour force participation rates, 2000 and 2010, by gender and birthplace**



Source: author's calculations based on ABS Labour Force Survey, data cube LM5

for gender and birthplace in 2000 and 2010. This shows that participation rates are higher for the Australian-born for both men and women. This was true in both 2000 and 2010, with some narrowing for men over the period – from 6.0 percentage points to 4.2 percentage points – but no change at all for women, with a persistent 7.5 percentage point difference.

Third, as can be seen from the last column in Table 1, changes in participation rates between 2000 and 2010 are monotonically associated with age groups through to those aged 60-64 years. For males, there was a decline in participation rates for 15-19 year olds of 4.1 percentage points. This diminishes for each older age group, becoming positive for those aged 44-54 years, and peaking for those aged 60-64 years. For females, the switchover from a decline to an increase comes earlier, at 25-34 years, and peaks at the same age group as for males.

Fourth, examining gender by birthplace interactions, participation rates increased for three out of four groups, the only group experiencing a decline being Australian-born males, down by 0.6 percentage points. The largest gain was among overseas-born females, up by 3.3 percentage points.

How might we make sense of these changes? The participation rate for women has been rising since the late 1960s, in response to major social and economic changes refashioning the role of women in society. The growth in part-time employment, especially in services, has also created opportunities for women who wish to balance child-rearing responsibilities with employment. Younger women have overtaken younger men in higher education enrolments and completions, and this has flowed through into higher participation rates.

Similarly, there has been an increase in the participation rates of older workers dating back to the mid-1990s. This appears to be a rationale labour supply response to longer life expectancy, as workers aim to maximise their retirement incomes, aided and abetted by changes to government policies to promote this outcome.

As already noted, the participation rate of migrants had been on a steady decline between 1980 and 2000, since which it has partially recovered. Why might it have done so?

In general terms, there have been four major migration policy changes over the past decade that are likely to have influenced both the age composition of migrants and the capacity of migrants to quickly find or seek employment. From the late 1990s, the government decided to place greater emphasis on skilled migrants in the permanent migration program, with a roughly two for one split between skilled migrants (and their dependents) and those coming through the family stream. At around the same time, the government restricted access to welfare payments to those coming through the permanent migration program for the first two years. This is likely to have put downward pressure on the reservation wage of migrants. Another major change has been an increasing openness to temporary migration, the main groups of which have been international students, working holiday makers and temporary skilled workers. This has resulted in very large inflows of temporary migrants, highly concentrated among young adults who tend to have a high propensity to participate. Lastly, in more recent years, priority in the permanent migration program has been given to employer-sponsored migrants ahead of skilled independent migrants.

This paper can only conjecture on the impact of these policy changes. To test them would require construction of a labour supply model fitted against individual data.

Decomposing changes in the aggregate labour force participation rate

The aggregate labour force participation rate is the weighted average of participation rates across separate sub-populations, with weights represented by population share. That is, the aggregate rate *LF* is given by:

[1] $$LF = \sum_i (p_i lf_i)$$

where *p* is the share of the total population in sub-group *i*
lf is the labour force participation rate in population sub-group *i*

It follows from this that a change in the aggregate rate is due to changes in either population shares or sub-population participation rates or both. A change in the first term constitutes compositional change in the population. A change in the second term represents a change in the propensity to participate.[5] The preceding discussion of Table 1 focused on propensity changes, neglecting the effect of changing demographics. To properly analyse changes in the aggregate rate we need to decompose it into a propensity change component and a compositional change component.

From [1], a change in the aggregate labour force participation rate is:

[2] $$LF_t - LF_{t-1} = \sum_t^i \left(p_t^i lf_t^i \right) - \sum_{t-1}^i \left(p_{t-1}^i lf_{t-1}^i \right)$$

Following Hotchkiss (2009), this can be re-arranged as:

[3] $$\sum_i \left[\left(lf_t^i - lf_{t-1}^i \right) p_t^i + \left(p_t^i - p_{t-1}^i \right) lf_{t-1}^i \right]$$

This decomposes the change into two discrete and additive components: a propensity change component (weighted by the current population share) and a compositional change component (weighted by the previous participation rate).[6]

Using this method, Table 2 presents the decomposition results for separate age by gender by birthplace groups. The results are fully additive, summing to the total change between 2000 and 2010 (using original data) of 2.1 percentage points. There are several notable findings embedded in this table. These are discussed in outline before further discussion on future implications in the concluding section.

Table 2 Contributions of changes in population composition and the propensity to participate to change in the aggregate labour force participation rate, 2000 to 2010 (percentage points)

	Australian-born			Overseas-born			Total
Age group	**Males**	**Females**	**Total**	**Males**	**Females**	**Total**	
Population composition change							
15-19	-0.08	-0.13	-0.20	-0.02	0.00	-0.03	-0.23
20-24	0.15	-0.01	0.14	0.15	0.17	0.33	0.47
25-34	-0.90	-0.89	-1.80	0.44	0.30	0.74	-1.05
35-44	-0.58	-0.51	-1.09	-0.34	-0.23	-0.56	-1.65
45-54	-0.05	0.04	0.00	-0.21	-0.11	-0.32	-0.32
55-59	0.30	0.17	0.47	-0.02	0.09	0.08	0.55
60-64	0.25	0.12	0.37	0.08	0.04	0.12	0.50
65 plus	0.04	0.00	0.04	0.03	0.01	0.04	0.07
Total	-0.87	-1.20	-2.07	0.12	0.28	0.40	-1.67
Change in propensity to participate							
15-19	-0.18	-0.09	-0.28	0.00	-0.02	-0.02	-0.30
20-24	-0.11	-0.01	-0.12	-0.01	-0.06	-0.07	-0.19
25-34	-0.05	0.21	0.16	-0.01	0.11	0.11	0.27
35-44	-0.05	0.22	0.17	0.02	0.06	0.08	0.25
45-54	0.09	0.41	0.50	0.05	0.25	0.30	0.80
55-59	0.17	0.44	0.61	0.11	0.22	0.32	0.93
60-64	0.26	0.45	0.70	0.24	0.27	0.51	1.21
65 plus	0.23	0.21	0.44	0.19	0.12	0.31	0.75
Total	0.36	1.83	2.19	0.59	0.95	1.54	3.73
Total change	-0.51	0.63	0.12	0.71	1.24	1.94	2.06

