



## Special Article

### *Recent Trends in Female Labour Force Participation in Ireland*

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# Recent Trends in Female Labour Force Participation in Ireland<sup>\*</sup>

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Maxime Berholz<sup>1</sup> and John FitzGerald<sup>2</sup>

## 1. Introduction

By the standards of Northern Europe, Ireland in 1980 had a very low level of labour force participation by women. This was in spite of the fact that women were, on average, better educated than men. However, from the early 1980s onwards there was a steady rise in female labour force participation rates. This rise, and the related increase in female labour supply, was an important factor contributing to the exceptional rate of economic growth in the Celtic Tiger years. However, the female participation rate, which had risen steadily since the early 1980s, stabilised over the years of the Great Recession.

The paper explores the factors underpinning the rise in participation rates since the early 1990s and the factors that have contributed to the stabilisation in rates since 2007. This analysis, combined with information on the current demographic structure, gives some indication of how participation rates and female labour supply may develop over the next five years.

Section 2 considers the range of factors that may potentially affect female labour force participation. Section 3 discusses the evidence from previous relevant studies for Ireland and elsewhere. Section 4 looks at the changing level of educational attainment in the population, especially the female population. Section 5 analyses changes in employment and migration in recent years which may affect female labour force participation. Section 6 examines how different factors have contributed to the growth in female labour participation rates and to their more recent stabilisation. The implications of this research for female labour supply over the next few years are discussed in Section 7 and conclusions are drawn in Section 8.

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## **2. Factors Affecting Female Labour Force Participation**

Prior to Ireland joining the EU in 1973 women's participation in the labour force was affected by a range of legal restrictions reflecting wider cultural attitudes. From the foundation of the State in 1922, a frequently held view was that the male partner was the 'provider' and that most women were expected to marry and to devote themselves to the care of their children to the exclusion of any role in the paid labour market. This attitude was reflected in legislation introduced in the early years of the State which required women to resign from the public service the day they married (Maguire, 2008). In addition, in the public service married men were entitled to higher rates of pay than single men or women, reflecting their expected role as 'provider' for their wife and children. While this legislation only applied to the public sector, the attitudes that it reflected also impacted on the private sector.

While the Irish approach to the role of women in the labour market was relatively extreme, expectations about women's labour market role were not that different in many European countries in the years before the Second World War. However, in the post-war years expectations and behaviour changed rapidly across much of Europe. Ireland was an exception in maintaining its patriarchal approach to women's role in the labour market until the 1970s.

It was only after Ireland's entry into the then European Economic Community (EEC) in 1973 that changes in legislation were required to provide equal treatment for women. Reflecting EU law, the marriage bar was removed in 1973 and equal pay for equal work became a legislative requirement, not just in the public sector, but also in the private sector. These legal changes, combined with a rapidly changing view of women's role in society and the economy, saw a major change in female labour market behaviour in the following decades.

As well as the legal and administrative changes which impacted on female labour force participation, there have been major cultural changes. Whereas 50 years ago the expectation had been that most women would marry and drop out of the labour market to look after children, today the expectation is that, whether or not women have children, they will participate in the labour market throughout most of their adult life.

In addition to the cultural changes, women's education plays an important role in determining whether or not they participate in the labour market. Traditionally women in Ireland have been better educated than men and this remains the case today. Women with a higher level of education have the ability to earn

substantially more over their lifetime than those with a more limited education. The higher earnings make continued participation in the labour market more attractive. It also means that women with higher levels of education, and hence higher earnings, can better afford childcare so that they can remain in the labour market while also having children.

On the side of the demand for labour, in recent decades there has been a continuing growth in employment of well-educated workers in Ireland and elsewhere in the EU. As the demand for skilled labour steadily grew over the 1980s, Ireland had a large number of well-educated women who were not in the labour market. Over the 1990s this rising demand, and the wages paid to well-educated workers, saw a rapid rise in female labour supply to meet the growing requirement for skilled labour.

Changes in the tax system have also affected the earnings of women in the labour market. In 1980 the Supreme Court held that the tax system unfairly discriminated against married women. The result was a change in the tax system so that married couples received double the allowances of single people and they were taxed on their joint incomes.

In the 2000 Budget there was a move towards individualisation, which enhanced the after-tax earnings of married women. Callan et al. (2009) estimate that it has had a small direct impact on female labour supply in comparison to the long-term rising trend in married women's participation, which began in the 1970s.

Since the early 1970s there has also been a change in behaviour affecting when couples choose to have children and how many children they have. Whereas in the 1980s the average age of mothers at first birth was under 25, today it is nearly 31. This means that for most women in their 20s today, issues of childcare are not relevant to their decisions on labour market participation. However, for many women in their 30s and 40s the issue of childcare is an important factor affecting their labour market behaviour. This reflects the fact that in Ireland the primary impact of childcare is on mothers' labour market behaviour rather than on that of fathers.

A final factor that has had an important impact on female (as well as male) labour force participation is the decision whether to remain in education or to enter the labour market. In the 1970s the minimum legal age for school leaving was important in determining when many children left school. However, since then it

has become the norm for women (and more recently for men) to complete second level (Leaving Certificate). Today a majority of women continue to third level. Since the economic crisis began in 2008 this has also been true for men.

The decision to continue in education is affected by cultural factors, by job opportunities if individuals don't continue in education, and by the expected increase in their lifetime earnings as a result of enhancing their education. Acquiring a third-level qualification is costly in the short run because of fees and maintenance costs, and also because of foregone earnings. However, higher levels of educational attainment substantially increase expected lifetime earnings. During the recent economic crisis there was a large increase in participation in education by women (and men) in their 20s. This may have reflected a reduction in the opportunity cost of continuing in education at a time when unemployment was high and real after-tax wage rates had fallen. However, to date the factors underlying this important development have not been analysed through appropriate research.

### **3. Evidence from Previous Research**

As discussed above, the labour force participation of women has increased dramatically in the last thirty to forty years. Examining the literature for Ireland and other countries, Russell et al. (2009) identify four main factors potentially affecting female labour supply at the individual level:

- expected earnings, which depend on the educational level of the individual;
- the number and age of children;
- the presence, and earnings, of a partner; and
- the tax-benefit system, in particular the tax treatment of couples.

By European standards, female labour force participation in Ireland was very low until the mid-1980s, when it began to rise rapidly (Fahey et al., 1998). In less than thirty years, the participation of women aged 25 to 64 rose from slightly above 20 per cent in 1971 to nearly 50 per cent in 1996, with most of the increase occurring in the late 1980s and 1990s, particularly among married women (Callan et al., 2009). Yet, while the participation rate of women aged 25 to 34 was approaching the EU average by 1995, that of women aged 35 to 44 was still among the lowest, probably due to the time spent out of the labour market in the presence of children, which was a barrier to the labour force participation of mothers.

Underpinning this rise in participation was the growing educational attainment of the labour force over that period, which translated into higher expected earnings. At least as important, cultural change altered women's aspirations. Looking at the evolution of female labour force participation across different age groups between the late 1980s and the mid-1990s, the biggest increase was in the 25-50 age groups whereas little changed in the older age groups. In line with Russell et al.'s (2009) more recent findings, Fahey et al. (1998) also observe lower participation rates and significantly greater variation in behaviour across educational levels for mothers.

Examining more recent developments, Russell et al. (2009) found that rising educational levels and favourable economic conditions played an important role in raising female labour supply in the decade preceding the crisis. Yet, the presence of children continued to be a major barrier to the participation of mothers, partly due to cost of childcare compared to other countries. Estimated using data for 2005, the marginal effects of having young children on labour force participation do not seem to have changed significantly since the 1990s.<sup>3</sup> The study shows that the probability of women participating in the labour market varies strongly with the level of their income in the labour market. For women aged 35 with two children their probability of participating in the labour market was 25 per cent if they were able to earn only half the average wage whereas for those able to earn twice the average wage the probability of participation was 96 per cent.

By 2005, Russell et al. (2009) find that the earnings of a partner no longer had a significant effect on the probability of participating in the labour force of either qualified or unqualified women, in contrast to previous results for 1994 and 1998, which suggested a small but significant effect (Doris, 2001). This may have been partly due to the individualisation of income taxation for married couples in 2000, mentioned above. Lastly, unqualified women have a much higher wage elasticity than qualified women, implying a large pro-cyclical effect for women with low qualifications.<sup>4</sup>

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<sup>3</sup> Using a very similar model, McGuinness et al. (2009) depict a different evolution of these marginal effects over the 1990s. Their estimates show that the effects of the presence of a child under the age of six had, in fact, fallen significantly by 2001. Russell et al.'s (2009) results, which are not directly comparable as they are for 2005, have the advantage of separating qualified and unqualified women.

<sup>4</sup> Russell et al. (2009) and Doris (2001) employ different definitions of qualifications. Nevertheless, their findings are consistent.

