

PwC Women in Work Index Closing the gender pay gap

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PwC Women in Work Index

Closing the gender pay gap

Foreword



The headline message of the 2017 OECD report on the Implementation of Gender recommendations reads ‘Some Progress on Gender Equality but Much Left to Do.’ This resonates with this year’s update of the Women in Work Index, which shows that OECD countries have made progress towards greater female economic empowerment but this pace of change has been gradual.

The Nordic countries, particularly **Iceland, Sweden and Norway, continue to occupy the top three positions on the Index.** Of the total 33 OECD countries, all have charted improvements in absolute terms from last year, with the exception of Finland, Switzerland, Chile and Australia.

The UK has fallen back from 14th to 15th position. Although it has made strides in female employment prospects, its gains have been outpaced by improvements in female job market conditions and gender pay gap elsewhere.

The gender pay gap continues to be a policy focus in the UK, starting with **increased transparency.** From 5 April 2017, British employers with more than 250 staff must publish data on their gender pay gaps. Early disclosures reveal just how far we have to go to close the gap, **but greater transparency will help shine a light on the factors contributing to the gap and hold businesses to account to take action.**

This year, we take a closer look at the drivers of the pay gap across the OECD, by exploiting cross-time and cross-country differences in the data. We find that besides structural factors, government spending on family benefits, the share of female entrepreneurs, maternity leave and occupational segregation help explain the gender pay gap.

These findings suggest that governments should focus on policy levers that provide **enhanced social support to women and families** to encourage participation in work. **Encouraging more female entrepreneurship** as well as **improving opportunities for working women in higher-paying, higher-skilled roles through flexibility** can also contribute to greater gender pay equality.

The prize is clear: closing the pay gap across the OECD could increase total female earnings by US\$2 trillion.

Please do get in touch to discuss how we can help your organisation address these issues.



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Closing the pay gap could increase OECD female earnings by as much as \$2 trillion in the long-run

The Nordic countries occupy the top 3 positions on the Women in Work Index



\$6 trillion

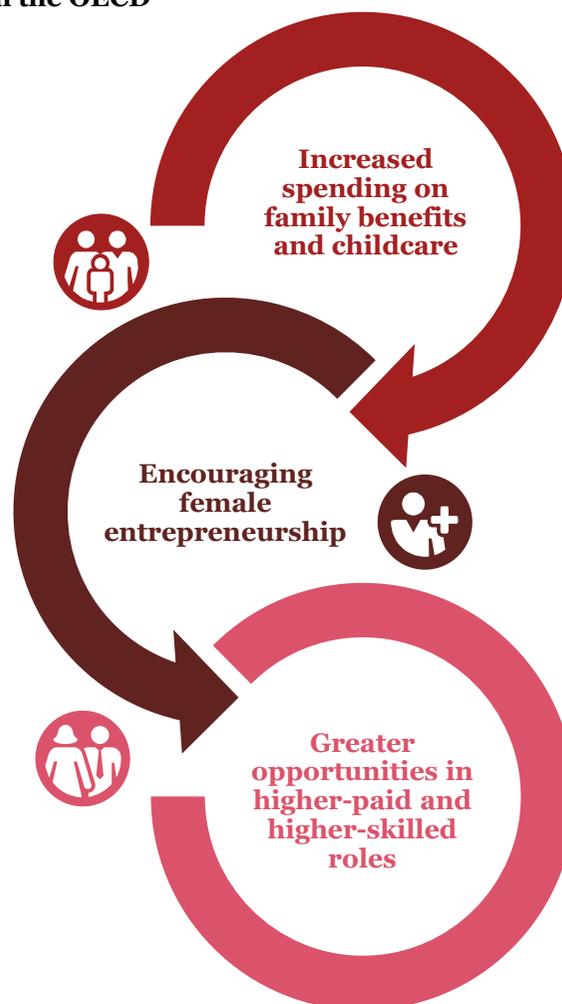
Boost to OECD GDP from increasing female employment rates to match Sweden's



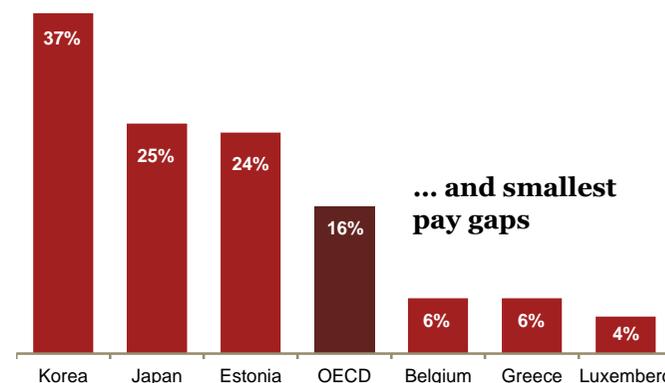
\$2 trillion

Boost to OECD female earnings from closing the gender pay gap

Policies to close the gender pay gap in the OECD

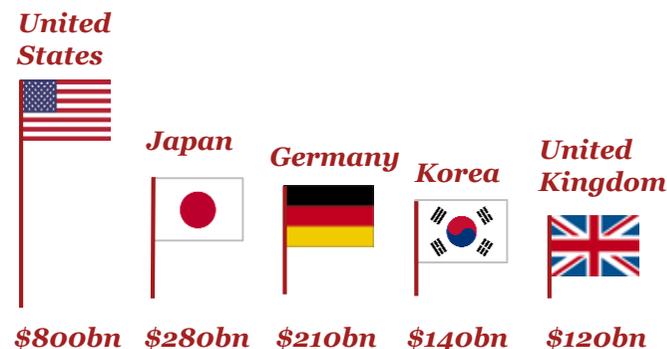


Countries with the largest ...



... and smallest pay gaps

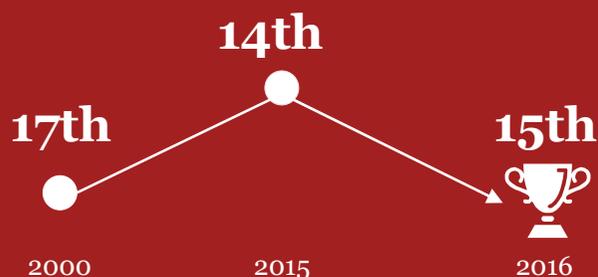
Potential increase in total female earnings from closing the gender pay gap, US\$ billions



Source: PwC analysis, OECD, Eurostat.

Closing the pay gap in the UK could boost female earnings by £90 billion a year, or £6,300 per woman

UK performance on the Women in Work Index



£180 billion

Boost to UK GDP from increasing female employment rates to match Sweden's

UK gender pay gap



Source: PwC analysis, OECD, Eurostat.

Closing the pay gap could increase female earnings by £90bn



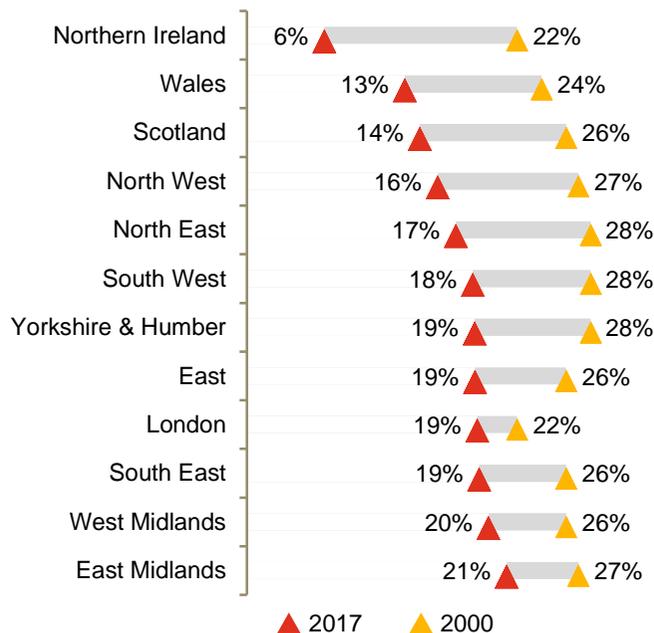
£90 billion

Boost to UK female earnings

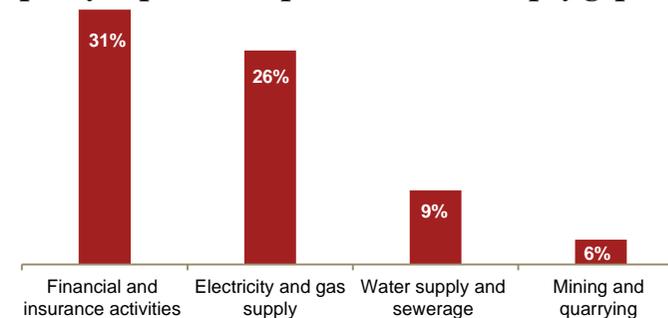
£6,300 per woman

from closing the gender pay gap

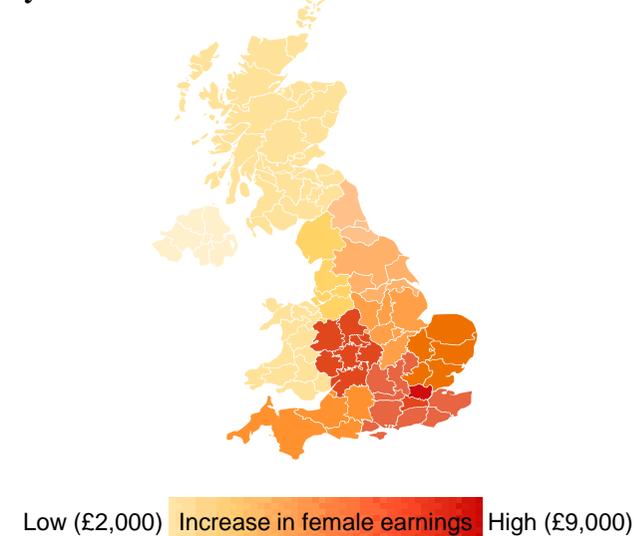
London has made the slowest progress in closing the gap since 2000



The concentration of sectors with higher pay gaps, such as financial services, in London partly explains the persistence of the pay gap



Women in London could see the biggest gains in their pay from closing the pay gap, followed by the South East and East Midlands





Executive summary – Key results

1

PwC Women in Work Index

Key findings from our analysis

The sixth update of the Women in Work Index provides our assessment of female economic empowerment across 33 OECD countries. The index is a weighted average of five indicators that reflect female participation in the labour market and equality in the workplace (see technical appendix for more details).

Country rankings and trends

- Iceland, Sweden and Norway remain the top 3 performing OECD countries.
- Poland and Hungary have made significant gains in their rankings since last year.
- Spain, the Slovak Republic and Slovenia have all made significant improvements in absolute terms, while Finland and Switzerland's performance has declined.
- Over the longer term there have been more significant movements in country rankings. Since 2000, Luxembourg and Israel have made substantial improvements on the index, as a result of substantial reductions in their gender pay gaps.
- On the other hand, Portugal and United States have fallen significantly on the country rankings since 2000, driven largely by sluggish growth in job prospects for females.

Potential long-term economic gains

- Our analysis shows significant economic benefits in the long-term from increasing the female employment rate to match that of Sweden. The GDP gains across the OECD could be over US\$6 trillion.
- Across the OECD, fully closing the gender pay gap could increase total female earnings by US\$2 trillion.