Source: author's calculations based on ABS Labour Force Survey, data cube LM5.

First, the ageing drag on the participation rate is substantial. Among the Australian-born, ageing deducts 2.1 percentage points from the aggregate rate. However, the ageing drag is *more than fully offset* by an increased propensity to participate, up by 2.2 percentage points.

Second, and still remaining with the Australian-born, there was a modest boost in the propensity to participate among men – insufficient, though, to offset the downward pull of ageing – but a very large participation boost among women of 1.8 percentage points, more than offsetting the ageing effect.

Third, excepting for those aged under 25 years, all other age groups increased their propensity to participate, with huge gains – adding 3.7 percentage points to the aggregate rate – among those aged 45 years or more.

Fourth, and remarkably, there was a *positive* population composition effect among the overseas-born, adding 0.4 percentage points to the aggregate participation rate change. How did this possibly occur? The reason is that the age composition of migrants became *younger* rather than older over the past decade. In 2000, 25 per cent of migrants were aged 15-34 years. Ten years later this had risen to 28 per cent. (In contrast, among the Australian born, the share fell from 41 per cent to 38 per cent.) In other words, the large influx of young migrants over the last decade put a significant break on the downward pull of ageing. This is amply illustrated by the volume increase among the overseas-born aged 20-34 years which added a full 1.1 percentage points to the aggregate rate. Gruen and Thomson (2007) identify the same migrant population composition effect in their analysis comparing differences in population projections

between the first two Inter Generational Reports, but confine their analysis of changed participation rates to age and gender.

Fifth, although they make up a minority of the labour force, the increased propensity among the overseas-born to participate came close to matching the increase among the Australian-born, adding 1.5 percentage points to the aggregate participation rate. It is this heightened propensity to participate among the overseas-born, rather than the population composition effect, which largely explains the positive boost that migrants have given to the participation rate.

Concluding comments

This short paper amply illustrates that demography is *not* destiny. Societies and economies adapt and adjust. In Australia's case there have been two adjustment mechanisms inadequately taken account of in projections of labour force participation rates.

First, older persons – and, to a lesser extent, women – have dramatically increased their propensity to participate in the labour force. This pre-dates the global financial crisis of 2008 – indeed, labour force participation rates among older persons have been on the rise since the 1990s – though, undoubtedly, people's wish to preserve a high standard of living in the face of diminished financial returns has had some impact on retirement decisions. It is likely that there is a complex interaction of labour supply choices along with the additional opportunities on offer from a buoyant labour market.

Second, in an era of increasing globalisation and flows in people movement, it is not at all surprising that migration inflows have increased in response to the high levels of labour demand seen over the last decade. Government has also contributed to this through setting the permanent migration program at historically high levels (in absolute terms) over the past four years.

To conclude by returning to the opening, part of the discussion around future scenarios of labour force growth has been framed around the capacity to lift the participation rates of women and of older persons. This has happened – in spades. On the face of the data presented in Figure 3, there remains capacity still to lift the participation rates of migrants to bring them more into line with the Australian-born. Given the emphasis played on skill in the selection and entry of many migrants, this is a reasonable and worthwhile policy aspiration, with pay-offs to both migrants and to the broader economy. The reversal in the long-run decline in the migrant participation rate is consistent with the expected outcome arising from policy changes from the late 1990s onwards.

Endnotes

[1] Those engaged in the business of projections might argue that I have failed to distinguish a projection from a forecast (Productivity Commission 2010: 65). Against that I would make two points. First, the reliance on a single "base-case" projection to advance an argument implies that those making the projections believe this to be the most plausible of the set of possible projections. Second, it is reasonable to expect a base-case projection to have high predictive qualities over the short-term.

[2] This is an understatement of the actual level of net overseas migration over the decade. In 2006 the Australian Bureau of Statistics introduced a revised, and more precise, methodology for counting additions and subtractions from the population. Earlier figures tended to undercount additions more so than subtractions. See ABS (2010).

[3] The time series commences in 2001 due to the introduction of a new educational classification. It is likely that a significant proportion of the increase is due to a high inflow during the decade of migrants with non-school qualifications.

[4] Neither does it take into account heterogeneity in the migrant population, particularly differences between those coming from a mainly English speaking country and those coming from other countries.

[5] The propensity to participate, for an individual, is determined by a complex mix of factors arising from the interaction of their preferences for income from employment over leisure, and labour market opportunities and constraints. Discouraged workers can withdraw from the labour force for want of opportunity.

[6] There are various approaches to decomposing change over time. Dixon (2002) uses an alternative method where the compositional component is weighted by the simple average of the age by gender by birthplace participation rates in both periods and the propensity to participate component is weighted by the simple average of the population share in both periods. Using this alternative specification does not alter the materiality of the results.

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