McGuinness et al. (2009) model the returns to education for men and women in Ireland over the 1994-2001 period.<sup>5</sup> Their approach takes into account a range of other important factors that may explain the higher earnings of those with a third-level education. The period they examine saw a sustained rise in female labour force participation. Controlling for a range of other factors, in 1994 women with a university degree earned twice as much as women with an upper secondary educational level, and nearly three times as much as a woman with no qualification. However, as the labour supply of women with a third-level qualification rose rapidly over the following decade (with women who had previously been out of the labour force entering it), the return to tertiary education fell.<sup>6</sup>

**TABLE 1** Summary of Participation Elasticities by Sex and Level of Qualification

		2004	2005	2006	2007	2008	2009	2010
<b>Men</b>	All	0.09	0.12	0.11	0.10	0.09	0.09	
	Unqualified	0.31						
	Qualified	0.07	0.13	0.12	0.11	0.10	0.10	
<b>Women</b>	All	0.45	0.48	0.50	0.45	0.46	0.56	0.54
	Unqualified	1.25	1.06	1.31	1.17	1.05	1.81	1.03
	Qualified	0.42	0.46	0.47	0.42	0.41	0.52	0.52

Source: Bergin et al. (2013)

Bergin et al. (2013) estimate labour supply elasticities for men and women over the last decade (Table 1). They find that the labour supply elasticity of qualified women, though higher than for men, was much lower than that of women with lower qualifications. This probably reflects the fact that the returns to working for women with good qualifications were generally sufficient to offset the costs of childcare whereas this was much less likely to be the case for women with lower qualifications. Doris (2001) estimated similar elasticities for qualified women for 1994 and 1998, but much higher elasticities for unqualified women.

A recent study by Byrne and O'Brien (2016) has looked at factors affecting labour force participation for both men and women. They find that since 2007 the decline in the female participation rate was entirely due to cyclical factors

<sup>5</sup> Appendix 1 gives comparative data from OECD on returns to education for a range of countries. However, these data do not take account of the range of factors covered by McGuinness et al. (2009).

<sup>6</sup> As Flannery and O'Donoghue (2016) argue, a full analysis of the returns to education should include a wider range of outcomes, in particular changes in taxes and benefits stemming from the increased earnings associated with a higher educational level. Because of data limitations McGuinness et al. (2009), use gross instead of net earnings, which means that they cannot control for these changes. However, Flannery and O'Donoghue (2016) limit their analysis to the year 2000.

whereas the decline in the male rate also reflected some more permanent trends.

Using time series data to analyse the educational participation rates of 16-year-olds in England and Wales over a thirty-year period, Whitfield and Wilson (1991) find evidence that high adult unemployment induces lower educational participation rates. More recently, examining English regional panel data, Clark (2011) finds that youth labour unemployment positively affects post-compulsory enrolment rates, more than is generally found in time series models. Effects are bigger for boys and generally larger than the impact of exam achievement. However, his estimates vary greatly across periods, so it is not clear how stable the relation between participation in post-compulsory education and youth unemployment is.

In another study, Tumino and Taylor (2015) exploit panel data from the British Household Panel Survey to show that local youth unemployment rates positively affect post-compulsory enrolment, while high adult unemployment discourages it, in line with the previous literature. Importantly, they find that labour market conditions are unimportant to students from higher socio-economic backgrounds, portraying education as a consumption good.

Their estimates, which must be interpreted in relation to the sample period, predict that a 7.5 percentage-point rise in the youth unemployment rate reduces the probability of dropping out by 8.2 percentage points for young people living in social housing, while a 1.8 percentage-point increase in the adult unemployment rate raises this probability by 5.6 percentage points. Thus, for those who do consider labour market conditions when deciding whether or not to work, dropout rates are more responsive to changes in adult unemployment than in youth unemployment. However, in the UK as the latter tends to vary more than the former in a recession, the net effect on participation could still be favourable.

Fredriksson (1997) examines the extent to which economic incentives affect the demand for higher education in Sweden, focusing on men. His findings suggest that the net university wage premium is the most important factor. Unemployment seems to play a role too: enrolment rates increase as aggregate unemployment and unemployment in the 20-24 age group rise, or as white-collar unemployment falls. Thus, participation in further education appears to be strongly influenced by a range of factors pertaining to the state of the economy.



If the experience of the UK and Sweden is replicated in Ireland, this research would suggest that the high youth unemployment rates of the crisis years played an important role in raising participation in education. This research would also imply that a major improvement in labour market conditions might see some reduction in participation in the educational system.

#### **4. Educational Attainment**

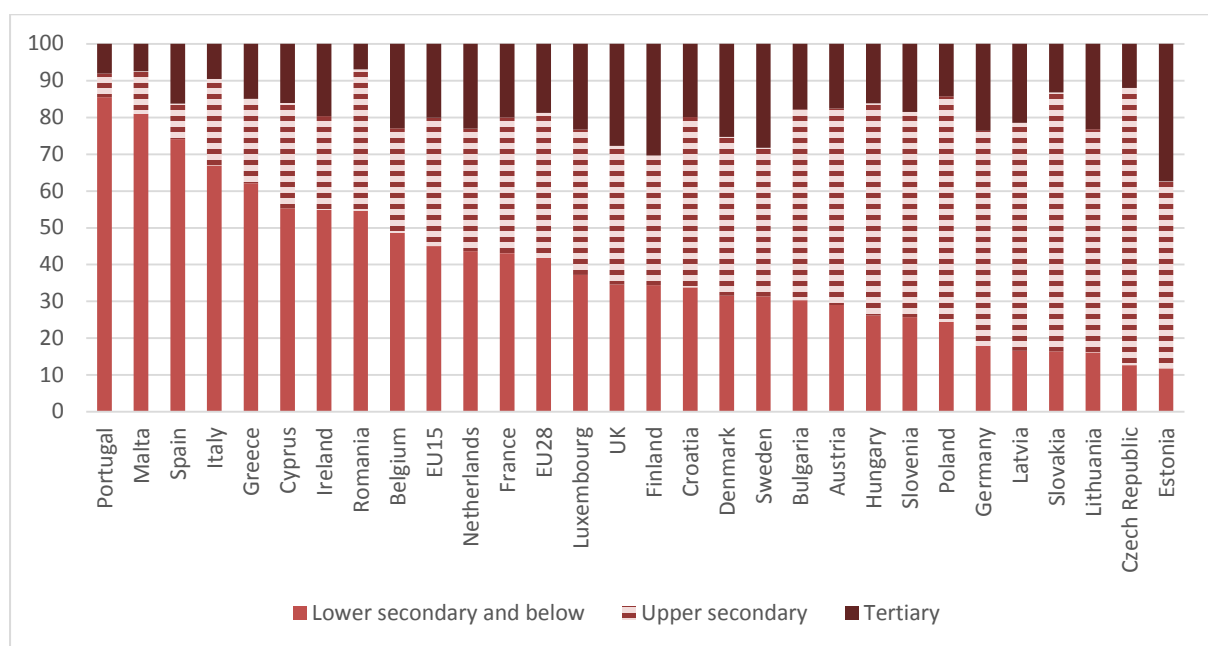
Ireland, along with Southern Europe, lagged behind much of Northern and Central Europe in developing its educational system in the post-war years. As much as 55 per cent of the 1946-1950 birth cohort in Ireland did not complete secondary school, compared to 35 per cent in the UK and only 12 per cent in Estonia (Figure 1).<sup>7</sup> In line with the spectacular rise in educational attainment across the EU over the second half of the last century, the Irish rate of non-completion had fallen to 9 per cent for the 1986-1990 birth cohort (Figure 2), much lower than the EU15 and EU28 averages (17 per cent and 16 per cent, respectively). In addition, no less than 52 per cent of the same cohort have a third-level qualification (compared to only 20 per cent of the 1946-1950 birth cohort), the third highest rate after Cyprus and Lithuania.

Traditionally, women have been better educated than men, with a higher proportion completing secondary school. This has been true also for tertiary education since the 1980s, with a large 10 percentage-point gap for the 1986-1990 birth cohort (Figure 3). Examining time series, the share of the female population with less than a Leaving Certificate more than halved from 1995 to 2015, while that of women holding a third-level qualification increased from 18 per cent to 41 per cent (Figure 4). As older women with lower educational levels retire and younger women with higher qualifications enter the labour force, these changes will continue to affect the labour market for some time to come.

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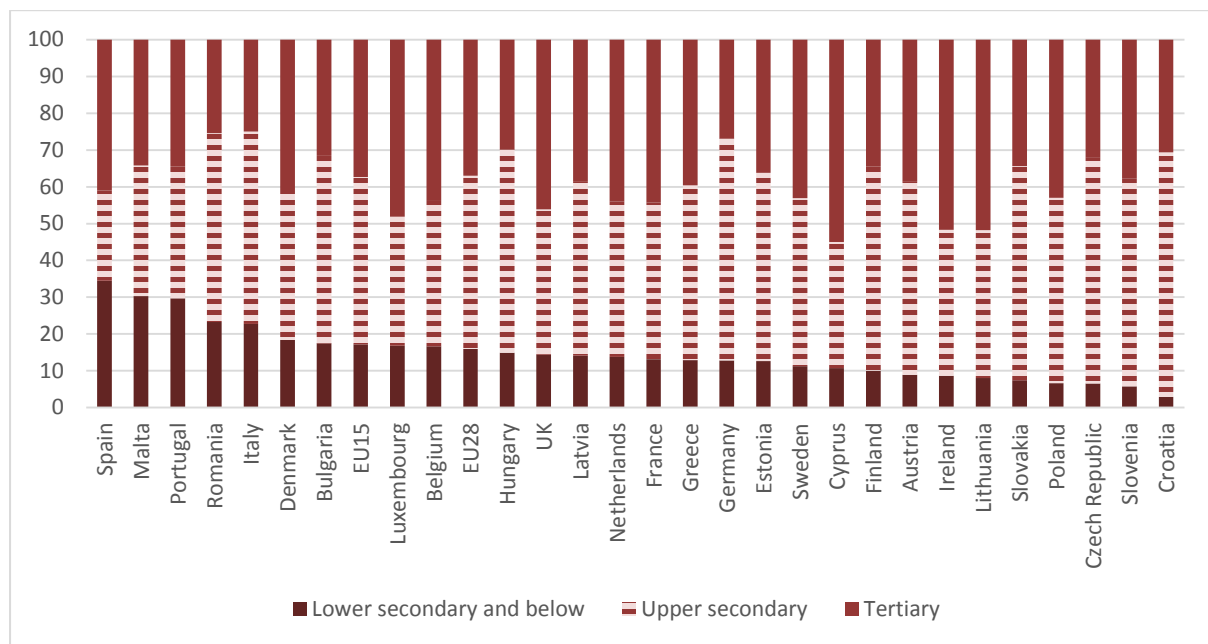
<sup>7</sup> This ignores excess deaths in the immediate post-war years and migration flows.