UK performance

- The UK fell from 14th to 15th position in this latest update. Although UK labour market conditions have improved, other OECD countries have seen greater improvements.
- Over the longer-term, the UK's position has improved from 17th to 15th place. It also performs well compared to other G7 economies, being second only to Canada.
- At the regional level, our analysis shows that the biggest pay gap is observed in the East Midlands, where the gap is 21%, while the lowest gap continues to be in Northern Ireland, at 6%. This is due to differences in male and female employment patterns across industries and occupations.
- The top three improving regions in closing the pay gap since 2016 have been Wales, South West and West Midlands, as the growth in female median pay has outstripped those of males in these regions. In contrast, London, East Midlands and Northern Ireland saw a widening in the pay gap since 2016. This is largely driven by growth in male employment exceeding growth of their female counterparts, coupled with sluggish growth in median female pay relative to median male pay in these regions.
- Women working in London could see the biggest gains in their average pay from closing the pay gap, followed by the West Midlands and the South East. On average, women working in the UK could see their incomes increase by £6,300 per annum.

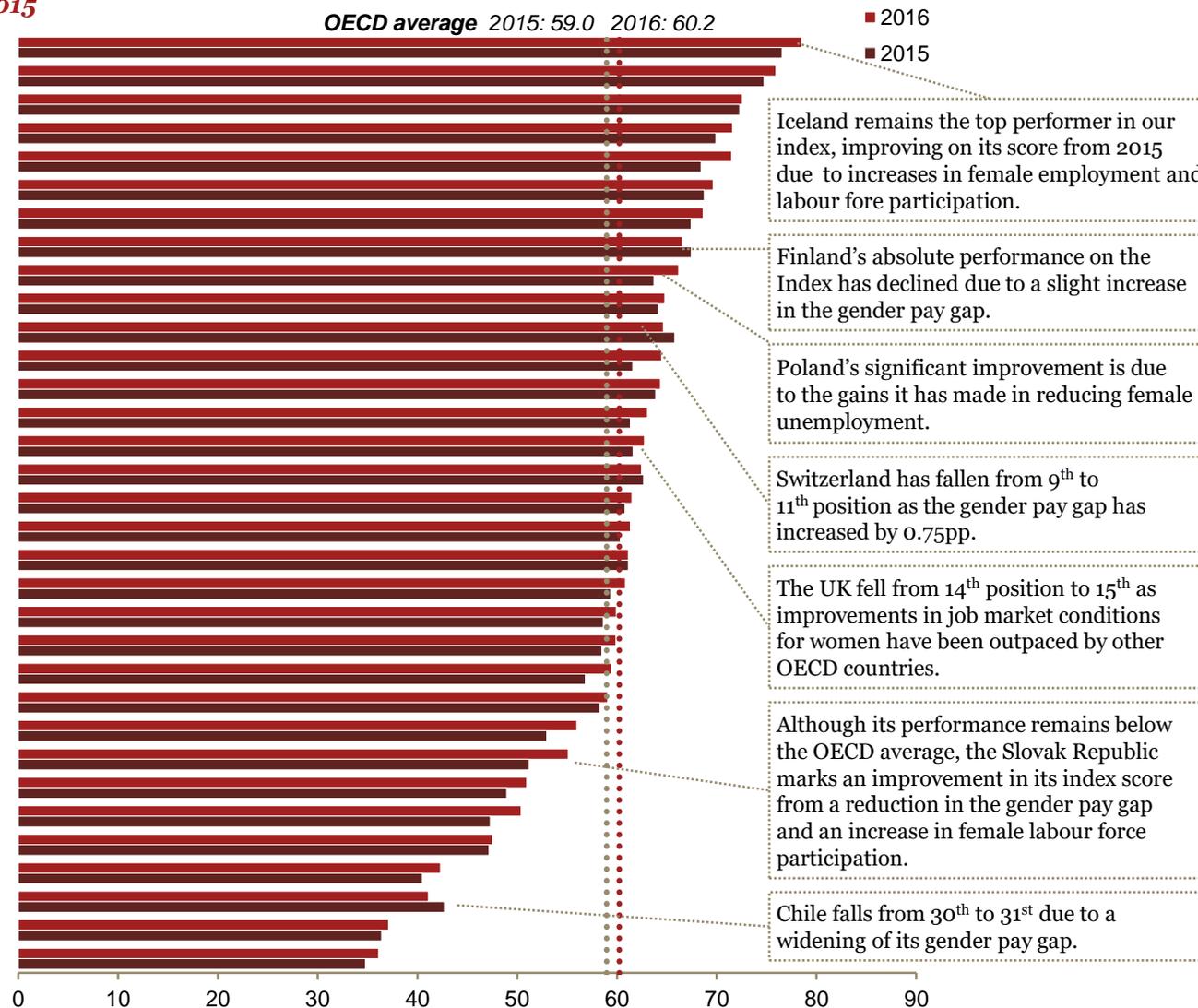
Policy implications to address the gender pay gap

- Our econometrics analysis of drivers of the gender pay gap show that larger government spending on family benefits significantly reduces the gender pay gap. For example, the greater availability of affordable childcare could improve female participation in the workforce by helping parents, especially mothers, return to work.
- Longer paid maternity leave appears associated with a bigger pay gap as women spend more time out of work. The recent introduction of shared parental leave can help address this by levelling the playing field, so that it's not always women who are out of the workplace for an extended period of time.
- Countries with a larger share of female employers (self-employed with employees) tend to have smaller pay gaps, which suggests that promoting female entrepreneurship and women in decision-making positions can help promote gender equality.
- The occupational segregation of women, particularly in low-paid services sectors, is associated with higher pay gaps. Many women often have to combine work with ongoing caring commitments, which necessitates part-time or flexible working. However, their opportunities are constrained by the lack of flexible or part-time roles available for senior and higher-skilled jobs.
- Businesses can play a role in improving female representation at senior levels by making flexible work opportunities more widely available and taking active steps to build a pipeline of female leaders.

The OECD has seen a small improvement overall in its performance on female economic empowerment

Figure 1.1: PwC Women in Work Index, 2016 vs. 2015

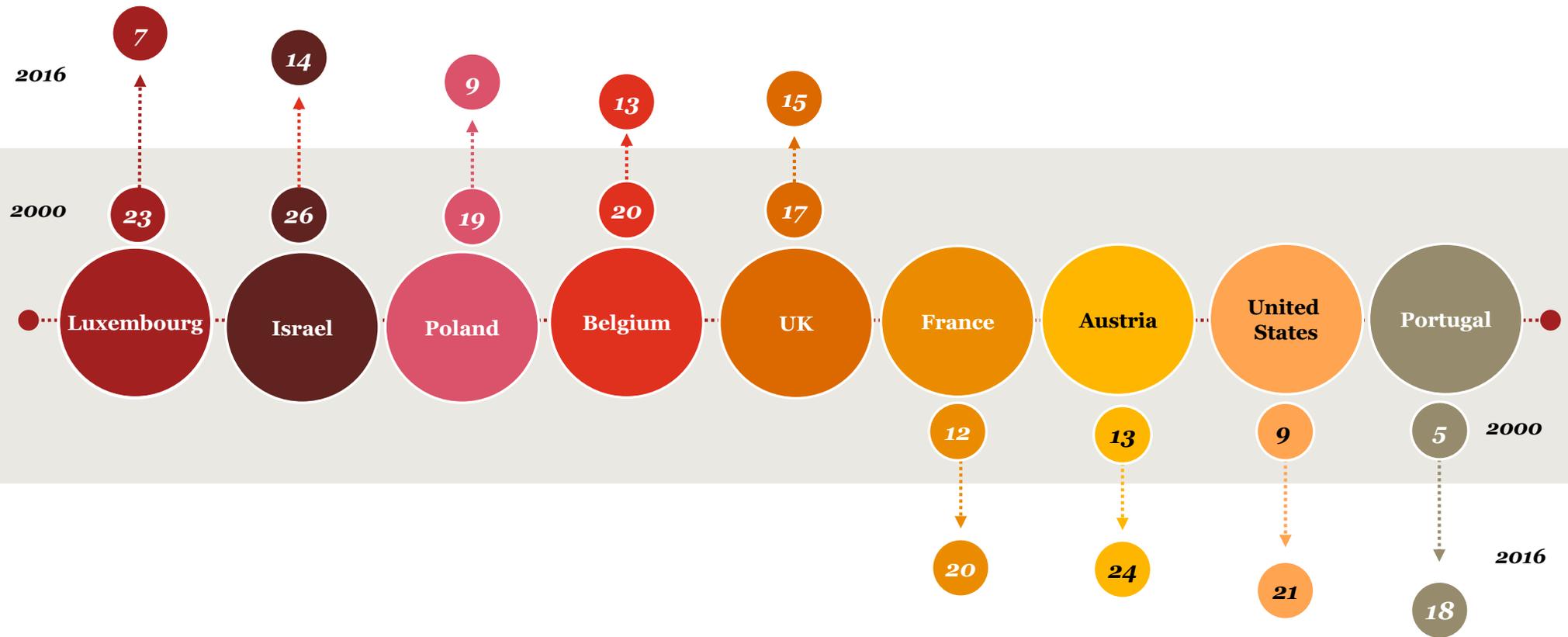
Rank (2015)		Rank (2016)	
1	=	1	Iceland
2	=	2	Sweden
3	=	3	Norway
4	=	4	New Zealand
6	↑	5	Slovenia
5	↓	6	Denmark
8	↑	7	Luxembourg
7	↓	8	Finland
12	↑	9	Poland
10	=	10	Canada
9	↓	11	Switzerland
15	↑	12	Hungary
11	↓	13	Belgium
16	↑	14	Israel
14	↓	15	United Kingdom
13	↓	16	Australia
18	↑	17	Germany
19	↑	18	Portugal
17	↓	19	Estonia
20	=	20	France
21	=	21	United States
22	=	22	Netherlands
24	↑	23	Czech Republic
23	↓	24	Austria
25	=	25	Ireland
26	=	26	Slovak Republic
27	=	27	Japan
28	=	28	Spain
29	=	29	Italy
31	↑	30	Greece
30	↓	31	Chile
32	=	32	Korea
33	=	33	Mexico



Source: PwC analysis using data from OECD and Eurostat.

United States, the largest OECD economy, has fallen from 9th to 21st position since 2000 as a result of falling female labour force participation and rising female unemployment

Figure 1.2: Biggest movers in the PwC Women in Work Index ranking between 2000 and 2016





2

Potential economic gains from getting more women into work and closing the pay gap

Closing the gender pay gap and increasing female employment may generate significant economic benefit for OECD countries

How much are the gains from improving female employment?



- Our analysis provides estimates of the broad order of magnitude of potential gains for each country from increasing employment rates to match those of Sweden – a consistently top performer in our Index.
- The potential long-term economic gains across the OECD from an increase in women in work boosts GDP by over US\$6 trillion.
- Countries with relatively low female employment such as Greece, Mexico and Italy are likely to accrue the largest potential gains. Increasing the rate of female employment to those in Sweden could generate GDP increases of c.30% for these countries.
- The economic benefit to the UK from increasing the level of female employment from 70% to 75% could be in the order of 9% of GDP. Austria and Poland could see gains of a similar magnitude.
- Countries that exhibit are close to Sweden's female employment rates are likely to generate a smaller boost in GDP; this includes the other Nordic countries and Estonia.
- Iceland, whose performance is already above that of Sweden's, is excluded from Figure 4.

How much are the gains from closing the gender pay gap?

