Structural change and female participation in recent economic growth:

A multisectoral analysis for the Spanish economy

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Abstract: Economic growth has different impacts on gender gaps. In recent decades the growing participation of women in the labour market has reduced the gender employment gap, however a notable gender pay gap still persists standing at around 15% on average in the European Union. In this context, this paper evaluates the impact of economic growth patterns on the evolution of gender employment and pay gaps. First, sectorial feminization, direct discrimination, and structural change factors are identified and evaluated as ways to explain changes observed in gender pay gap. Second, we explore the influence of demand, technology, and intensity factors on the evolution of employment combining gender, skill, sectorial, and temporal perspectives. As a case study, we examine Spanish economic growth from 1980 to 2007 and the influences on the size, composition (by skill), and distribution (by sector) of female and male employment, as well as the consequences for gender gaps. Our results show that structural change contributed to reduce the gender employment gap in Spain; while the evolution of the gender pay gap is less conclusive, following a sort of inverted U-shape. This paper shows the suitability and potential of the multisectorial input-output framework to analyse structural and technological changes and their impacts on the gender employment and pay gaps.

Keywords: female participation; gender pay gap; gender employment gap; structural change; structural decomposition analysis; input-output

1. Introduction

Recent European economic growth has experienced significant structural changes, mainly linked to trade expansion, greater economic integration, and the development of high-technology industries and services (European Commission, 2010). Traditionally, the intensification of the export-orientation of economies, the shift towards service-sector specialization, and the progressive introduction of more flexible modes of work have encouraged a rise in female participation in labour markets. Moreover, societal and political changes observed in developed economies in the second half of the 1990s and the first decades of the 21st century have contributed to the increased incorporation of women in overall economic activity.

The European Union (EU) generally experienced labour-force growth since the 1990s; In particular, women's engagement in economic activity surged through their participation in labour markets. As an example, according to OECD (2014), during the expansion period 1997-2008 female employment grew at a faster rate than male employment (1.58% against 0.75%), and also showed a less steep decline during the recession from 2008-2013 (-0.70% against -0.88%). Consequently, female employment and female participation rose (from 42.51% to 47.72%) and were more stable over the duration.

The evolution of the participation of women in labour markets markedly differs by country, of course, and improved female participation rates do not dictate notable advances in gender equity. This suggests a need to study factors that might explain differences in gender gaps. As is emphasized by feminist economists (Cagatay et al. 1995; Grown et al. 2000, among others) gender influences the division of labour, the distribution of work and income, the productivity of inputs and economic behaviour of agents with important macroeconomic implications. Thus, empirical work needs to be

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carried out in order to assess the relevance of gender to macroeconomic outcomes. In this context, economic and social indicators can help us to learn more about the persistence of gender employment gap (GEG) —which accounts for differences in participation in the labour market between women and men— and gender pay gap (GPG) —which accounts for differences in salaries— in Europe. More specifically, EUROSTAT (2017) measures the EU's GPG at 16.2% (and frequently above 20% in EU countries for the private sector only).

Several interrelated factors have been cited in the literature to explain the GPG. First, *direct discrimination* —i.e. less salary for women doing the same job as men— has been an important explanatory factor in the past. Due to national and international legislation, however, direct discrimination has become a tougher to affix as a major contributor to GPG (Watson, 2010; Kenedy et al., 2017). Second, a closely related factor is the *undervaluation of work by women* whereby jobs requiring similar skills, qualifications, or experience are undervalued and, as a consequence, are underpaid (Grimshaw and Rubery, 2007)[1]. And third, the GPG is also enhanced by the fact that some women select certain occupations—such as nursing, teaching, paralegal, bookkeeping—that pay much less than other male-dominated occupations in the same industries. This feminization or horizontal segregation of sectors and occupations has received attention in the literature, finding abundant evidence of significant variability in wages depending on the gender composition (Macpherson and Hirsch, 1995; World Bank, 2011). That is, it may well be that discrimination and societal biases affect women's career selections. Of course, other factors, such as the persistence of gender roles and stereotypes, cultural factors, national policies, and social structures also

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[1] Examples include different starting salaries for men and women, differential access to pay increments or bonuses, and the use of additional payments that are weighted towards rewarding characteristics most likely to be found among men.

contribute to labour market inequalities (Rubio-Bañón and Esteban-Lloret, 2016; and Pollmann-Schult, 2017, among others).