**FIGURE 1** Educational Level of the EU Population by Country, 1946-1950 Birth Cohort (%)



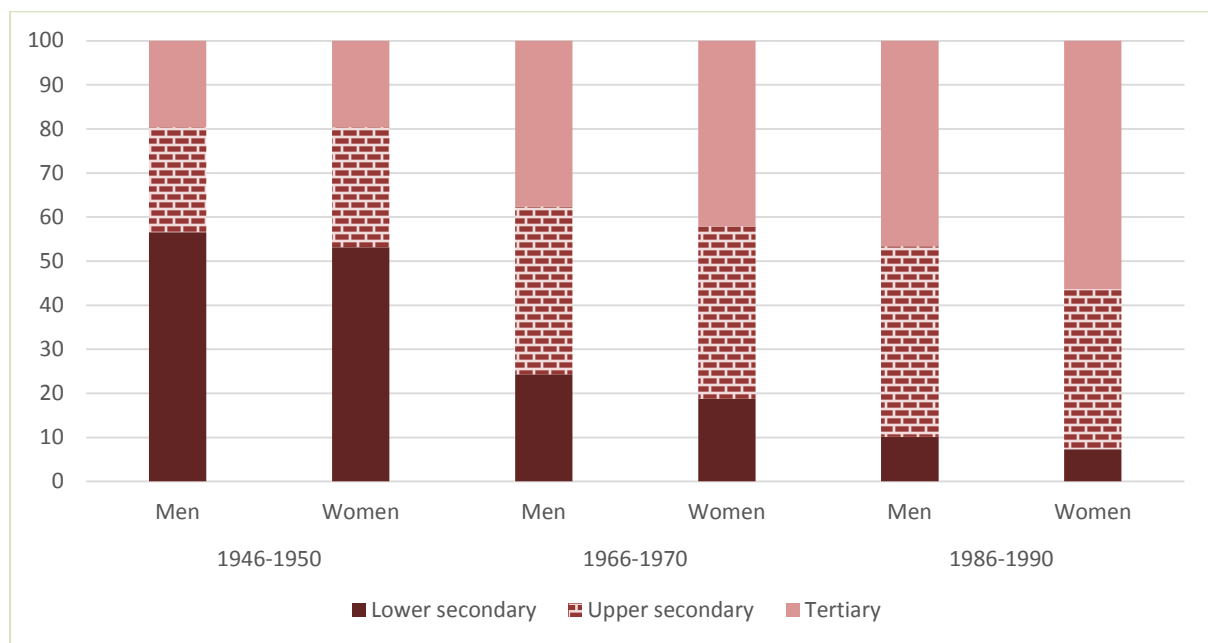
**Source:** Eurostat.  
**Note:** Hereafter we use the ISCED 11 framework for educational levels. In the Irish system, 'lower secondary and below' refers to the Junior Certificate and below and 'upper secondary' to the Leaving Certificate ('tertiary' is self-explanatory).

**FIGURE 2** Educational Level of the EU Population by Country, 1986-1990 Birth Cohort (%)



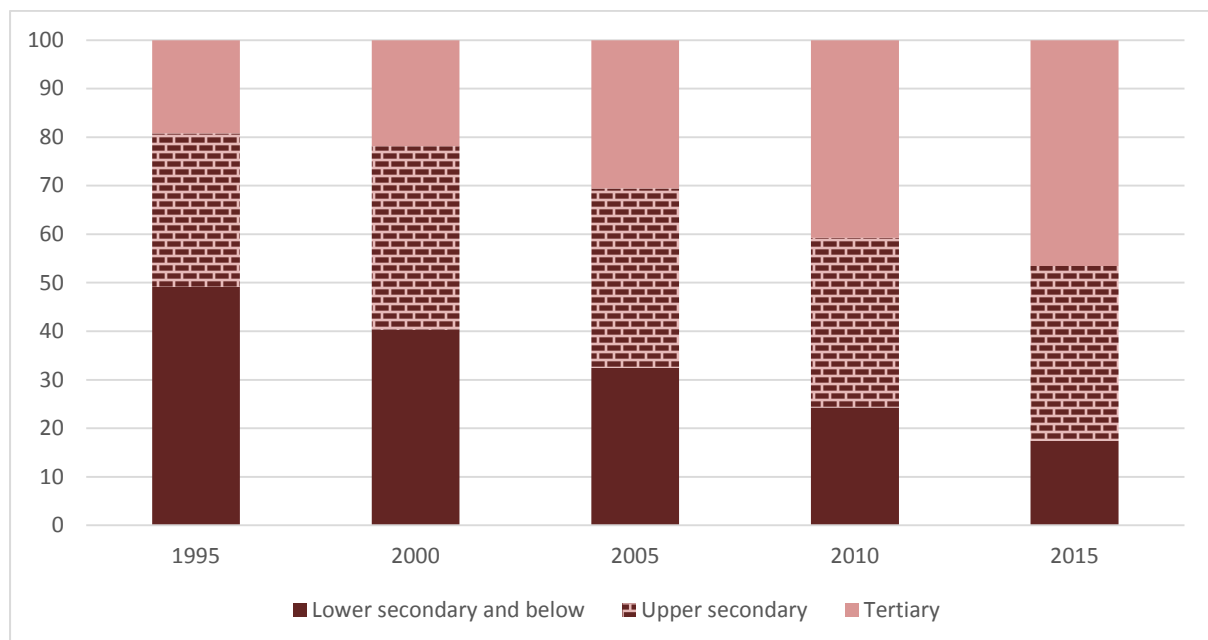
**Source:** Eurostat.

**FIGURE 3** Educational Level of the Population by Sex and Birth Cohort, 2015 (%)



Source: Eurostat.

**FIGURE 4** Educational Level of the Female Population, 25-64 (%)



Source: Eurostat.

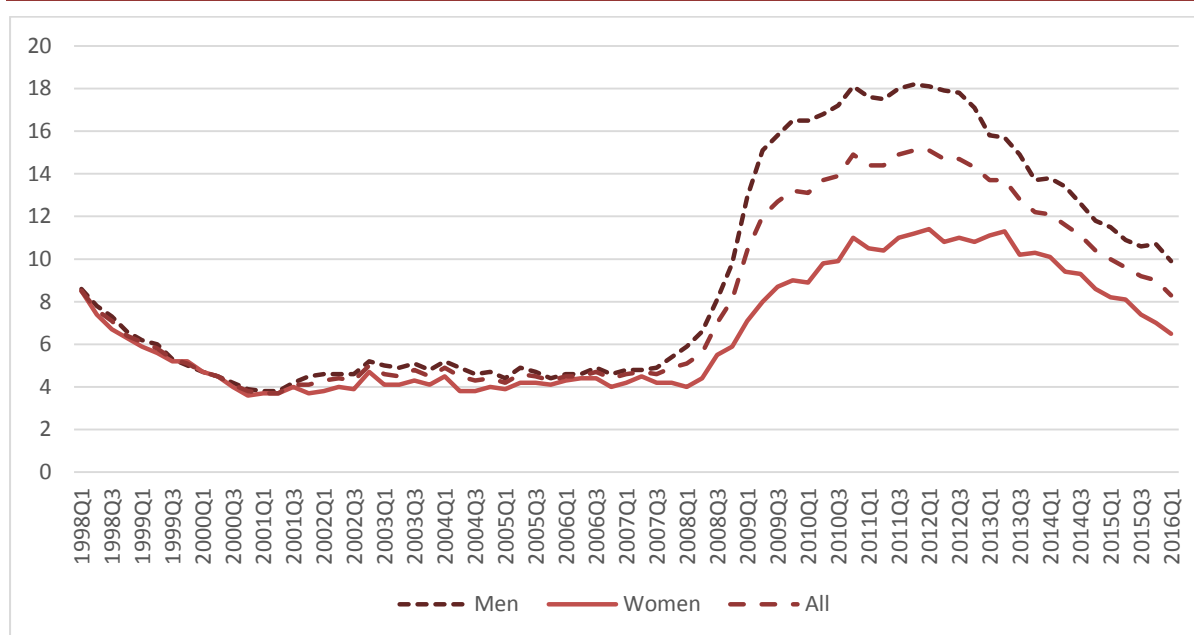
As discussed above, the rising educational attainment of the population has been important in raising participation rates, given the financial returns to education in the labour market. Since the economic crisis began in 2008, the tendency for

younger people to spend longer in the educational system has impacted significantly on labour force participation. It has also resulted in a significant fall in the proportion of women (and men) aged 20 to 29 in 2015 who had not completed secondary education (Appendix 1, Tables A1.3 and A1.4). However, while there has been some increase in the proportion of women aged 20 to 29 who have completed third-level education; the increase is rather small relative to the substantial increase in time that people in their 20s are spending in the educational system. This suggests that part of this increased participation in education of women (and men) in their 20s reflects people developing additional qualifications over and above their basic third-level qualification.