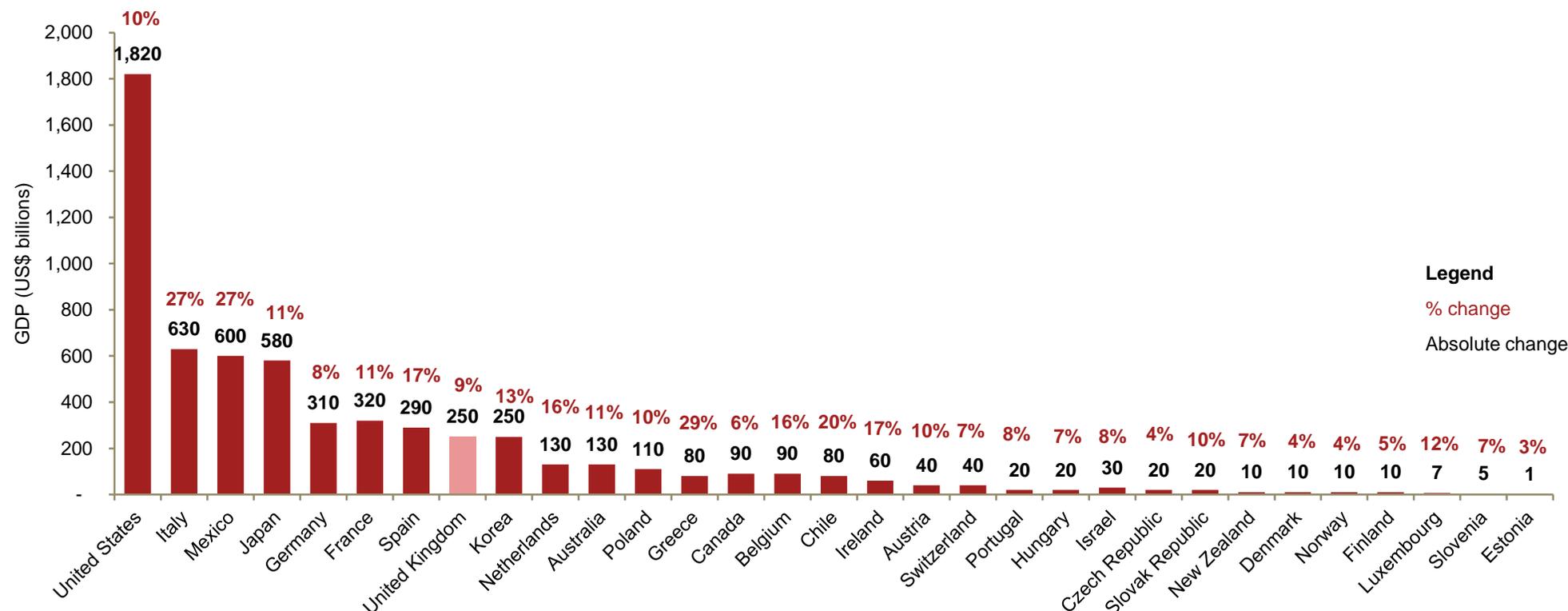


- The gains to female labour earnings from closing the gender pay gap could be over US\$2 trillion across the OECD.
- The gains to the UK from closing the gender pay gap – which currently stands at 17% – could amount to approximately £90 billion. This compares to estimated gains of £85 billion in last year's analysis, which is partly driven by the reduced speed with which the pay gap is narrowing, coupled with increased male wages.
- The largest gains in percentage terms could be found for countries with the largest gender pay gaps, notably Korea, Germany, Estonia and Japan. Closing the gap in these countries could increase female labour earnings by between one-third to one-half in these countries.
- In our analysis, we assume that the counteracting effects of the wage and employment effects broadly cancel out, meaning that an increase in wages does not lead to a net employment effect. This takes into account the counteracting effects of labour supply and demand elasticities: an increase in wages makes it more expensive for employers to hire more workers, however higher earnings also incentivise potential workers to seek employment.

Increasing the number of women in work could increase GDP across the OECD by over US\$6 trillion, an increase of 12%

We estimated the potential GDP gains from increasing female employment rates across OECD countries to match Sweden's – which has one of the highest female employment rates within the OECD. In absolute terms, the US is expected to gain the most, as much as \$1.8 trillion. Italy, Mexico and Japan have the most to gain in percentage terms. In the UK, 43% of women in work are in full-time employment. Increasing this to match Sweden's 61% would increase UK GDP by approximately £180 billion (c. \$250 billion at 2016 average exchange rates), or 9% of 2016 GDP.

Figure 2.1: Potential GDP boost from increasing female employment rates to rates in Sweden, 2016

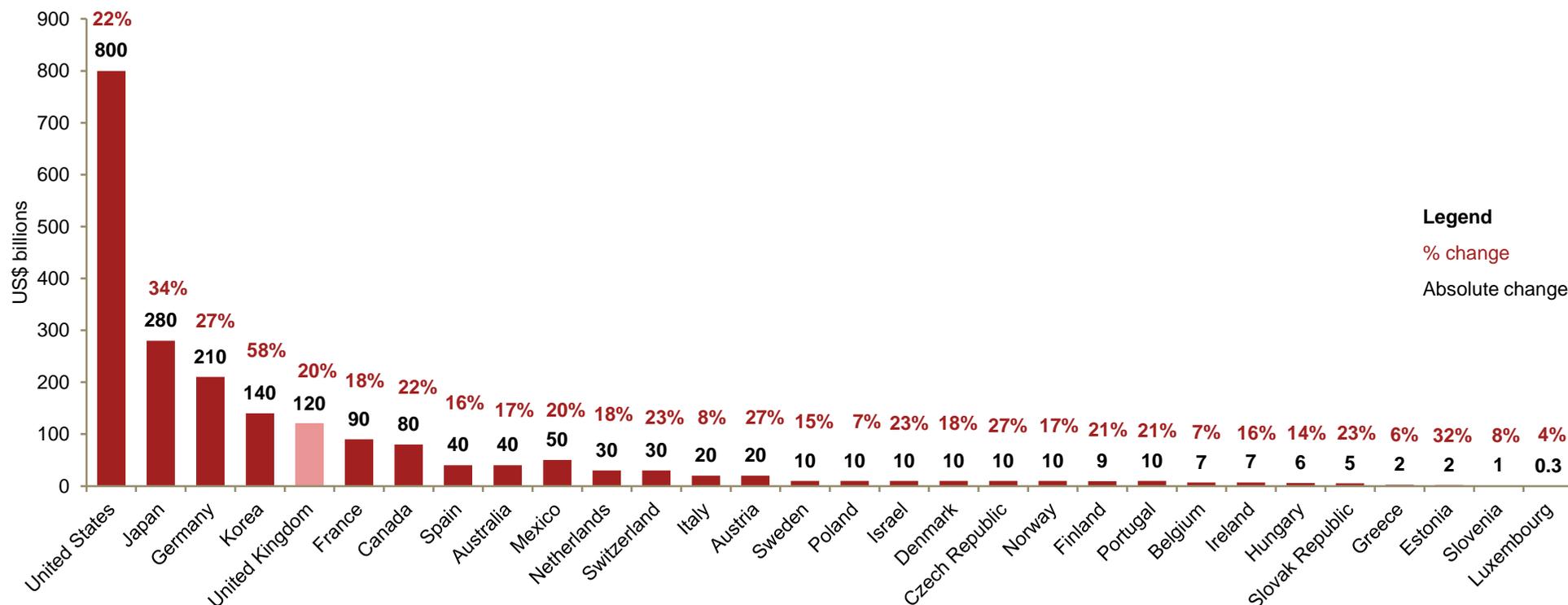


Source: PwC analysis, OECD.

Closing the gender pay gap could boost female earnings across the OECD by over US\$2 trillion, an increase of 23%

Closing the pay gap by increasing female average wages to match their male counterparts would generate a substantial increase in female earnings. Of the OECD countries, the United States is anticipated to achieve the most gains in absolute terms from closing the pay gap, with total earnings increasing by \$800 billion. In percentage terms, Korea could see an increase of 58% in female earnings. Closing the gender pay gap in the UK would increase female earnings by £90 billion (c.\$120 billion at 2016 average exchange rates) – an increase of 20% of 2016 GDP.

Figure 2.2: Potential increase in total female earnings from closing the gender pay gap, 2016



Source: PwC analysis, OECD, Eurostat.



3

Drivers of the gender pay gap in the OECD

We use an econometric approach to analyse drivers of the gender pay gap across the OECD

Despite significant gains that have been made to lift female participation in work, create more equitable workplaces and better recognise the value of diversity in the workplace, women are on average still likely to be paid less than men. Our analysis uncovers the key drivers of the pay gap, including structural factors that can cause the gap to persist over time. Recent years have also seen greater public policy focus to address equality, including mandatory firm disclosures of the pay gap, the introduction of quotas for female boardroom representation and so on. Our analysis also provides early insights into whether such policy initiatives have been effective in narrowing the pay gap across the OECD.

Our approach

- We use a dynamic panel model to estimate the key drivers of the gender pay gap, using the gender pay gap as our dependent variable. Our dataset covers all 35 OECD countries over 17 years (2000-2016).
- Our approach exploits cross-country differences in female labour market outcomes across the OECD. Our approach is robust, as it accounts for a) potential reverse causalities where the gender pay gap influences one or more of the explanatory variables (e.g. the gap in participation rates) and b) endogeneity concerns (e.g. unobserved factors that are potentially correlated with labour market and policy variables).
- We model the gender pay gap as the function of a number of explanatory variables, such as the labour market and policy variables outlined on the right. We also introduce additional controls such as the gap in male and female participation rates and the level of GDP per capita. We also account for country-specific characteristics (or ‘fixed effects’) that explain the pay gap and are constant over time.
- We also test the hypothesis that the gender pay gap is highly persistent over time, meaning that it is driven by structural factors, such as the propensity of women to work in certain industry sectors and job roles, and female work patterns over their life cycle (such as taking career breaks or time off to care for children or elderly relatives).
- The technical appendix in Section 7 contains more details of our econometric specification, modelling approach and results.