Regarding the effects of the patterns of economic growth, sectoral composition, structural and technological change and trade expansion on gender inequality, they seem to be inconclusive in the literature. Some economists suggest that international trade helps reduce gender inequality, insofar as trade liberalization increases the relative returns to labour in those industries and occupations in which women are mainly concentrated (Aydiner-Avşar and Onaran, 2010). But other authors argue that the segregation of women in less capital-intensive sectors with low productivity is one of the most important factors in the persistence of the GPG (Seguino, 1997). Finally, some authors also focus on the effect of skill-based technological change and the increasing share of services on the GPG in advanced economies, finding similar trends in female outcomes suggesting a process of international convergence (Olivetti and Petrongolo, 2014; Petrongolo and Olivetti, 2016).

In this general context, the aim of this paper is to explore the impact that the patterns of economic growth observed in an advanced economy may have on the evolution of both GEG and GPG. More specifically, we are interested in studying how structural change, the variety of sectoral specialization, and trade structure in Spain over more than 25 years (1980-2007), have all resulted in a particular composition and distribution of female employment, as well as the implications for the GPG. We also relate these structures to the process of expansion and internationalization of demand from a multisectoral perspective. To this aim we perform a structural decomposition analysis (SDA) (Rose and Chen, 1991; Dietzenbacher and Los, 1998) to disentangle the evolution of women and men employment and wages into key parameters.

The analysis of the extent to which the evolution of the gender gaps is associated to these structural factors is important. This is especially the case in European economies, where the participation of women in the labour market and the relationship to patterns of growth and specialization have changed rather substantially in the recent past. In many ways, Spain makes an ideal case study. It has experienced rapid economic expansion as well as social and economic transformation from 1980-2007, has a tradition of low participation of women in its education system and labour markets (although this significantly changed starting in the 1970s), and engaged in a rapid process of engaging women in industry, particularly in services, during the expansion. More specifically, from the beginning of the democratic period in the late 1970s until the recent and severe economic crisis started in 2008, Spain was regarded as one of the most dynamic countries in the EU, with an average growth rate nearly double that of the EU average.[2] In essence, the Spanish economy experienced economic growth and social transformation without precedent. During the 1990s, sustained growth rates higher than the EU average forced the Spanish economy's per capita income to converge closely to that of the rest of the EU. From the mid-1990s to 2007, the Spanish yearly average growth rate of value added was 3.59%, more than one point higher than the EU15 and EU27 growth rates (2.35% and 2.47% respectively). This period of economic expansion was accompanied by a massive influx of workers into Spanish labour markets, registering employment growth rates much higher than those elsewhere in the EU.

Naturally enough, Spain also became an EU country with a higher rate of female labour market engagement, narrowing Spain's secular employment gender gap which simultaneously converged toward that in other EU countries. This process occurred in

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[2] Based on EUKLEMS database. From 1980 to 2007 the average growth rate of value added in Spain was 3.02, far from the 2.27% corresponding to the EU15.

parallel with the structural and social transformation that accompanied Spain's progressive internationalization. This is most notable, given Spain's disparate situation for labour participation of women at the start of the study period. According to the International Labour Organization, in 1980 Spain was at the bottom of the EU regarding women participation in employment (28% of total employment), far from the levels observed for other neighbouring EU economies such as France (39%), Portugal (39%), UK (40%) and only close to the levels of Belgium (34%), Netherlands (30.68%) or Italy (31.63%). By 2007, the end of the economic expansion, the participation rate in Spain was 41.36%; while still under the EU average, this yielded an increase of more than 15 percentage points, significantly reducing the country's gap with other EU nations which existed at the beginning of the period.

We focus our research on the period 1980-2007; this is the most expansive period before the onset of the international economic recession. Our aim is to evaluate the impact of the patterns of economic growth that Spain experienced in the evolution of its gender gaps.

This work contributes to the literature on gender using the analytical and theoretical tools of input-output analysis and via the analysis of economic trends from a gender perspective. More specifically, within a multisectoral framework, our paper combines two approaches to analyse gender gap contributors and gender gap drivers in the evolution of the Spanish economy across the 27 years analysed. First, from a production perspective, we analyse sectoral and total gender gaps by skill category, including their evolution over time. Based on Seguino (2000), we apply a decomposition approach to study the role played by horizontal segregation, direct discrimination and structural change in Spain in terms of the GPG. Second, we move to a demand perspective to analyse, within an input-output framework, how structural and

technological change, demand expansion, and trade in Spain have resulted in sectoral allocations of women's employment and GEG also differentiating by skill categories. To the best of our knowledge, this is the first paper in the literature to combine these two perspectives.