## 5. Employment and Migration

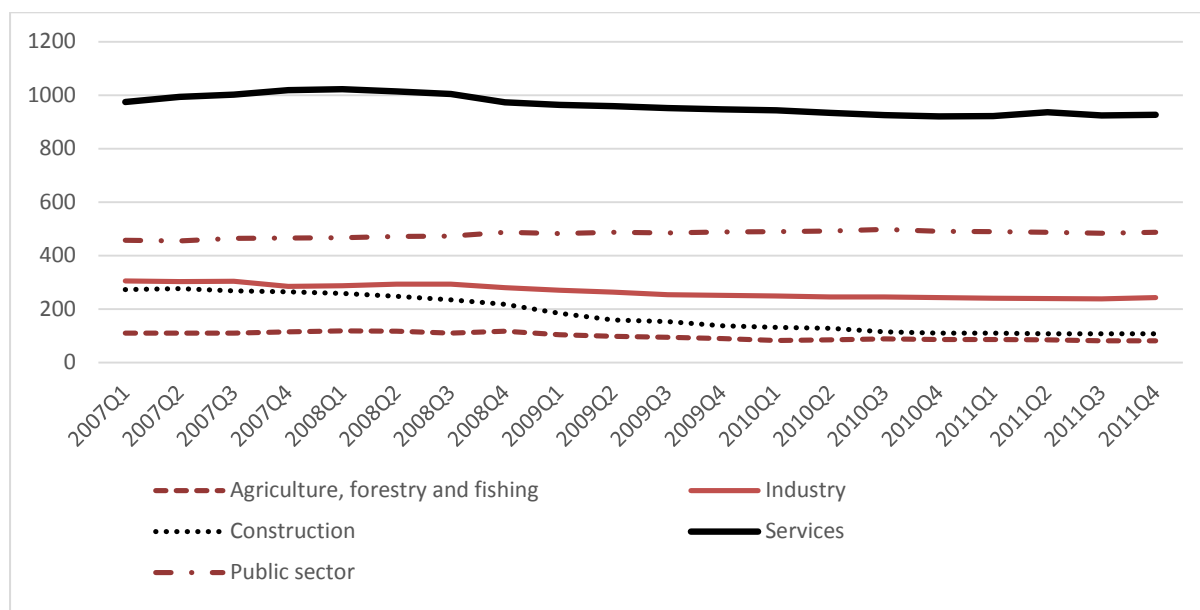
Women were less badly hit by the unemployment crisis than men. Peaking at 11.4 per cent in early 2012, the female unemployment rate rose much less than the male unemployment rate, which had reached 18.2 per cent by the end of 2011 (Figure 5). This differential stands in sharp contrast to the decade preceding the recession, during which the difference between the male and female unemployment rates did not exceed 1.1 percentage point. The bulk of the rise in female unemployment also came later than the rise in the male rate, as the ripples from the collapse in the property bubble gradually came to affect the wider economy.

**FIGURE 5** Seasonally-Adjusted Unemployment Rate by Sex, 15-74 (%)



Source: Central Statistics Office.

**FIGURE 6** Employment by Sector, Population 15 Years and Over, Seasonally Adjusted ('000)



Source: CSO Quarterly National Household Survey. We do not use data for the more recent period because of a serious discontinuity in the CSO data for sectoral employment.

The Great Recession impacted first and most severely on employment in building and construction and related sectors (Figure 6). Between the beginning of 2007 and the beginning of 2012, while employment generally fell by 14 per cent, the numbers employed in building and construction fell by 170,000 or 62 per cent. As one-in-five male workers were employed in this sector immediately before the crisis, compared to only 1 per cent of female workers (Figure 7), this had a much bigger impact on men. This big fall had knock-on effects in other sectors, which also tended to have a higher proportion of male employees (for example, manufacture of non-metallic mineral products). The Great Recession was slower to impact on female employment because of the sectors in which the bulk of women worked. The reduction in employment in those sectors was also more moderate than in the male dominated sectors.

**FIGURE 7** Male and Female Employment Shares by Sector, 15 Years and Over, 2007 (%)



Source: Central Statistics Office.

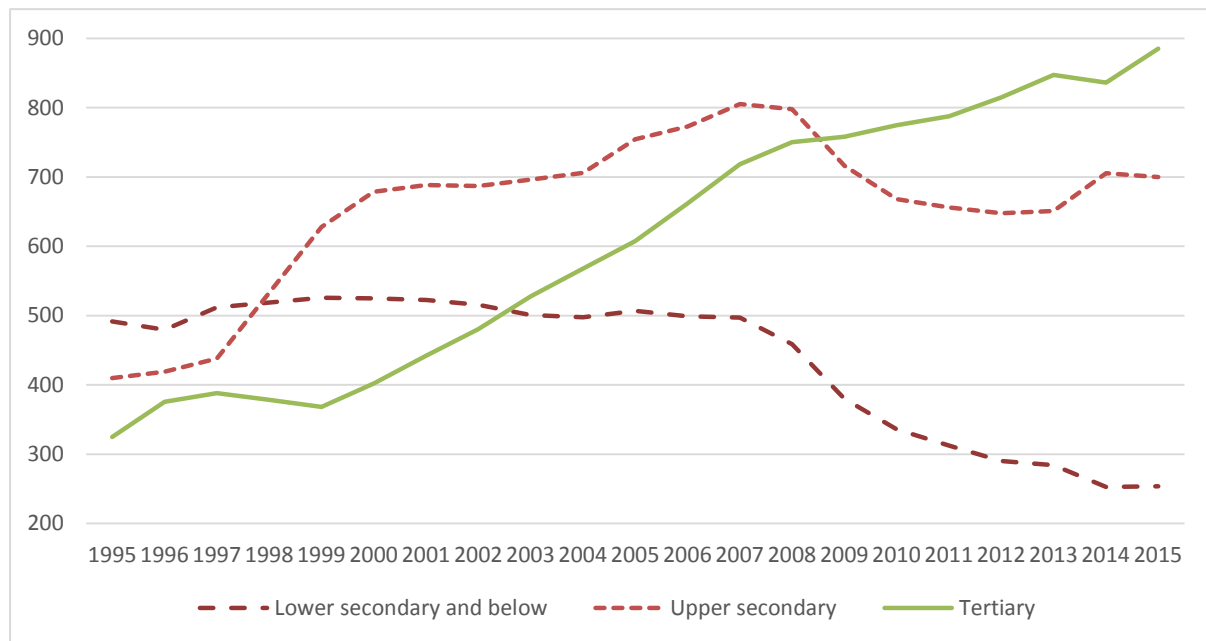
Note: We use the NACE Rev. 2 categories, singling out the public sector from total services (services refers to non-public services).

In recent decades there has been buoyant growth in employment of people with third-level qualifications and this has been another reason why women were less exposed to the crisis than men, given their higher educational attainment. Over the last 20 years, the educational composition of the labour force reversed, with the share of workers with tertiary education growing from 27 per cent to 48 per cent between 1995 and 2015 and that of workers with at most a lower secondary level dropping from 40 per cent to only 14 per cent.<sup>8</sup>

The recession has had different effects on employment across educational levels. While the number of workers with at most upper secondary education has fallen quite significantly, and seems to be stabilising below its pre-crisis level, the crisis had little effect on the trend rise in the number of workers with a third-level qualification, with numbers employed showing a virtually uninterrupted upward trend since the early 2000s (Figure 8). Because women were, on average, better educated than men this continuing rise in employment opportunities for those with a third-level qualification favoured women, contributing to the lower increase in unemployment.

<sup>8</sup> Eurostat Data.

**FIGURE 8** Employment by Educational Level, 15-64 years ('000)



Source: Eurostat.

Note: Due to missing data, the figures for 1998 are the averages of the 1997 and 1999 figures.

An important factor affecting labour market participation is the opportunity for employment in those labour markets, best reflected in the unemployment rate. While most people who lose their jobs will classify themselves initially as unemployed, over time some of these jobless individuals may lose confidence and classify themselves as being out of the labour market. These individuals are often referred to as 'discouraged workers'. In addition, there may be other individuals who, for example, are looking after children and do not consider themselves as unemployed but who would be interested in a job if the working conditions and financial returns to working were sufficiently attractive.

For many years the CSO has published a series of labour market indicators which attempt to capture this discouraged worker effect. These indicators cover people who are not currently in the labour force but who might be interested in a job. These indicators tend to follow the cycle of unemployment, which supports the claim that the unemployment rate is an important factor determining whether people who are not working are in the labour force.