Variables of interest

Structural variables

Share of females employed in services

Share of employers who are female

Share of tertiary-qualified individuals who are female

Share of inventors who are female

Policy variables

Public expenditure on family benefits as a share of GDP

Gender pay gap disclosure requirements

Length of paid maternity leave

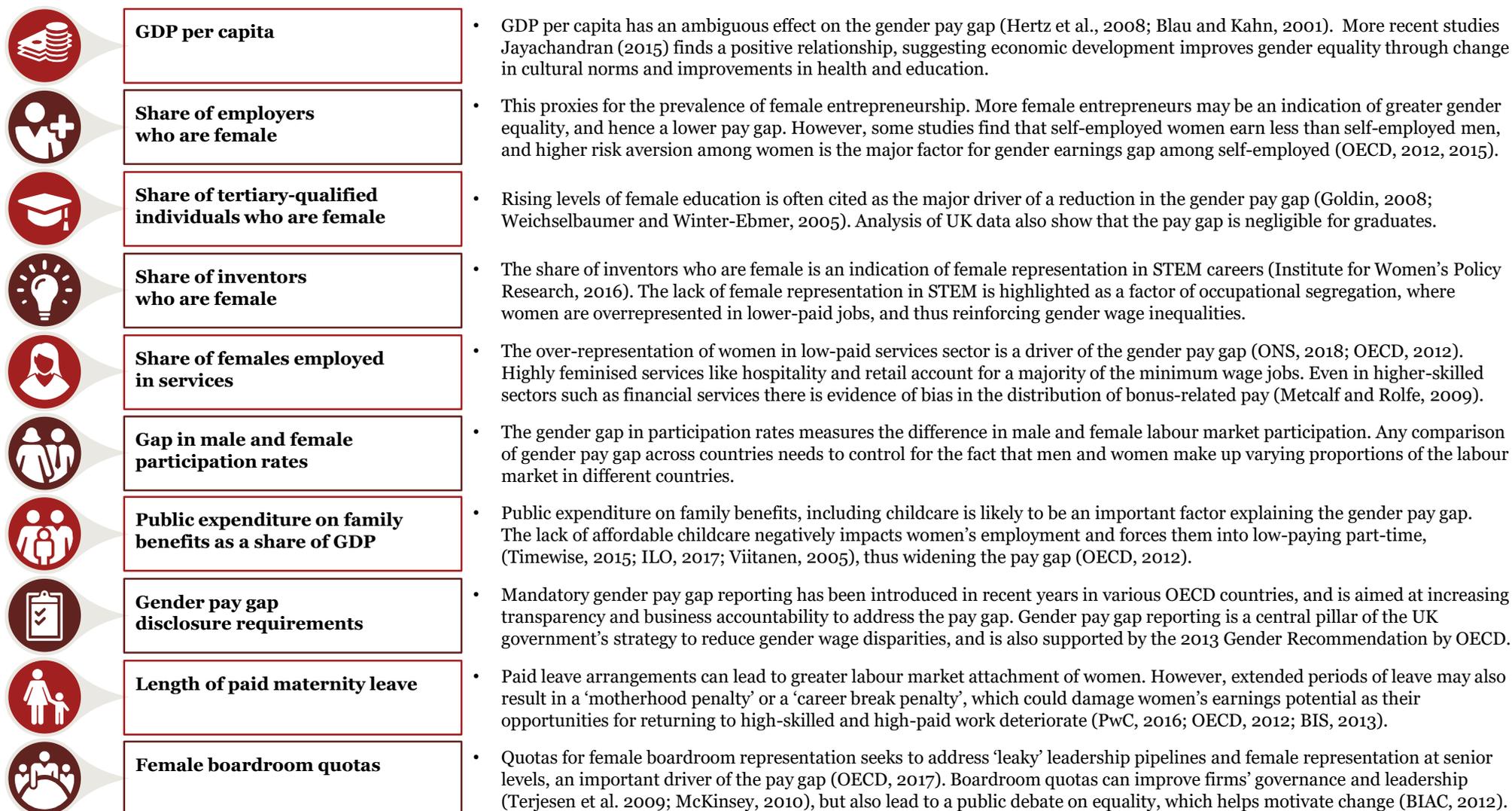
Female boardroom quotas

Other controls

Gap in male and female participation rates

GDP per capita

The existing evidence suggests that both structural and policy factors can help explain the gender pay gap



Higher levels of public expenditure and female entrepreneurs are associated with a smaller pay gap, while longer paid maternity leave and higher incidence of working in services tend to widen the gap

Reduces the pay gap



Public expenditure on family benefits as a share of GDP

Countries with higher government spending on family welfare including childcare have smaller pay gaps. A 1pp increase in public expenditure on family benefits as a % of GDP is associated with 0.8pp decline in the pay gap.



Gross domestic product per capita

Countries with higher GDP per capita have smaller pay gaps. A 1% increase in GDP per capita is associated with a 2.8% reduction in the pay gap.



Share of employers who are female

There is a negative sign on the coefficient for this variable, which suggests that countries with higher proportion of females as employers (i.e. self-employed with employees) tend to have reduced pay gaps. A 1pp increase in the proportion of female employers is associated with a .53 decline in the gender pay gap.

Increases the pay gap



Length of paid maternity leave

Countries with more generous maternity leave periods have higher gender pay gaps. An increase in paid maternity leave for women of 10 weeks is associated with a 0.2pp increase in the pay gap. The introduction of shared parental leave and encouraging men to take this up could change the effect of paid maternity leave on the pay gap over time.



Gap in male and female participation rates

Countries with a bigger gap in male and female labour market participation tend to be associated with larger gender pay disparities. A 10 pp increase in the participation gap is associated with a 1.1 increase in the gender pay gap.



Share of females employed in services

Countries with higher share of females in services tend to have higher pay gaps. A 1pp increase in the share of women employed in services is associated with a 20 pp increase in the pay gap. This is due to the high incidence of part-time work and low earnings in most services sectors. Boll et al. (2017) also identifies sectoral segregation of gender as the most important barrier to gender equality in European countries.

Too early to tell



Gender pay gap disclosure requirements

Countries with a legislation on gender pay gap reporting have lower pay gaps than countries without such a law, but the effect is insignificant. However, it may be too early to assess the impact of such requirements. Over time, we expect this to motivate firms to take steps to reduce their gender pay gap.



Female boardroom quotas

Countries with legislation mandating a share of seats on company boards to be reserved for women have a lower gender pay gap than countries that don't, but the effect is insignificant. However, such policies often take time to bed down as businesses reform their business practices to build a sustainable pipeline of female leaders.

Limited effect



Share of inventors who are female

Higher share of inventors who are female does not have a significant impact on the gender pay gap. This can reflect that female employment in science fields is not large enough to significantly impact the pay gap.



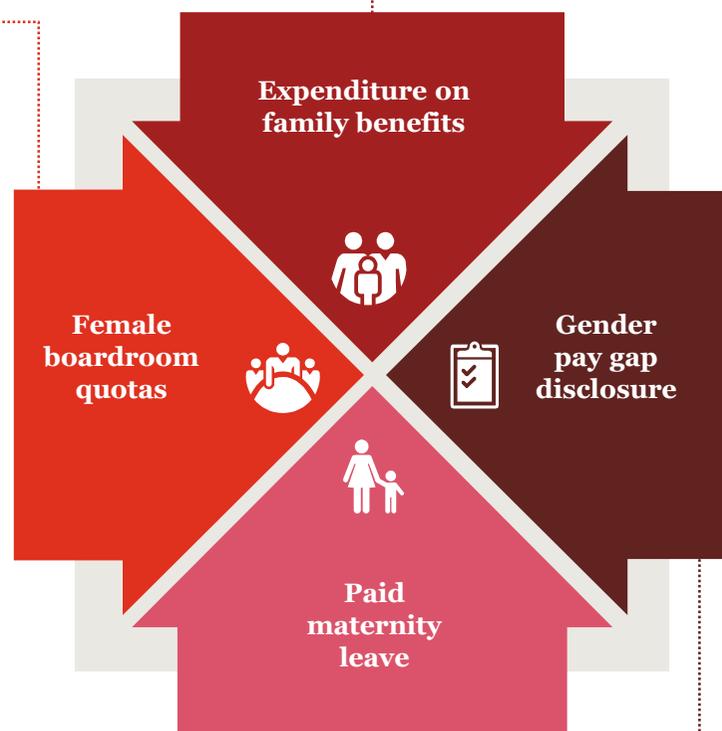
Share of tertiary-qualified individuals who are female

Countries with a larger proportion of tertiary-qualified females are associated with a lower gender pay gap but the effect is insignificant. This may be because although women benefit more from a degree than men, the effect tails off at high levels of education density, which is the case in the OECD (Equality & Human Rights Commission (2017)).

We find that family-related policies, such as maternity leave and public expenditure on families are significant factors in explaining in gender pay gap across the OECD

- Although our results suggest that mandatory quotas for female boardroom representation in listed companies do not have a statistically significantly impact on the pay gap, it may be too early to tell the effects of recently-implemented reforms on female labour market outcomes and the pay gap.
- The results also suggest that **tackling the underlying causes of lack of senior female representation in firms** could be important. For example, a Norwegian study found that leadership opportunities tend to be opened through informal networks, which women often struggle with (OECD, 2012).

- Countries with more generous paid maternity leave tend to have bigger gender pay gaps. Extended periods out of work can result in a deterioration of skills (Thévenon et al., 2013) and make it more difficult for women to re-enter the workforce.
- The **recent introduction of shared parental leave** can help address this by levelling the playing field, so that it's not always women who are out of the workplace for an extended period of time.
- Businesses can take action by incentivising men to take up the shared parental leave and support women in returning to work (e.g. via returnships).



- Our results show that countries with higher government spending on family welfare, including childcare are associated with smaller gender pay gaps.
- This reflects findings from OECD (2012) which suggest that countries with higher childcare costs tend to be associated with a higher incidence of part-time work, which also contributes to a larger pay gap.
- **This suggests that an increase in the availability of affordable childcare and family support can support women staying in or returning to work.**

- Requirements for mandatory firm reporting of the gender pay gap has a negative sign, but the effect on the pay gap is not significant.
- However, it may too soon to tell the potential impacts of reporting requirements where it has only been introduced.
- Greater transparency is likely to have a lagged effect as firms take subsequent action to address the pay gap, as **the accountability to take action that comes with reporting helps to drive change.**



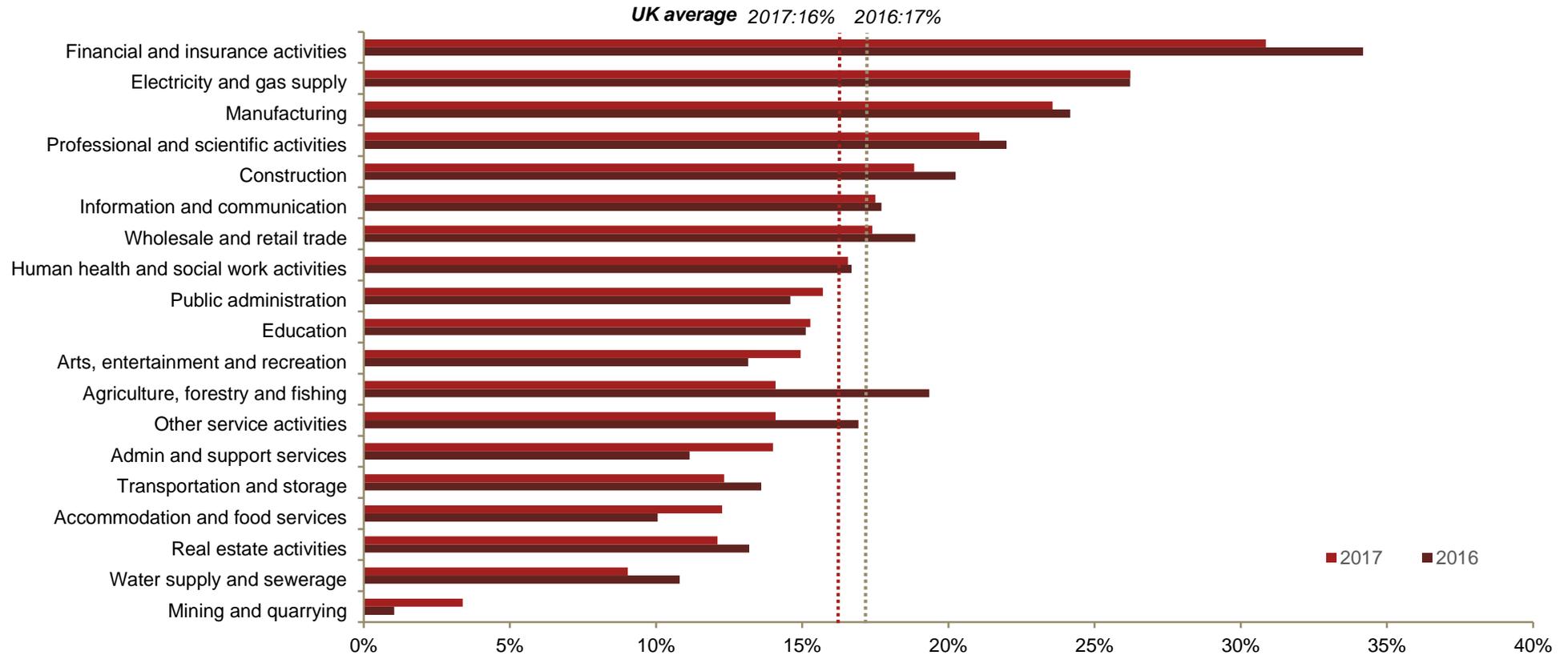
Trends in the UK gender pay gap

4

Most industry sectors have made gains in closing the pay gap over the past year. However, sectors such as financial services, electricity supply, manufacturing and professional services have some way to go

Disparities in the average pay for men and women exist in all sectors across the UK economy, highlighting that widespread efforts are required across the labour market to tackle this issue. Most sectors have made gains in closing the pay gap in the past year. For example, financial services and agriculture and forestry have seen significant improvements in the pay gap. However, the pay gap has increased in some sectors, such as accommodation and food services, administrative and support services, mining and education sectors.

Figure 4.1: Gender pay gap in the UK by industry, 2016 and 2017

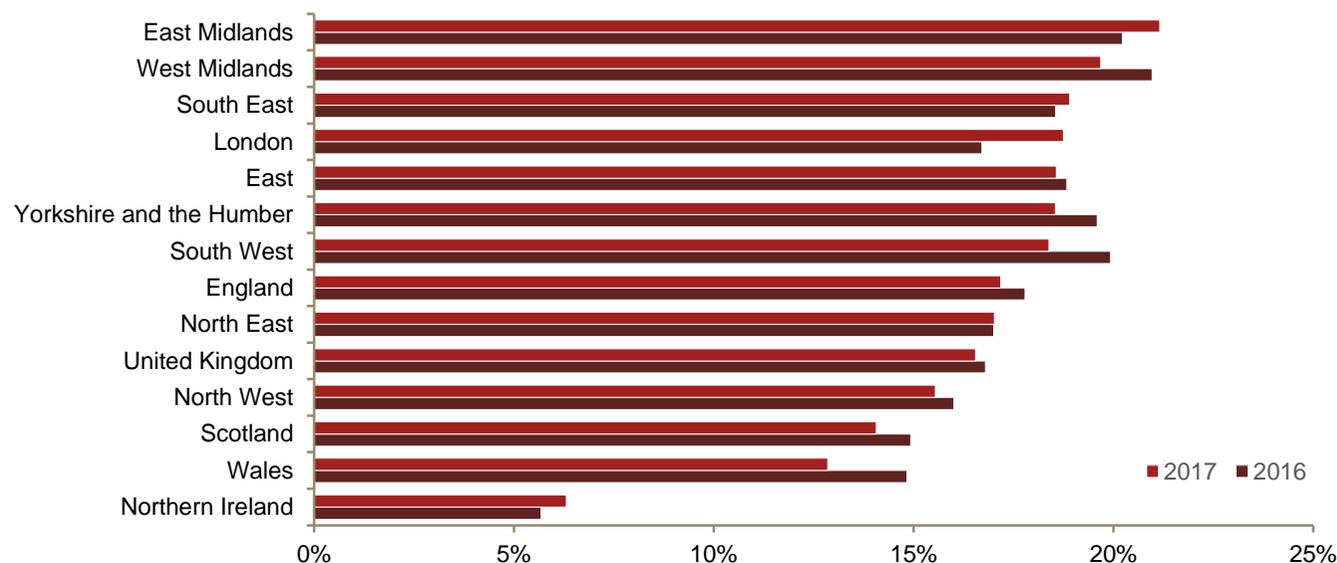


London and the East Midlands have seen a widening in the gender pay gap since 2016 while other regions have made improvements

We explore regional differences in the gender pay gap across the UK. We use an approach to measure the pay gap at the regional level that is consistent with the OECD's methodology to calculate the gender pay gap at the national level.

We compare changes in the gender pay gap over the past year to gauge regional progress in addressing gender pay disparity.

Figure 4.2: Trends in the gender pay gap by UK region, 2016 vs. 2017



Wales and the South West have made substantial improvements in narrowing the gender gap since 2016. The decrease in gender pay gap in these regions is driven by growth in female wages in sectors with a high share of women, such as public administration which already have low gender pay gaps, coupled with a reduction in the gender pay gap in low paying sectors.

In contrast, London has experienced an increase in the pay gap since 2016, with the gap rising from 17% in 2016 to 19% in 2017. Similarly, for East Midlands, the gender pay gap has increased from 20% in 2016 to 21% in 2017. This stems from an increase in the gender pay gap in low paying sectors in both these regions.

Source: PwC analysis, ONS.

Note: 2017 gender pay gap results are based on provisional 2017 data published by the ONS. The gender pay gap has been calculated as the difference between the median gross weekly pay for men and women as a percentage of the median gross weekly pay for men. This methodology is consistent with that used by the OECD to measure the gender pay gap at the national level.

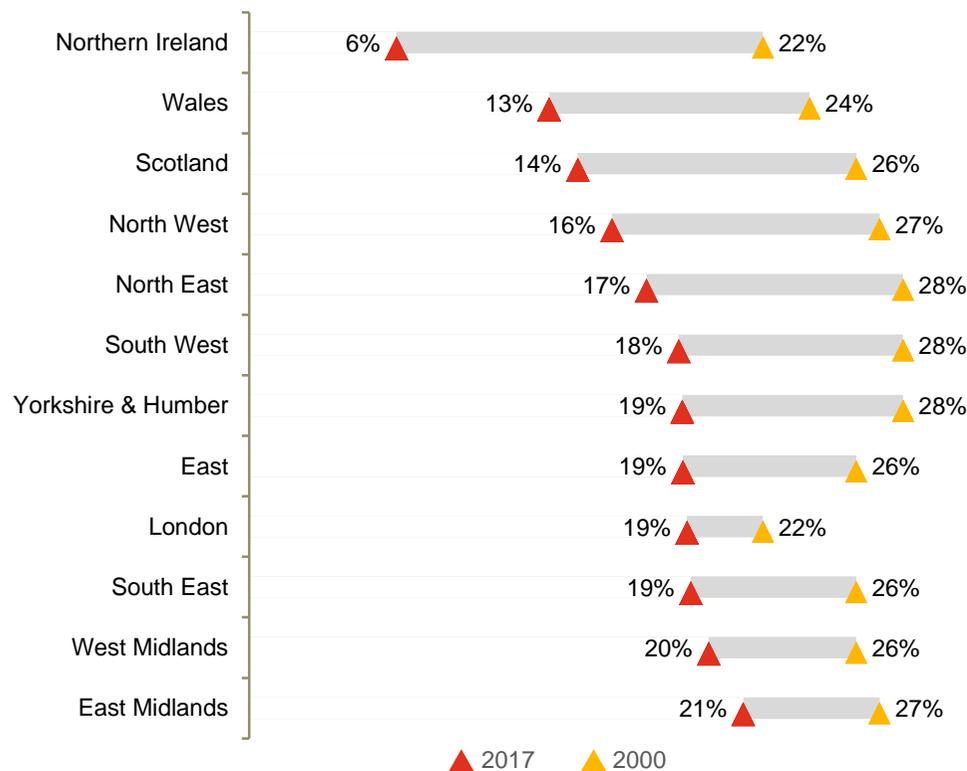
Over the longer term, Northern Ireland has shown the biggest improvement, while women working in London have the most to gain from closing the gender pay gap

Northern Ireland has seen the biggest change in its pay gap since 2000, driven by the share of women working in public administration, a sector with relatively high pay and a relatively low pay gap.

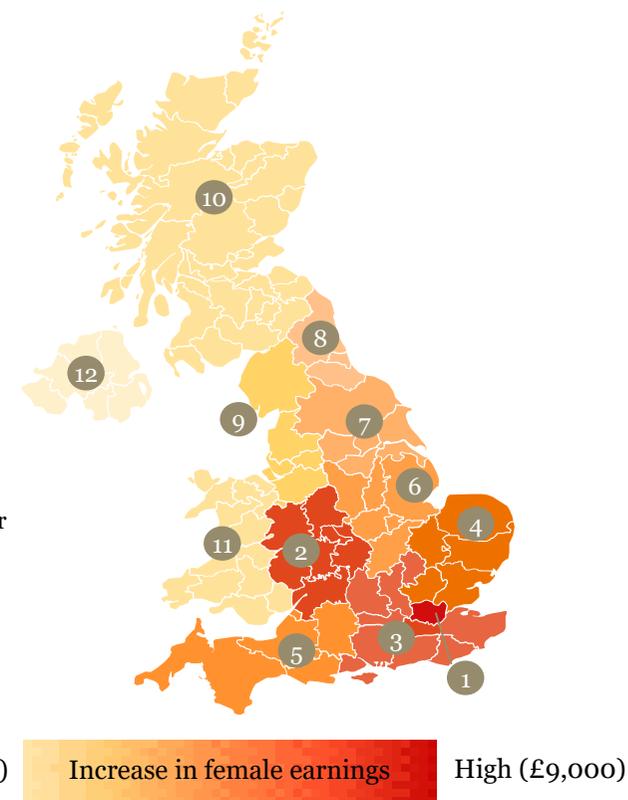
Women working in London could see the biggest gains in their average pay from closing the pay gap, followed by the West Midlands and the South East. On average, women working in the UK could see their incomes increase by £6,300 per annum.

Figure 4.3: Gender pay gap across the UK, by region: 2000- 2017

Figure 4.4: Potential increase in total female earnings from closing the gender pay gap across the UK in £: 2017



1. London
2. West Midlands
3. South East
4. East of England
5. South West
6. East Midlands
7. Yorkshire and the Humber
8. North East
9. North West
10. Scotland
11. Wales
12. Northern Ireland