For the last two centuries a very important indicator of the state of the Irish labour market has been net migration. When economic circumstances have been particularly difficult emigration was very high and during particularly successful

periods, such as the Celtic Tiger years, there was net immigration. A range of different papers have modelled past migration patterns as a function of the differential between unemployment rates in Ireland and the UK (e.g., Honohan, 1992). Likewise, Bergin et al. (2013) consider the role of the expected real after-tax return to working in Ireland relative to the UK and other available labour markets.

**TABLE 2** Net Emigration of 15-34-year-olds as a Percentage of the Population of Relative Age

	2009	2010	2011	2012	2013	2014	2015	2009-2015
<b>Men</b>	0.6	2.1	1.7	2.9	2.0	1.9	1.5	12.6
<b>Women</b>	1.6	1.2	0.2	1.1	-0.5	0.9	0.3	4.9

*Source:* Central Statistics Office.

*Note:* These figures are based on the CSO migration estimates before the publication of the data from the 2016 Census.

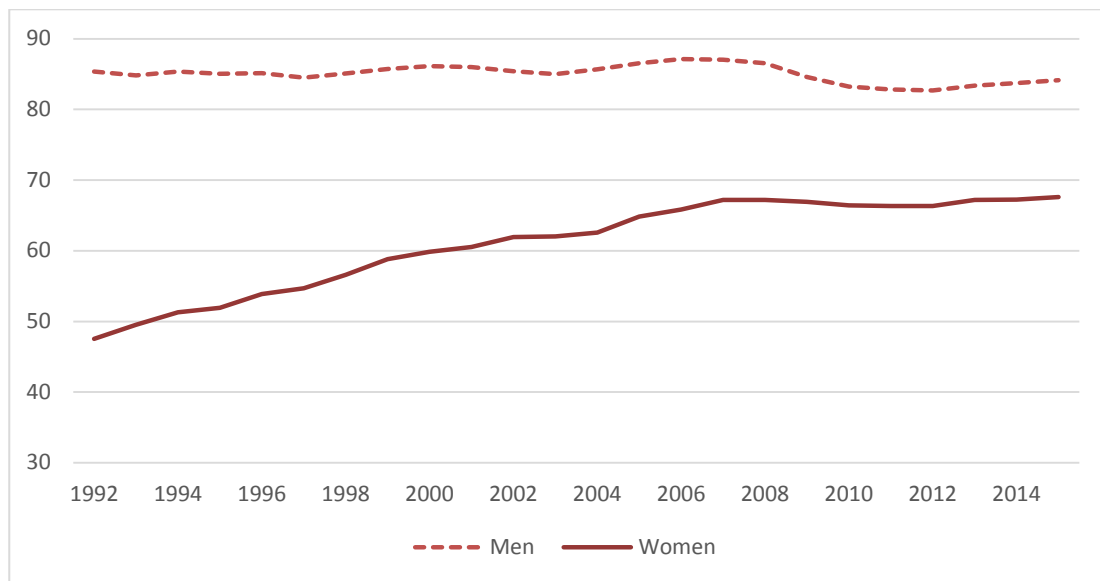
Prior to the crisis, a feature of the net emigration was that roughly equal numbers of men and women left Ireland. Yet in recent years, for the age groups which cover the bulk of emigrants (15-34), more men left than women (Table 2) reflecting the more difficult conditions in the sectors in which many men were working. Over the 2009-2015 period, net emigration accounted for almost 12 per cent of the male population aged 15-34, whereas the figure for women was 5 per cent. As discussed above, this difference reflects the fact that the Great Recession had a much more attenuated impact on the labour market experience of women than of men.

## 6. Labour Force Participation

Over the last 20 years there has been relatively limited change in the male labour force participation rate (Figure 9). It peaked at 87 per cent of the population aged 20-64 in 2007 and it fell in the early years of the Great Recession. While there has been some limited recovery since 2012, it stood at 84 per cent in 2015. Nonetheless the variation over time is relatively limited.



**FIGURE 9** Labour Force Participation Rates by Sex, 20-64 (%)



Source: Eurostat.

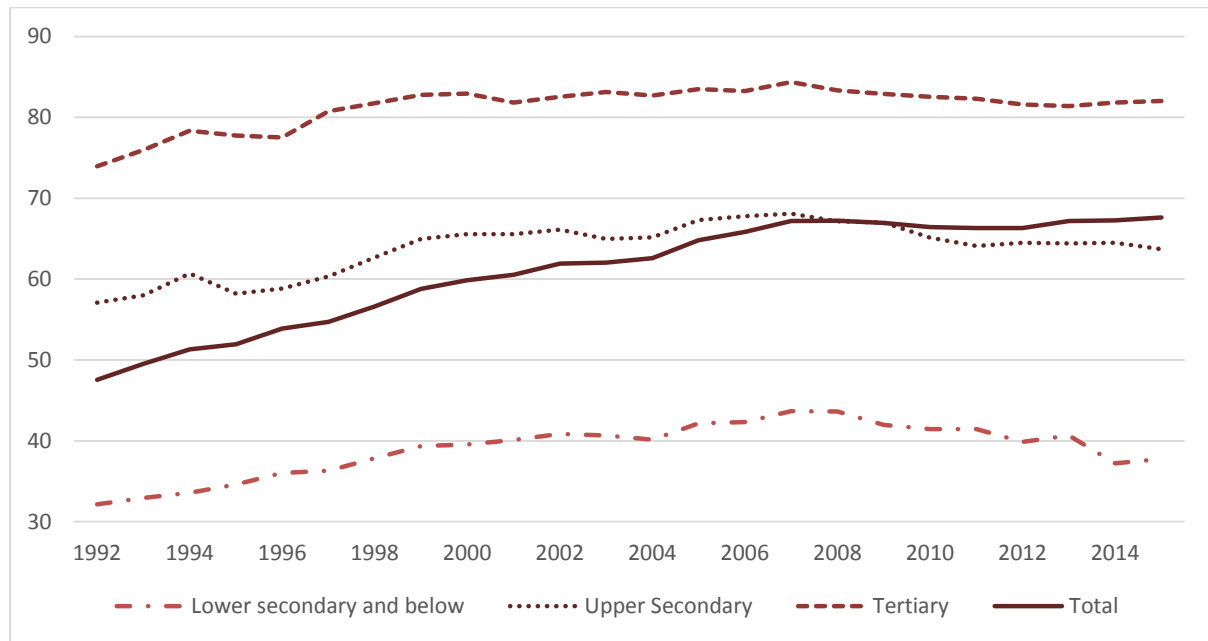
On the other hand, female labour force participation rates have changed very substantially since the early 1990s. In 1992 only 48 per cent of women aged 20 to 64 were in the labour force. There was a steady rise over the subsequent fifteen years to 2007 when, just before the economic crisis began, female labour force participation had reached 67 per cent of the population aged 20 to 64. Since 2007 the participation rate has stabilised and in 2015, 68 per cent of women aged between 20 and 64 were in the labour force.

As discussed above there are a range of different factors impacting on the decision by women to join and remain in the labour force. The factors determining this decision are rather different for women in their 20s than for their older sisters and, in the discussion below; we consider the participation behaviour of 20 to 29-year-olds separately from that of 30 to 64-year-olds.

Over time, the rise in educational attainment has worked its way through the female population of working age having a major impact on labour force participation. Figure 10 shows labour force participation rates for women aged 20 to 64 classified by the highest level of education that they have completed. For women with third-level education, the participation rate rose quite rapidly in the 1990s. However, since 2000 it has been over 80 per cent, peaking at 84 per cent in 2007, 9 percentage points less than the rate for males with a similar level of education. While the participation rate for this group of women fell slightly in the crisis years it was still 82 per cent in 2015.

For women with upper secondary education, the participation rate rose over the 1990s from 57 per cent in 1992 to 67 per cent in 2007 (the comparable figure for men was 90 per cent). Thereafter it fell quite significantly over the crisis years and today it stands at 64 per cent.

**FIGURE 10** Female Labour Force Participation Rates by Level of Education, 20-64 (%)



Source: Eurostat.

For women with only lower secondary education the participation rate was as low as 32 per cent in 1992. It rose over the subsequent 15 years to 44 per cent in 2007. However, there was a substantial fall over the crisis years so that today it has fallen back to 38 per cent.

Figure 11 shows participation rates for men and women aged 20 to 29. There was a limited increase between 1992 and 2007. However, since the economic crisis began there has been a substantial fall, taking participation rates today for men and women below their level in 1992.

One of the important factors affecting female participation is whether women have children (Russell, et al., 2009). The average age of mothers at first birth rose from 24.9 in 1980 to 30.7 today. Therefore, while in the 1980s and the early 1990s many women in their twenties were mothers – and this will have impacted on their participation in the labour market – a much smaller proportion of

women in their twenties are now mothers. In the absence of other factors, this decline in the number of young mothers would help explain a rise in labour force participation in this age group. However, a more important factor affecting participation rates of both men and women in this age group has been participation in the educational system.

**FIGURE 11** Labour Force Participation Rates by Sex, 20-29 (%)



Source: Eurostat.