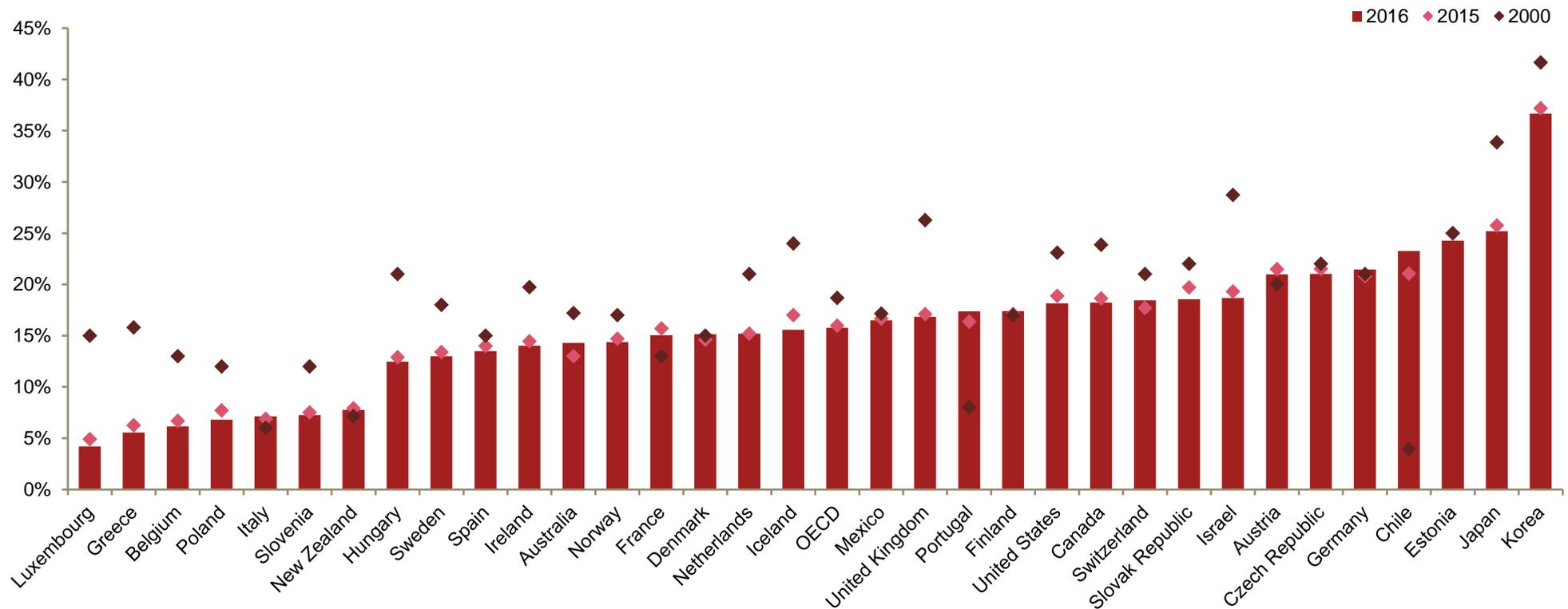
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Appendix: Long term trends in female economic empowerment indicators

The gender pay gap

The average gender pay gap across OECD countries remains unchanged between 2015 and 2016. Of the 33 OECD countries included in our analysis, 28 have made gains to narrow the gender pay gap from 2015 to 2016. However, the gap widened significantly in Chile and Portugal. The UK gender pay gap narrowed from 26% in 2000 to 17% in 2016, but progress has stalled in recent years. Luxembourg has made the most significant improvements to the pay gap to date, closing by 11 percentage points since 2000.

Figure 5.1: Gender pay gap, 2000 – 2016

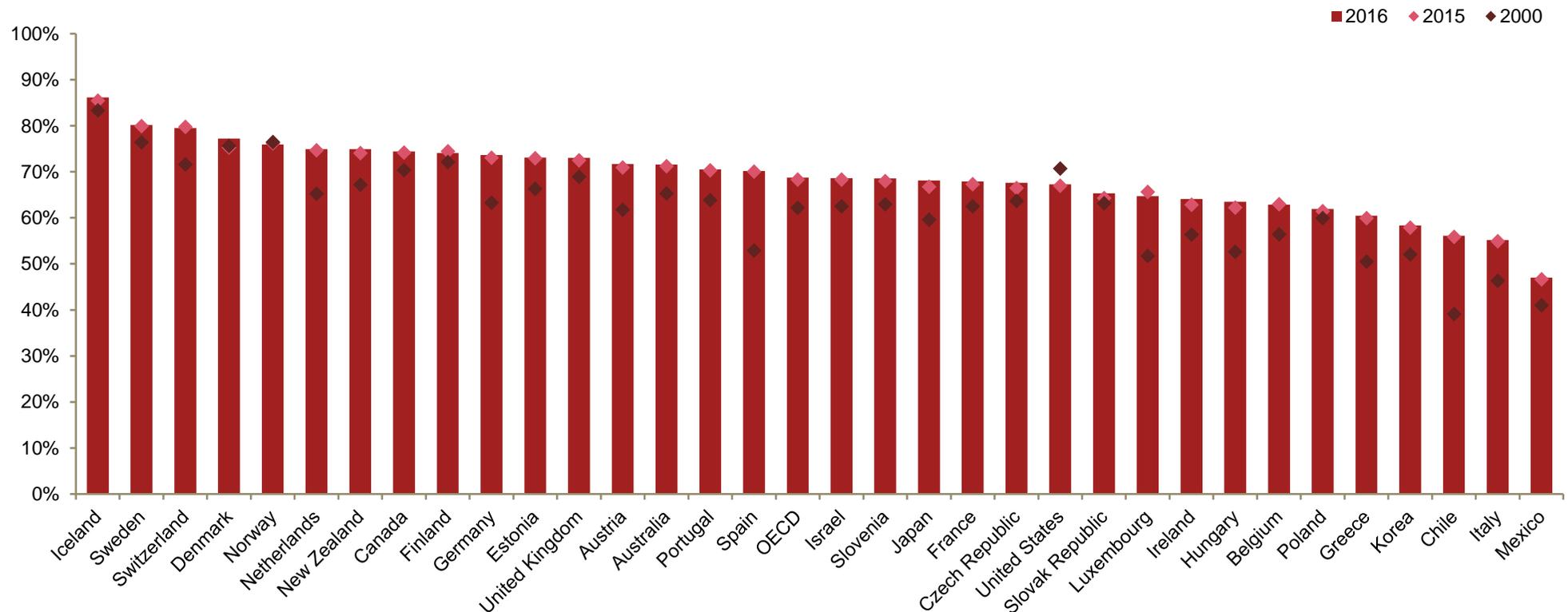


Source: OECD, Eurostat. OECD data refers to the difference in the median earnings for all full-time employees, while Eurostat compares the mean earnings. Data extrapolated using linear interpolation where data unavailable.

Female labour force participation

Overall female labour force participation rates have increased by 1pp on average across the OECD from 2015 to 2016. The biggest short-term gains were observed in Denmark and Japan. Over the longer term, Spain and Chile have seen the most improvement: female participation rates have risen by 17pp from 2000 to 2016. Conversely, participation rates in the United States fell from 71% to 67% over the same period. The UK female labour force participation rate has remained constant from 2015 to 2016.

Figure 5.2: Female labour force participation rate, 2000 – 2016

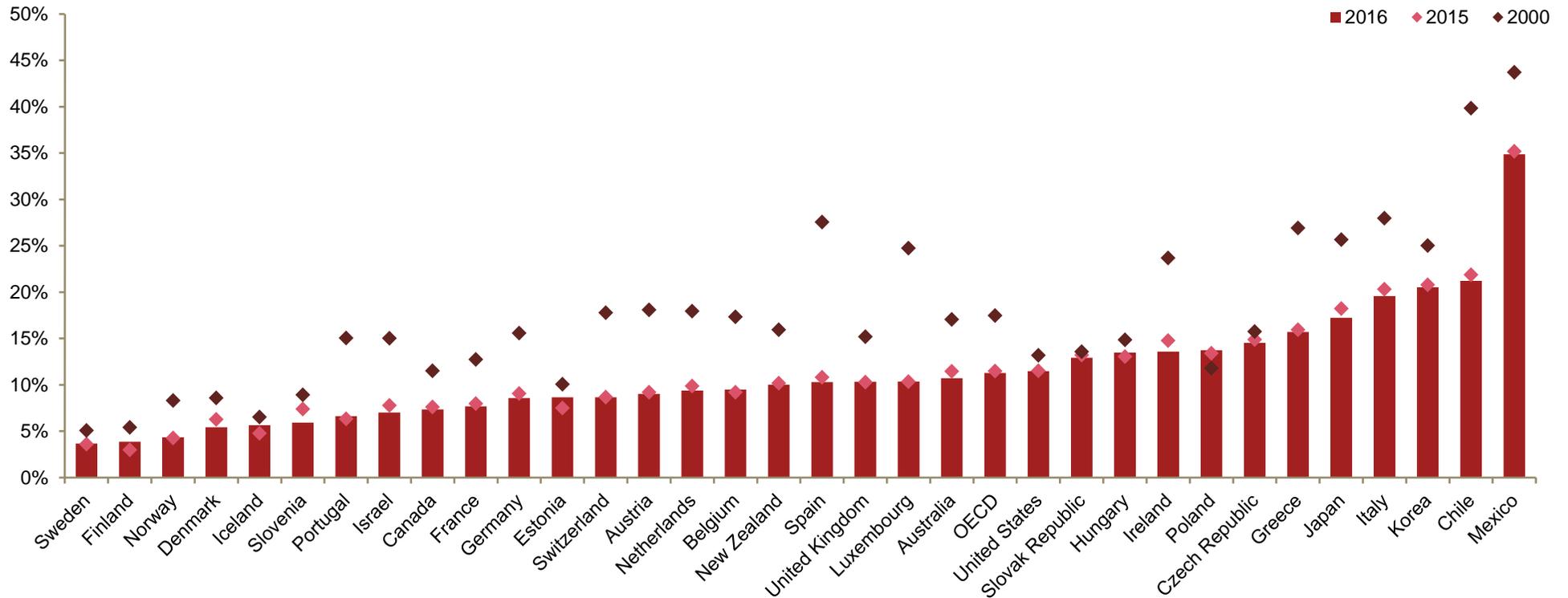


Source: OECD, BLS.

Gap between male and female labour force participation

The gap in participation rates have remained constant on average across the OECD between 2015 and 2016. Ireland saw the largest improvement, while Finland, Sweden and Norway all have the smallest male/female participation gap, at 4%. Over the longer term, the gap in labour force participation rates between males and female has narrowed across the majority of OECD countries. Mexico continues to experience a large gap between male and female labour force participation, however this has narrowed by 9 percentage points since 2000.

Figure 5.3: Gap between the male and female labour force participation rate, 2000 – 2016

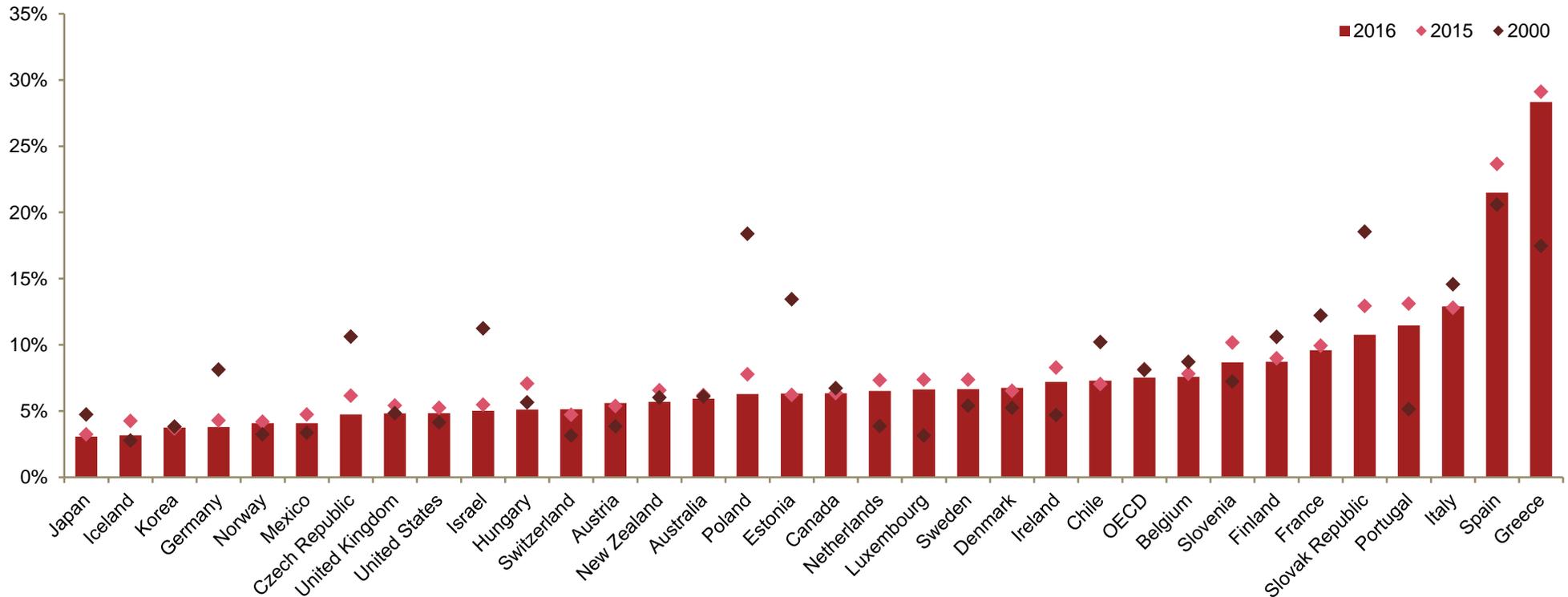


Source: OECD.