**TABLE 3** Full-time Education Participation Rates by Age Group, Sex and Census Year (%)

		1991	1996	2002	2006	2011	Change
<b>15-19 years</b>	<b>Men</b>	67.8	74.4	76.2	77.5	87.9	20.1
	<b>Women</b>	75.1	81.8	85.2	86.5	91.3	16.3
	<b>All</b>	71.3	78.0	80.6	81.9	89.6	18.2
<b>20-24 years</b>	<b>Men</b>	15.5	20.7	31.5	34.4	43.6	28.1
	<b>Women</b>	13.7	21.9	36.0	39.9	46.9	33.2
	<b>All</b>	14.6	21.3	33.7	37.1	45.3	30.7
<b>25-29 years</b>	<b>Men</b>	1.6	2.9	9.5	13.8	17.9	16.4
	<b>Women</b>	1.1	2.3	10.2	14.7	17.5	16.5
	<b>All</b>	1.3	2.6	9.8	14.3	17.7	16.4
<b>20-29 years</b>	<b>Men</b>	9.0	12.4	20.8	23.6	29.7	20.7
	<b>Women</b>	7.5	12.6	23.4	26.8	30.6	23.1
	<b>All</b>	8.2	12.5	22.1	25.2	30.2	22.0

Source: Central Statistics Office (1991, 1996, 2002, 2006 and 2011 Censuses).

As discussed earlier, labour market conditions may affect youth labour supply in various ways. On the one hand, high youth unemployment should discourage young people from leaving the educational system and looking for a job as employment prospects are low. On the other hand, by reducing future

employment prospects, high adult unemployment may reduce the perceived returns to education, which could lead to a fall in full-time education participation. Likewise, the unemployment rates of skilled and unskilled labour are also likely to have contrasting effects on the labour supply of young people who must decide whether or not to invest in human capital. These factors are particularly relevant in the Irish context as the massive fall in employment in the construction sector from 2008 may have contributed to the large rise in the proportion of boys aged 15 to 19 staying in full-time education (from 78 per cent in 2006 to 88 per cent in 2011), leading to a rise in human capital in the long run (Table 3).

As a result, labour supply of those aged under 30 is an important segment of the labour force which needs to be examined separately. For virtually all young people, the decision whether or not to work implies a trade-off between remaining in full-time education and working. They may face this decision several times as they move through different stages in the educational system before entering the labour force. These decisions will be determined by factors such as the cost of education, labour market prospects for skilled and unskilled workers (employment and earnings) and the socio-economic background of the individual.

In 2011, Census data show that 90 per cent of those aged 15 to 19 were still in full-time education (Table 3), suggesting that most youths chose to complete secondary school. However, this has not always been the case: only 71 per cent were in full-time education in 1991. Likewise, while 45 per cent and 18 per cent of those aged 20 to 24 and 25 to 29, respectively, participated in full-time education in 2011, only 15 per cent and 1 per cent of them did in 1991.

As shown in Table 3 above, 9 per cent of men and 8 per cent of women in their 20s were in education in 1991. When combined with the employment rate, this meant that there were very few men in that age group who were not in the labour force or education, while about 20 per cent of women in that age group were neither in labour force nor in education.

However, since the early 1990s there has been a dramatic increase in the proportion of that age cohort who are in the educational system. By 2006 around 27 per cent of women in their 20s were in the educational system. When this is combined with a labour force participation rate of over 75 per cent it suggests that very few women in that age cohort were neither the labour force nor pursuing further education.

**TABLE 4** Female Participation Rates, as % of Population

	2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>Aged: 15-19</b>									
In Education	86.8	86.3	88.0	89.3	88.7	90.7	90.6	91.4	91.8
Labour Force	27.3	25.4	19.8	16.9	16.5	16.8	16.3	15.0	14.2
Sub-Total	114.1	111.7	107.8	106.2	105.2	107.5	107.0	106.4	105.9
<b>Aged: 20-24</b>									
In Education	26.5	27.2	27.6	31.1	33.9	38.1	40.1	39.7	41.0
Labour Force	72.2	70.5	69.2	64.7	62.4	62.0	62.2	59.6	58.5
Sub-Total	98.8	97.7	96.9	95.7	96.3	100.1	102.3	99.3	99.5
<b>Aged: 25-29</b>									
In Education	5.3	5.8	4.5	4.7	5.3	6.9	8.3	8.1	7.2
Labour Force	81.4	80.3	79.4	78.2	78.1	77.1	77.2	76.4	76.7
Sub-Total	86.7	86.2	83.9	82.9	83.3	84.0	85.4	84.5	83.9

Source: Eurostat for Labour Force and CSO special tabulation for data on Students.

Under normal labour market conditions there is a significant opportunity cost, in terms of foregone earnings, to continuing in education (over and above the direct cost of third-level education). However, the higher levels of unemployment and lower after-tax earnings since 2007 reduced this opportunity cost. It is, as yet, unclear whether the rise in participation in education by those aged 20 to 29 is due to this factor<sup>9</sup> and hence whether it may be reversed with a recovery in the labour market, or whether it is a permanent change in behaviour.

In considering the impact of the Great Recession on the labour force participation of those under 30, especially on women aged under 30, it is useful to use the CSO QNHS Principal Economic Status (PES) data on student numbers. These data are not fully consistent with the International Labour Organization (ILO) data used elsewhere in this article and with the Census data shown in Table 3. In particular, as will be seen below, students may work part-time so that they appear as both students on a PES basis as well as being in the labour force on an ILO basis. However, these data are available on an annual basis since 2007 up to the present allowing us to analyse recent developments.

Using the CSO QNHS data, Table 4 shows that in 2007 the combined total of female students and females in the labour force aged 15-19 amounted to 114 per cent of the population of that age. This indicated that many students were also working part-time. However, in the early years of the crisis the total fell to 106 per cent of the population indicating a major fall in part-time working among this

<sup>9</sup> As Tumino and Taylor (2015) suggest for the UK.

cohort of women. At the same time there was a further significant increase in the proportion of this cohort of young women in education.

As shown in Appendix 2, the pattern was rather different for young men. Having had a significantly lower participation rate in education before the crisis, today the participation rate for men is closer to that for young women of the same age. However, the rise in educational participation by males was largely counterbalanced by a fall in labour force participation by young men as jobs in the construction sector dried up.

For those women aged 20 to 24 the total of those who were students and those who were in the labour force amounted to just under the total population in that age cohort. This suggested both a very low level of non-participation in either the labour force or education and also a much lower level of part-time working than for the younger cohort of women. It is clear that as the crisis developed there was a major increase in the proportion of this cohort remaining on in education. This rise in participation in education explains all of the fall in the labour force for this cohort.

For the 25-29 cohort of women the crisis years saw a small increase in educational participation. This did not fully compensate for the fall in labour force participation. This reflects lower labour force participation rates for women with more limited education as a result of the crisis.

These data show that for those aged 20 to 29 the decline in female (and male) participation in the labour force was largely offset by a rise in participation in education. However, it is unlikely that this delay in entering the labour market because of participation in full-time education will expand further. Certainly the data for the most recent years suggest a plateauing of participation rates in education among this age group. The behaviour over the crisis years is consistent with findings for the UK (Tumino and Taylor, 2015).

It is unclear what the long-term impact of this investment is on the human capital of the population; most likely the lifetime productivity and earnings of those who improved their education will be enhanced. In any event, over the 2008-2015 period, increased participation in education served to reduce the unemployment rate and also reduce (or at least delay) emigration.

Table 5 shows a decomposition of the factors affecting female participation rates for those aged 20 to 29 over the period 1992-2015. The decomposition shows the contribution of the rising educational attainment of the cohort to the rise in participation rates, assuming unchanging education and age-specific participation rates. The residual change in behaviour also includes the effect of rising participation in full-time education.<sup>10</sup> This shows that 3 percentage points of the 5-percentage point rise in the participation rate between 1992 and 2000 for women aged 20 to 29 was due to the rising average educational attainment of the cohort. The rest was due to a general trend for more women to participate in the labour market, partly driven by the declining number of women in the cohort with children.

**TABLE 5** Decomposition of the Change in Female Participation Rates, 20-29 (Percentage Points)

	Actual	Due to Higher Educational Attainment	Due to Behaviour, Including Participation in Education
<b>1992 to 2000</b>	5.0	3.0	2.1
<b>2000 to 2007</b>	2.1	3.1	-1.1
<b>2007 to 2015</b>	-8.1	1.6	-9.8

Source: Authors' calculations based on Eurostat data.<sup>11</sup>

Between 2000 and 2007 the changing educational attainment had a similar effect to that in the 1990s. However, when that effect is excluded, there was a decline in participation rates due to changes in behaviour. This change in behaviour was primarily due to a rise in the number in the cohort who were still in education.

<sup>10</sup> The changing age composition within the cohort had no real impact on participation rates.

<sup>11</sup> The effect of higher educational attainment is calculated by applying the education specific participation rates to the data on population by level of education, where the proportion of the population with a given level of education in each year is held constant at the proportion in the base year. The third column is then derived as a residual.

**FIGURE 12** Labour Force Participation Rates by Sex, 30-64 (%)



Source: Eurostat.

For the 2007-2015 period the effect of rising educational attainment was smaller, reflecting the fact that a high proportion of the cohort in 2007 already had completed third-level education. However, the decline due to changing behaviour was very large at almost 10 per cent. As discussed above, all of this change was due to an increase in numbers remaining in the educational system to a later age.