Female unemployment

Female unemployment has remained constant on average across the OECD between 2015 and 2016. However, this masks large improvements observed in Switzerland, Chile, Austria and Denmark, driven by improving economic conditions. The UK saw a 0.6 percentage point increase in female unemployment in 2016. Since 2000, Poland has seen the most significant reduction in female unemployment, falling from 18% to 6% in 2016. On the other hand, female unemployment in Greece increased from 17% to 28% over the same period.

Figure 5.4: Female unemployment rate, 2000 – 2016

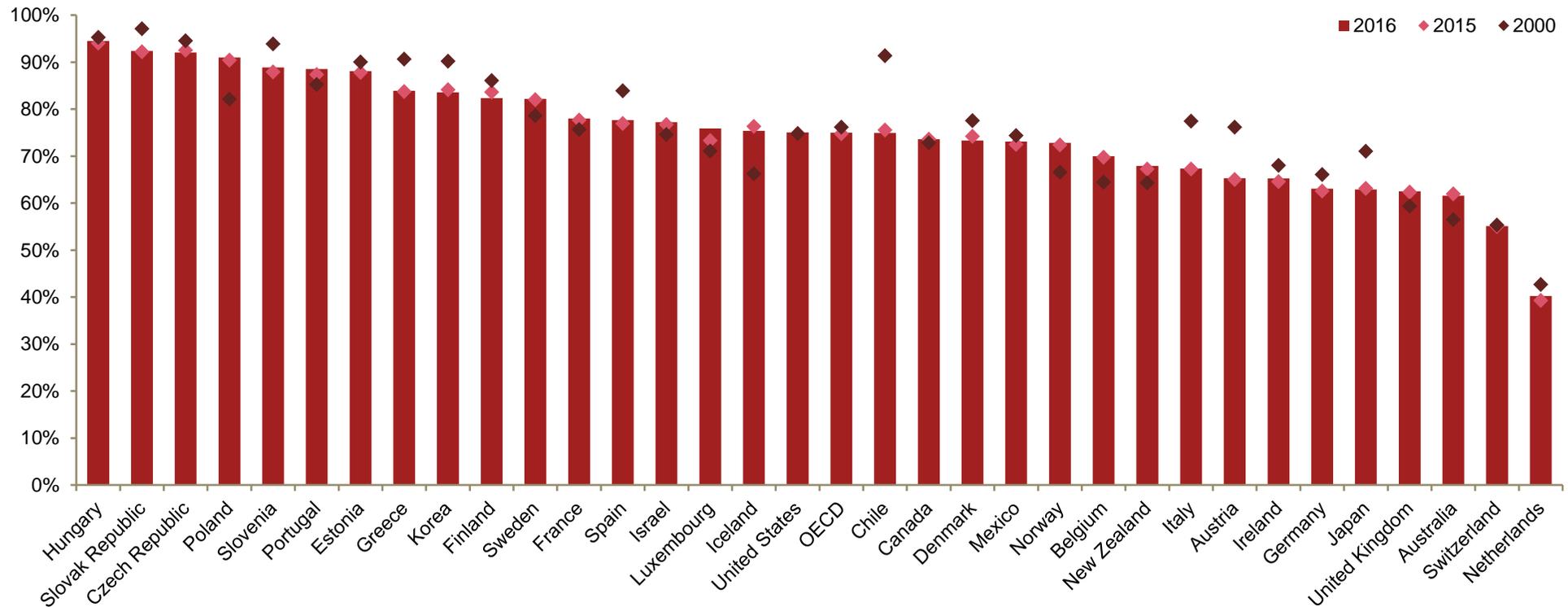


Source: OECD.

Female full-time employment rate

The share of women in full-time employment has remained largely constant between 2015 and 2016 across the majority of OECD countries. Since 2000, the female full-time employment rate has increased in countries such as Poland and Iceland. However, others such as Chile, Italy and Austria in particular have experienced a rise in the proportion of women working part-time. The UK continues to lag behind the OECD average by 12 percentage points on this indicator despite the gradual increase in the share of women in full-time employment since 2000.

Figure 5.5: Female full-time employment rate, 2000 – 2016



Source: OECD.



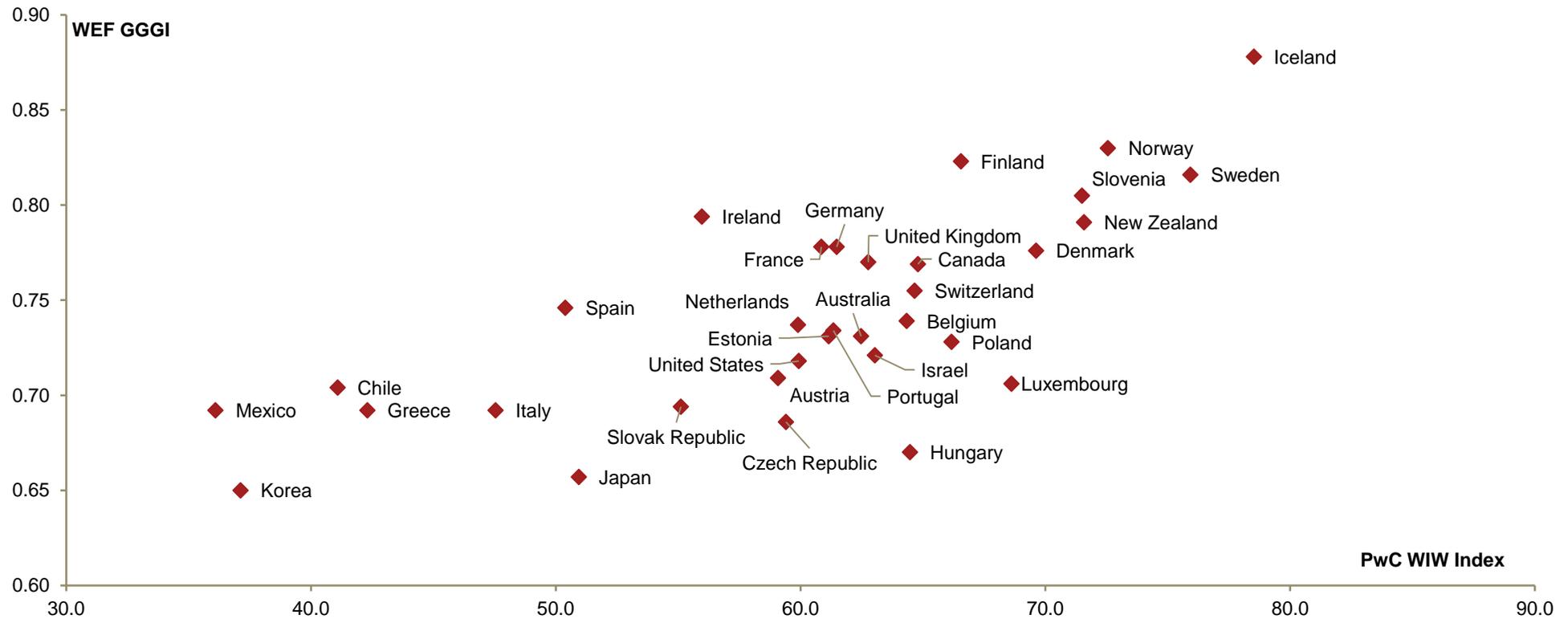
6

Appendix: Comparisons with other measures

Comparing PwC WIW Index performance against the WEF Global Gender Gap Index for 2016

The WEF GGG Index provides a measure of the gap between men and women across countries. It is composed of 4 sub-indices: Economic participation and opportunity, education attainment, health and survival and political empowerment. The index is highly correlated with the PwC WIW Index with a correlation coefficient of 0.72.

Figure 6.1: PwC WIW Index performance vs the WEF Global Gender Gap Index 2017



Source: PwC analysis, WEF.



Technical appendix: Data and methodology



Comparison of country results, 2000-2016

	2000		2015		2016	
	Index	Rank	Index	Rank	Index	Rank
Iceland	68.1	4	76.5	1	78.5	1
Sweden	69.3	1	74.7	2	75.9	2
Norway	68.2	3	72.3	3	72.6	3
New Zealand	63.0	8	69.9	4	71.6	4
Slovenia	64.9	6	68.4	6	71.5	5
Denmark	69.2	2	68.8	5	69.6	6
Luxembourg	46.4	23	67.4	8	68.6	7
Finland	63.7	7	67.5	7	66.6	8
Poland	48.3	19	63.7	12	66.2	9
Canada	54.9	10	64.1	10	64.8	10
Switzerland	54.6	11	65.8	9	64.7	11
Hungary	49.8	16	61.6	15	64.5	12
Belgium	48.3	20	63.9	11	64.3	13
Israel	40.1	26	61.3	16	63.0	14
United Kingdom	49.3	17	61.6	14	62.8	15
Australia	51.5	14	62.7	13	62.5	16
Germany	47.9	21	60.8	18	61.5	17
Portugal	65.6	5	60.4	19	61.3	18
Estonia	49.0	18	61.1	17	61.1	19
France	53.3	12	59.4	20	60.9	20
United States	57.7	9	58.6	21	59.9	21
Netherlands	47.5	22	58.5	22	59.9	22
Czech Republic	50.3	15	56.8	24	59.4	23
Austria	52.5	13	58.3	23	59.1	24
Ireland	43.9	25	53.0	25	56.0	25
Slovak Republic	43.9	24	51.2	26	55.1	26
Japan	33.9	29	49.0	27	50.9	27
Spain	31.0	31	47.3	28	50.4	28
Italy	38.6	27	47.2	29	47.5	29
Greece	33.5	30	40.5	31	42.3	30
Chile	36.1	28	42.7	30	41.1	31
Korea	27.9	33	36.4	32	37.1	32
Mexico	27.9	32	34.8	33	36.1	33
OECD average	50.0		59.0		60.2	

Source: OECD.

Summary statistics

Top 18 countries in the PwC WIW Index

Country	Pay gap		Labour force participation		Female unemployment		Women in full-time employment	
	Difference between female and male median pay, %		% Female		%		% of total female employment	
	2015	2016	2015	2016	2015	2016	2015	2016
Iceland	17	16	85	86	4	3	76	75
Sweden	13	13	80	80	7	7	82	82
Norway	15	14	76	76	4	4	72	73
New Zealand	8	8	74	75	7	6	67	68
Slovenia	8	7	68	69	10	9	88	89
Denmark	15	15	75	77	7	7	74	73
Luxembourg	5	4	66	65	7	7	73	76
Finland	17	17	74	74	9	9	84	82
Poland	8	7	61	62	8	6	90	91
Canada	19	18	74	74	6	6	74	74
Switzerland	18	18	80	80	5	5	55	55
Hungary	13	12	62	63	7	5	94	95
Belgium	7	6	63	63	8	8	70	70
Israel	19	19	68	69	5	5	77	77
United Kingdom	17	17	73	73	5	5	62	63
Australia	13	14	71	72	6	6	62	62
Germany	21	21	73	74	4	4	63	63
Portugal	16	17	70	71	13	11	87	89

Source: OECD, Eurostat.