Figure 12 shows male and female participation rates for those aged 30 to 64. In the case of male participation rates there was relatively little change over time, moving from 85 per cent in 1992 to 87 per cent in 2007 and back down to 84 per cent in 2015. However, for women there was a rapid rise from 39 per cent in 1992 to 64 per cent in 2007. Even over the crisis years the participation rate continued to rise, albeit more slowly, reaching 67 per cent in 2015.

In Table 6 we again decompose the change in participation rates into a change due to the rising educational attainment of the population and a change due to other factors affecting education- and age-specific participation rates. As shown in Table 6, between 1992 and 2000 the bulk of the 15.5 per cent rise in participation rates was due to changes in behaviour. Women, who in a previous generation would have remained at home, instead chose to work. The effect of rising educational attainment was also important, resulting in a rise in participation rates of 3.4 percentage points. This pattern continued between 2000 and 2007 with a further substantial rise due to rising educational



attainment. There was a slower but nonetheless substantial increase due to changing behaviour.

**TABLE 6** Decomposition of the Change in Female Participation Rate, 30-64 (Percentage Points)

	Actual	Due to Higher Educational Attainment	Due to Behaviour
<b>1992 to 2000</b>	15.5	3.4	12.0
<b>2000 to 2007</b>	9.0	3.9	5.1
<b>2007 to 2015</b>	4.0	4.7	-0.7

Source: Authors' calculations based on Eurostat data.

This pattern changed during the crisis years. The education effect was even larger than in earlier periods but there was actually a small decline due to other factors. Looking at the age- and education-specific participation rates shown in the Appendix Tables A2.2 to A2.4, there was a decline in participation rates for women aged 30 to 39 with less than tertiary education. Most of them will have had young children and they will have been affected by a fall in real after-tax earnings, a fall that was not mirrored in a fall in childcare costs. This made participation in the labour market unattractive or even, in some cases, expensive.

**TABLE 7** Participation Rate for Cohorts of Women with Upper Secondary Education (%)

Age in 2015	1995	2000	2005	2010	2015
<b>30-34</b>			68.1	75.0	69.4
<b>35-39</b>		65.2	79.5	70.5	66.4
<b>40-44</b>	64.7	85.2	72.7	65.0	67.9
<b>45-49</b>	79.8	73.5	65.0	64.8	68.3
<b>50-54</b>	67.9	66.7	67.0	70.5	67.4
<b>55-59</b>	58.2	64.9	69.5	67.2	61.8
<b>60-64</b>	50.7	64.1	64.5	60.3	47.3

Source: Eurostat.

In the last column of Table 7 the actual participation rates observed for women with an upper secondary education in 2015 are shown. Along the rows the Table shows the participation rate for the same cohort of women 5, 10, 15 and 20 years earlier. Thus, while the participation rate for women aged 40-44 in 2015 was 67.9 per cent, the same cohort of women, when they were ten years younger in 2005, had a participation rate of 72.7 per cent.

This table shows that for women aged 35 to 39 in 2015; their participation rate (66.4 per cent) was substantially lower than when they were 25-29 in 2005. This

fall reflects the fact that over the ten years many of them had children. However, those in their 40s in 2015 had a higher participation rate than in 2010 when their children were younger. This reflects a pattern of returning to work by some of the women who had dropped out to mind young children. For those women who were aged between 50 and 64 in 2015, their participation rate was lower than it had been in 2010. This reflects the fact that from 50 onwards some women begin to retire. This is particularly noticeable for the cohort who were 60-64 in 2015; their participation rate was 47 per cent, down from 60 per cent five years earlier when they were aged 55 to 59.

Table 8 shows similar data for women with a third-level education. For those aged 50 to 54 their participation rate in 2015 was 84 per cent; the same as it had been 20 years earlier when they were 30 to 34. A rather similar pattern is shown for younger women with a third-level education: their participation rate was 80 per cent or more throughout their working lives. It is only among the oldest cohort, aged 60 to 64 in 2015, that there is a substantial drop-off in participation as they begin to retire. Even for that cohort their participation rate had been close to 80 per cent 20 years earlier (when they were 40 to 44).

**TABLE 8** Participation Rate for Cohorts of Women with Third-Level Education (%)

Age in 2015	1995	2000	2005	2010	2015
30-34			83.0	89.4	87.0
35-39		81.8	89.6	87.6	83.5
40-44	80.5	92.7	86.2	80.5	81.4
45-49	89.4	87.0	81.1	79.5	83.6
50-54	84.2	82.9	83.7	84.8	84.2
55-59	79.0	83.5	86.1	85.9	74.6
60-64	78.0	81.4	83.3	78.1	49.6

Source: Authors' calculations based on Eurostat.

To sum up, for women who were under 30 the major impact of the crisis appears to have been that many more of them continued in the educational system than would have been the case before the crisis, possibly because the opportunity cost was lower in an adverse labour market. For women aged 30 and over, the rising average educational attainment caused labour force participation to increase. However, controlling for education there was some fall in participation rates, especially for women with more limited education in the age groups where they have young children.

## 7. Implications for Future Labour Supply

As discussed in the previous section there have been major changes in female labour force participation rates as a result of rising educational attainment, because of cultural changes and, finally, because of the effects of the financial crisis on the labour market. In this section we consider the implications of these results for female labour supply over the next five years.

Already the highest level of completed education for those aged 25 is largely determined. Assuming no net migration and no deaths, this allows us to estimate the population by level of education and by age in 2020.

For those aged 30 to 54 we assume that by 2020 education and age-specific labour force participation rates will have reverted to what they were in 2007. This assumes that there is some combination of an upward trend in real after-tax earnings, to offset the cost of childcare for those with more limited education, and also a continuing change in behaviour along the lines of that seen in the 2000s. For those aged 55 and over, participation rates rose through the crisis years so we make the conservative assumption that these rates remain unchanged at their 2015 level.<sup>12</sup>

For the 20-29 age group there was a major increase in numbers remaining in the educational system, though there does not appear to have been a significant increase in numbers completing tertiary education.<sup>13</sup> In the base case we assume that this change in behaviour is permanent. However, if rising opportunities in the labour market saw those aged 20 to 29 leave the educational system at the same age that they did before the financial crisis, this would add to labour supply. In a second scenario we look at the effect of assuming a return to the education-specific participation rates of 2007 for this cohort.<sup>14</sup> For this second scenario we also assume that the composition of this cohort in terms of educational attainment is the same as in 2007.

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<sup>12</sup> As shown in the tables in the Appendix, the rise was particularly marked for those women with an upper secondary education.

<sup>13</sup> This implies a longer stay in third-level education, possibly because they acquire additional qualifications.

<sup>14</sup> To date there is little sign of such a reversion to the 2007 educational participation rates.

**TABLE 9** Female Labour Supply Scenarios for 2020

	2015	2020 (1)		2020 (2)	
	Thousands	Thousands	% change	Thousands	% change
		Base Case		2007 educational part. rates	
<b>Lower Secondary and below</b>	96.9	91.4	-5.6	99.9	3.1
<b>Upper Secondary</b>	339.1	360.3	6.3	372.5	9.8
<b>Tertiary</b>	499.3	553.2	10.8	556.3	11.4
<b>Total</b>	935.3	1005.0	7.5	1028.7	10.0

Source: Authors' calculations<sup>15</sup> based on Eurostat.

In the base case, with no net migration, the female population aged 20 to 64 is likely to be around 1.5 per cent higher in 2020 than it is today. However, the combination of rising educational attainment, especially in the older age groups, and some recovery from the effects of the economic crisis, could see total female labour supply rise by 7.5 per cent between 2015 and 2020 or 1.5 per cent a year. The increase in supply would be particularly marked for women who have completed tertiary education, rising by 10.8 per cent. However, the labour supply of women with only lower secondary education is likely to fall over the same period. This rise in the labour force by 2020 would reflect an increase in the female participation rate for those aged 20-64 from the 68 per cent observed in 2015 to 69 per cent in 2020.

In Scenario 2, if those in their twenties left the educational system at the same age as they did in 2007 (at the peak of the boom) and if they experienced the same labour force participation rates as in 2007, female labour supply would rise by 10 per cent by 2020 (2 per cent a year). The impact would be especially significant for those with upper secondary education. This reflects the fact that labour force participation rates fell more for them during the crisis years than for those with tertiary education. Under this second scenario, the rise in the labour force by 2020 would reflect an increase in the female participation rate for those aged 20-64 from the 68 per cent observed in 2015 to 71 per cent in 2020.

Given the demographic profile of the population, under the base case, if participation rates in education remained unchanged at the 2015 level, the number of female students in their 20s would rise by around one-eighth by 2020. However, if educational participation rates for women in their 20s were to fall

<sup>15</sup> Scenario 1 refers to the base case, which assumes no migration and no deaths, no change in educational attainment for cohorts aged 30 and over (but they are five years older in 2020) and the same education-specific participation rates as in 2007 for those aged under 55. For those aged 20-29 and 55-64, education-specific participation rates are assumed to be the same as in 2015. Scenario 2 assumes the same education-specific participation rates and rates of educational attainment for the 20-29-year-olds as in 2007.

back to their 2007 level, the number of female students in their 20s could fall by a quarter by 2020.

In this article we analyse the factors driving changes in the participation rate for women aged 20 to 64 whereas Byrne and O'Brien (2016) look at participation rates for both men and women aged 15 and over, including those aged 65 and over. Byrne and O'Brien (2016) suggest that the decline in female participation rates since 2007 has been entirely due to cyclical factors. Our research shows that a major factor in the decline was the rise in participation in education by women aged under 30. The economic crisis was clearly very important in driving this rise in educational participation; as such it could be considered to be a cyclical change, as suggested by Byrne and O'Brien. However, to date, there is no sign of educational participation rates for those aged under 30 reverting to the pre-crisis level. Thus it may prove to be a structural change.

In this article we take account of the fact that the average educational attainment of the population will continue to rise for some time to come and we conclude that a further limited rise in the female participation rate is likely over the next five years. In addition, the rise in participation in education during the crisis years, if permanent, will continue to affect labour force participation rates for many years to come as the better educated cohort of women (and men) who graduated since the crisis replace less well-educated earlier cohorts.

## **8. Conclusions**

The economic crisis had a significant effect on female labour force participation rates, especially for those women under 30 and for those older women with more limited education.

For women under 30 the major change was that they remained in the educational system in their 20s for a longer period than before the crisis. To the extent that the higher rates of participation in the educational system among those in their 20s in the 2008-2015 period was due to the crisis, this might be reversed in the next five years if the economy continues to grow rapidly. However, up to the first half of 2016, there is no evidence of such a reversal. The impact of such a change would be to cut student numbers.

There is, as yet, no evidence on the longer-term human capital impact of the increased educational participation of those in their 20s during the crisis years. If the increased time spent in the educational system raises the lifetime earnings of

the individuals then it will have been a very valuable investment. However, if the increased educational participation arose merely because of the reduced opportunity cost, without a commensurate rise in expected lifetime earnings, then a reversion to the lower education participation rates of the pre-crisis years may be a sensible outcome.

Because of the uncertainty about this issue, planning for the number of third-level education places over the next decade must be especially difficult. If the additional investment in human capital over and above getting a basic third-level qualification turned out to be relatively low then it might be sensible to limit the expansion in the number of third-level places, or even cut them. On the other hand, if it turns out that there is a significant return on the additional crisis-years' investment in human capital, then the long-term benefits for the economy could offset some of the permanent damage from the crisis. It would also justify the provision of some additional third-level places to cater for a continuing high participation rate of those in their twenties. Further research is needed to reach a conclusion on this issue.

The average educational attainment of the female population aged 30 and over will continue to rise for at least the next decade. This will result in rising female participation rates, especially among women aged 40 and over. When combined with the rising adult population, this will see quite a rapid expansion in female labour supply over the next five years, ranging between 1.5 per cent and 2 per cent a year. Obviously, a return to net immigration could add to this growth.

In addition, as older women with more limited education retire and are replaced by women who had the benefit of greater educational opportunities, there is likely to be a positive productivity effect on the economy. This effect will continue for some time to come, reflecting the pattern of investment in education in Ireland since the 1980s.

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## Appendix 1 Returns to Education and Educational Attainment of the Population

A crude measure of the returns to tertiary education, which does not take into account years of experience, the sector of employment, personal characteristics and other relevant factors, is the average earnings of people with a third-level qualification relative to those with upper secondary level. In the same way we can examine the negative premium for lower secondary education relative to upper secondary level. As shown in Tables A.1 and A.2, OECD has published comparative data on this basis for a number of EU countries since the 1990s.

Over the last fifteen years, the returns to tertiary education have increased for women in Ireland (Table A.1). For men, the returns to tertiary education have increased even more rapidly.

For women, a similar pattern is observed in Germany. In Portugal, the returns to third-level education were higher in the 1990s than in many other EU countries, probably reflecting a shortage of supply: Portugal has a much smaller proportion of the population with third-level education than is the case for other EU countries (Figure 3).

**TABLE A1.1** Women's Third-Level Education Premium Relative to Upper Secondary (%)

	1998	2000	2002	2004	2005	2007	2009	2010	2011	2012	2013
<b>Finland</b>	143	146	146	146	145	146	146		147	148	
<b>France</b>	145		146	145	142	147	144	155	150		
<b>Germany</b>	128	137	137	148	151	159	154	153	155	172	
<b>Ireland</b>	145	163	153	168	178		171	178	190		184
<b>Poland</b>	145		159	166				168		174	
<b>Portugal</b>	171			173	173		171	171	172		171
<b>Spain</b>	137			141		149	159	157	155	165	
<b>Sweden</b>	125		129	127	126	127	127	127		129	126
<b>UK</b>	176	176	177	180	181	181	176	177	182	178	169

Source: OECD (Education at a Glance, 2010-2015).

Note: The OECD's Education at a Glance reports do not have data for every country and every year, hence the missing data here.



**TABLE A1.2** Men's Third-Level Education Premium Relative to Upper Secondary (%)

	1998	2000	2002	2004	2005	2007	2009	2010	2011	2012	2013
<b>Finland</b>	159	169	163	161	162	161	162		159	159	
<b>France</b>	159		159	154	152	158	154	162	165		
<b>Germany</b>	126	141	140	149	151	158	154	171	161	171	
<b>Ireland</b>	131	138	141	171	147		162	180	169		191
<b>Poland</b>	175		194	204				186		188	
<b>Portugal</b>	178			183	183		172	173	173		172
<b>Spain</b>	152			132		133	133	133	136	149	
<b>Sweden</b>	136		139	135	135	135	134	133		136	133
<b>UK</b>	149	152	147	146	146	145	151	162	151	147	146

Source: OECD (Education at a Glance, 2010-2015).

Note: The OECD's Education at a Glance reports do not have data for every country and every year, hence the missing data here.

**TABLE A1.3** Educational Attainment of Female Population aged 20-29, % of Total

	1992	2000	2007	2015
Lower Secondary	31.5	17.5	11.2	6.5
Upper Secondary	47.4	53.7	45.9	48.0
Third Level	21.1	28.8	42.8	45.5

Source: Eurostat.

**TABLE A1.4** Educational Attainment of Male Population aged 20-29, % of Total

	1992	2000	2007	2015
Lower Secondary	42.1	23.5	16.9	9.6
Upper Secondary	38.8	52.4	53.4	54.9
Third Level	19.1	24.1	29.7	35.5

Source: Eurostat.

## Appendix 2 Detailed Data on Participation Rates

**TABLE A2.1** Male Participation Rates as % of Population

	2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>Aged: 15-19</b>									
In Education	77.1	80.5	83.7	86.2	87.1	87.6	88.9	89.4	88.5
Labour Force	31.4	26.8	21.9	17.9	16.4	17.2	15.8	14.9	15.9
Sub-Total	108.5	107.3	105.6	104.1	103.5	104.8	104.7	104.3	104.5
<b>Aged: 20-24</b>									
In Education	20.9	22.9	26.2	32.3	33.0	37.2	38.4	40.4	37.9
Labour Force	81.9	79.8	74.5	69.3	68.3	66.0	67.3	66.2	65.6
Sub-Total	102.8	102.6	100.7	101.6	101.3	103.2	105.7	106.6	103.5
<b>Aged: 25-29</b>									
In Education	4.8	5.4	5.7	6.9	6.6	7.1	10.4	10.4	11.1
Labour Force	92.2	91.3	89.8	88.4	87.3	86.9	84.8	85.0	84.7
Sub-Total	97.0	96.7	95.6	95.3	93.9	94.0	95.2	95.3	95.8

Source: Eurostat.

**TABLE A2.2** Female Labour Force Participation by Age Cohort, Lower Secondary Education

	1992	2000	2007	2015
<b>20-24</b>	64.2	58.4	46.5	36.7
<b>25-29</b>	49.1	62.1	53.8	34.0
<b>30-34</b>	40.2	49.9	47.6	42.8
<b>35-39</b>	35.1	46.5	50.8	38.2
<b>40-44</b>	30.9	46.2	51.6	42.3
<b>45-49</b>	26.7	41.7	53.0	45.7
<b>50-54</b>	24.4	34.7	47.8	46.3
<b>55-59</b>	18.5	26.7	35.6	35.2
<b>60-64</b>	11.2	14.3	24.1	26.5

Source: Eurostat.

**TABLE A2.3** Female Labour Force Participation by Age Cohort, Upper Secondary Education

	1992	2000	2007	2015
20-24	68.4	65.2	69.3	52.2
25-29	79.4	85.2	77.7	68.2
30-34	65.0	73.5	71.9	69.4
35-39	50.2	66.7	68.2	66.4
40-44	44.2	64.9	66.8	67.9
45-49	41.9	64.1	72.2	68.3
50-54	37.1	54.1	67.9	67.4
55-59	28.6	38.0	56.0	61.8
60-64	0.0	22.9	37.5	47.3

Source: Eurostat.

**TABLE A2.4** Female Labour Force Participation by Age Cohort, Third-Level Education

	1992	2000	2007	2015
20-24	78.7	81.8	85.4	75.7
25-29	89.0	92.7	90.8	88.5
30-34	80.6	87.0	87.0	87.0
35-39	71.6	82.9	81.7	83.5
40-44	72.6	83.5	81.7	81.4
45-49	69.2	81.4	85.9	83.6
50-54	64.8	80.9	85.8	84.2
55-59	54.5	64.0	73.0	74.6
60-64	0.0	41.8	49.6	49.6

Source: Eurostat.