Summary statistics

Next 15 countries in the PwC WIW Index

Country	Pay gap		Labour force participation		Female unemployment		Women in full-time employment	
	Difference between female and male median pay, %		%		%		% of total female employment	
	2015	2016	Female		2015	2016	2015	2016
Estonia	25	24	73	73	6	6	88	88
France	16	15	67	68	10	10	78	78
United States	19	18	67	67	5	5	75	75
Netherlands	15	15	75	75	7	7	39	40
Czech Republic	22	21	66	68	6	5	93	92
Austria	21	21	71	72	5	6	65	65
Ireland	14	14	63	64	8	7	65	65
Slovak Republic	20	19	64	65	13	11	92	92
Japan	26	25	67	68	3	3	63	63
Spain	14	13	70	70	24	21	77	78
Italy	7	7	55	55	13	13	67	67
Greece	6	6	60	60	29	28	84	84
Chile	21	23	56	56	7	7	76	75
Korea	37	37	58	58	4	4	84	84
Mexico	17	16	47	47	5	4	72	73
OECD average	16	16	68	69	8	8	75	75

Source: OECD, Eurostat.

About the PwC Women in Work Index

The PwC Women In Work is a weighted average of various measures that reflect female economic empowerment, including the equality of earnings, the ability of women to access employment opportunities and job security. The indicators that make up the Index and their associated weights are provided on the following page.

Scoring methodology

- Indicators are standardised using the z-score method, based on the mean and standard deviation of the sample of 33 OECD countries (all OECD countries excluding Turkey and Latvia) in 2000, to allow for comparisons across countries and across time for each country. This is a standard method used by PwC and others for many other such indices.
- Positive/negative factors were applied for each variable based on the table on the next page.
- The scores are constructed as a weighted average of normalised labour market indicator scores.
- Finally, the scores are rescaled to form the PwC Index with values between 0 and 100 and an average value across 33 countries set by definition to 50 in 2000. The average index value for 201 can, however, be higher or lower than this 2000 baseline.

Data sources

- Labour market data obtained for 2016, except where specified. All data provided by the OECD with the exception of data on the pay gap, which has been obtained from Eurostat for all countries with the exception of the following, where data has been obtained from the OECD: Australia, Canada, Chile, Greece, Ireland, Israel, Japan, Korea, Mexico, New Zealand, United Kingdom and United States.
- Methodological differences account for differences between data on the gender pay gap reported by the OECD and Eurostat. The OECD pay gap measures the difference in median earnings for all male and female full-time employees in all sectors, whereas the headline Eurostat pay gap (largely used in our analysis) measures the difference in mean hourly earnings for all male and female employees for all sectors except agriculture and public administration.
- Note: Throughout this report, we follow convention in the literature and refer to the gap between male and female pay as the 'gender pay gap'. This however accounts only for differences in hourly earnings and not overall pay which includes bonus payments.

PwC WIW Index methodology

Variables included in scoring

Variable	Weight %	Factor	Rationale
Gap between female and male earnings	25	Wider pay gap penalised	Earnings equality underpins the fundamental principle of equal pay for equal work.
Female labour force participation rate	25	Higher participation rates given higher score	Female economic participation is the cornerstone of economic empowerment, which is a factor of the level of skills and education of women, conducive workplace conditions, and broader cultural attitudes outside the workplace (e.g. towards shared childcare and distribution of labour at home).
Gap between female and male labour force participation rates	20	Higher female participation rate relative to male participation rate given higher score	Equality in participation rates reflect equal opportunities to seek and access employment opportunities in the workplace.
Female unemployment rate	20	Higher unemployment penalised	The female unemployment rate reflects the economic vulnerability of women. Being unemployed can have longer-term impacts in the form of skills erosion, declining pension contributions and increased reliance on benefits.
Share of female employees in full-time employment	10	Higher share of full-time employment given higher score	The tendency for part-time employment may adversely affect earnings, pensions and job security. However, this factor is given a lower weight in the index since some women may prefer part-time jobs to fit flexibly with caring roles.

Methodology for calculating potential GDP impacts from increasing employment rates

We break down GDP in the following way:

$$\text{GDP} = \text{Female FT workers} * \text{GDP per FT worker} + \text{Male FT workers} * \text{GDP per FT worker} + \text{Female PT workers} * \text{GDP per PT worker} + \text{Male PT workers} * \text{GDP per PT worker}$$

We consider the potential boost to GDP under two different scenarios, holding the employment rate for male part-time (PT) and full-time (FT) workers constant:

- Increasing the female PT and FT employment rates to that of a benchmark country.
- Increasing the female PT and FT employment rates to that of the male PT and FT employment rates in the same country.

Simplifying assumptions

In order to estimate the GDP impacts of increasing female employment rates, with the data available, we have made the following simplifying assumptions:

- Total employment in the economy is equal to employment within the 15-64 age group.
- A full-time (FT) worker is twice as productive on average as a part-time (PT) worker.

Methodology for measuring the gains from closing the gender pay gap

We consider the potential increase to total female earnings from completely closing the gender pay gap such that the average annual earnings for women is equal to the average annual earnings for men. This allows us to calculate the average male and female earnings from data on the total male and female earnings. We breakdown total male and female earnings as follows:

$$\text{Total earnings} = \frac{\text{Average male earnings} *}{\text{Male workers}} + \frac{\text{Average female earnings} *}{\text{Female workers}}$$

where

$$\frac{\text{Average male earnings}}{\text{Average female earnings}} = \frac{1}{(1 - \text{gender pay gap})}$$

In order to estimate the potential gains from closing the gender pay gap, we made the following simplifying assumptions:

- Total employment in the economy is equal to employment within the 15-64 age group.
- The median wages, which form the basis of comparison for the gender pay gap in OECD data, are equivalent to mean wages.
- The gender pay gap is closed by increasing female wages to match male wages rather than by decreasing male wages to match female wages.
- The elasticity of female employment to a change in wages is 0, meaning that a 1% increase in wages results in no change in female employment. This takes into account the counteracting effects of labour supply and demand elasticities: an increase in wages makes it more expensive for employers to hire more workers, however higher earnings also incentivise potential workers to seek employment. Our literature review suggests that:
 - Estimates of labour supply elasticity range from 0.5 to 0.9 ¹.
 - Estimates of labour demand elasticity range from -0.5 to -0.3 ².
- We take a conservative view that the counteracting effects of cancel each other out with no resulting change in female employment.

- The simplifying assumptions provide us with conservative gain estimates for the following reasons:
 - The gender pay gap is likely to be higher at the mean, which may be skewed upwards by a small number of high earners amongst male employees, than at the median which has been used to obtain data for at least 10 countries, as noted in the data sources above ³.
 - The 64+ age group has not been included in the analysis and therefore the increase in female earnings within this age group from closing the gender pay gap has not been accounted for.

¹ Source: Blundell, R. et al. (2013) 'Female Labour Supply, Human Capital and Welfare Reform', IFS Working Paper W13/10.

² Source: Merikull, J. and Room, T. (2014). 'Are foreign-owned firms different? Comparison of employment volatility and elasticity of demand', European Central Bank Working Paper Series No 1704.

³ Source: ONS (2015) 'Annual Survey of Hours and Earnings, 2015 Provisional Results'.

Drivers of the gender pay gap in the OECD

Econometric methodology

- We used a dynamic panel approach in our analysis of the pay gap, exploiting cross-country differences in female labour market outcomes across the OECD.
- We used the existing academic literature on the gender pay gap to inform our specification of drivers that explain the gender variables that could explain the gender pay gap. We narrowed our selection using the step-wise model selection technique in order to avoid the problems associated with multicollinearity, such as variables being individually insignificant and at times with unreliable coefficient signs.
- We supplemented our specification with additional policy variables of interest to test whether the presence of specific policies can help address the pay gap. These include: the presence of mandatory pay gap disclosure requirements for firms, the length of paid maternity leave and public expenditure on family benefits as a share of GDP. Our specification also contains fixed effects for each country to account for country-specific characteristics that explain the pay gap. The gender pay gap is also likely to be driven by structural factors – to account for this we included a lagged term for the gender pay gap in our overall specification to account for the persistence in the pay gap over time.
- To ensure robustness under a serially correlated dependent variable (in this case the gender pay gap), we used a system generalised method of moments (GMM) estimator (Blundell and Bond, 2000). The GMM approach involves using an instrumental variable-based approach where higher lag values of the lagged dependent variable are used as instruments. This approach also serves to eliminate any potential omitted variable bias and unobserved heterogeneity, which means country fixed effects are accounted for.
- The results from our analysis are shown in table 7.1.
- We find that our preferred specification pass all the robustness tests – (i) Robust Hansen test for validity of instruments (p-value = 0.19) (ii) Hausman test for the relevance of fixed effects (p-value = 0.00) and (iii) Arellano-Bond autocorrelation test for one (p-value = 0.01) and two lags (p-value = 0.18). We also checked normality of the model with quantile plots.

Table 7.1: Table of coefficients

Dependent variable: Gender pay gap	Coefficient (t-statistics)
Lagged gender pay gap	0.60 (4.45) ***
Logarithm of GDP per capita	-2.82 (-2.16) **
Share of females employed in services	20.03 (2.50) **
Dummy for boardroom quotas	-0.44 (-1.08)
Share of employers who are female	-0.53 (-2.04) **
Share of inventors who are female	-0.14 (-1.18)
Share of tertiary-qualified individuals who are female	-0.03 (-1.28)
Gap in male and female participation rates	0.11 (1.91) *
Public expenditure on family benefits as a share of GDP	-0.84 (-2.88) ***
Length of paid maternity leave	0.02 (2.53) **
Dummy for gender pay gap disclosure requirements	-0.10 (-0.20)

Source: PwC analysis. * significant at 10% level, ** significant at 5% level, *** significant at 1% level.

Drivers of the gender pay gap in the OECD

List of variables used

Variables	Definition	Source
Gender pay gap	Gender pay gap as defined in the Women in Work Index.	OECD, Eurostat
GDP per capita	Natural logarithm of the GDP per head of population, measured in USD, at constant prices and 2010 PPP terms.	OECD
Share of females employed in services	Share of females out of the employment in services.	OECD
Share of employers who are female	Share of women out of the total employed individuals who are employers.	OECD
Share of inventors who are female	Share of women inventors.	OECD
Share of tertiary-qualified individuals who are female	Share of women out of the population with high education.	OECD
Gap in male and female participation rates	Male participation rate – female participation rate; where participation rate is defined as the employment to working age population ratio.	OECD
Public expenditure on family benefits as a share of GDP	Government expenditure on family benefits as a percentage of GDP.	OECD
Length of paid maternity leave	Length of paid maternity leave in weeks.	OECD
Dummy for boardroom quotas	Indicator variable that equals 1 if a country has a law reserving a certain share of women seats in the boardroom.	MSCI WOB, Europa, Reuters
Dummy for gender pay gap disclosure requirements	Indicator variable that equals 1 if a country has a law mandating certain companies to report the gender pay gap.	Europa, WGEA, Lexology, Realbusiness

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