2. Research Approach

Despite the importance of the structure and specialization of economies to the generation and persistence of gender gaps —GEG and GPG— worldwide, few studies analysed them via an integrated multisectoral perspective. Among the first, Seguino (2000) focused on the effects of structural change and economic liberalisation on GPG, comparing South Korea and Taiwan in the 1980s. Within an input-output framework, the pioneering studies by Schaffer and Stahmer (2006) and Schaffer (2007, 2008) estimated a gender-specific input-output table for Germany and identify women's and men's contributions to gross domestic product. Günlük-Şenesen and Senesen (2011) studied sectoral composition of impacts on female and male employment in Turkey. Olivetti and Petrongolo (2014) proposed a multisectoral approach that identifies between and within-industry forces that affect skill and gender intensities to find evidence of important differences in hours and wages across the sexes. More recently, female employment was incorporated into analysis of supply using input-output analysis to analyse the broader context of labour and social footprints (Alsamawi et al., 2014). Gómez-Paredes et al. (2015) calculated women's employment and gender gaps as part of labour footprints for India through 2011. We build on this literature and combine two approaches—"supply" and "demand" perspectives—to analyse factors contributing to the temporal evolution of gender employment and pay gaps.

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Formally, we define $GEG \equiv \left(1 - \frac{L^f}{L^m}\right)$ —i.e. one minus the ratio of the female

and male employment. Similarly, we define $GPG \equiv \left(1 - \frac{\overline{w}^f}{\overline{w}^m}\right)$ where $\left(\frac{\overline{w}^f}{\overline{w}^m}\right)$ is the ratio

between women's and men's average wages in the referent economy.

From the supply perspective, we analyse sectoral and gender gaps, as well as

their respective evolutions over time. A supply perspective allows us to delve deeper

into the explanatory factors of the observed GPG via decomposition analysis as in

Seguino (2000).

The average wage differential between women and men (R) for an economy

(i.e.,$1 - GPG$) can be explained as the sum of sectoral differences in terms of three

determinants: feminization of the sectors (f_i), direct discrimination (d_i), and economy

specialization (s_i). Equation (1) expresses formally this idea:

$$R = (1 - GPG) = \frac{\overline{w}^f}{\overline{w}^m} = \frac{\frac{\sum_{i=1}^n w_i^f L_i^f}{L^f}}{\overline{w}^m} = \sum_{i=1}^n \frac{L_i^f}{L^f} \frac{w_i^f}{w_i^m} \frac{w_i^m}{\overline{w}^m} = \sum_{i=1}^n f_i d_i s_i \qquad (1)$$

In this equation, w_i^f and w_i^m are, respectively, women's and men's salaries for sector i,

$\overline{w}^f$ is the weighted average wage of women defined by $\frac{\sum_{i=1}^n w_i^f L_i^f}{L^f}$, and similarly, $\overline{w}^m$ for

men. We denote by L_i^f is the level of employment of women in sector i. Rearranging

and multiplying by $\frac{w_i^m}{w_i^m}$ (=1), we can express R in terms of $f_i \equiv \frac{L_i^f}{L^f}$, which can be

interpreted as a sort of feminization index of the economy, represents industry's share

of the economy's female employment and provides information on the degree of

horizontal segregation. Moreover, $d_i \equiv \frac{w_i^f}{w_i^m}$ is the female/male wage ratio for sector i –a

proxy for direct discrimination[3]. Finally, $s_i \equiv \frac{w_i^m}{\overline{w}^m}$ –sector i's relative wage for

men–aims at capturing structural change, with male salary used as a proxy for changes

in salaries. Why this is so needs some extra explaining. Its interpretation as a proxy of

structural (sectoral) change assumes that the evolution of the distribution of male salary

is very close to the evolution of the distribution of the average salary in the economy.

We assert that this assumption can be maintained without much bias in findings for

Spain. This is supported by two facts. First, in the early years of the study period—say,

the 1980s and first half of 1990s— while the distribution of women and men salaries

shows some differences across sectors, the participation of women in employment was

generally quite low (less than 30%). Thus during this portion of the study period, the

evolution of any sector's wage rates closely tracked that for men. Second, in the latter

half of the study period (i.e., the second half of the 1990s and beyond), female labour

force participation grew progressively and, at the same time, sectoral wage gaps closed,

i.e., wages increasingly homogenized within sectors. That is, while wages were

different between men and women, those sectors with higher wages for men also paid

women more. (Figure A1 in the online Appendix shows how the wages of women and

men in Spain tracked over the study period and compares them to the national average

wage.)[4] Overall, assuming this specification of GPG, we analyse changes over time on

the basis of the changes observed in these three sectoral indices.

Our decomposition is also based on SDA, a common technique in the field of

multisectoral models aiming to disentangle the factors, driving force affecting changes

in a variable over time. This technique aims to separate a time trend of an aggregated

variable into a group of driving forces (Rose and Casler, 1996; Dietzenbacher and Los,

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[3] Note that in any case it does not inform on the distribution across all occupations within the sector.

[4] Figures A2-A4 in the online Appendix show the relative wage women, men, and the whole of Spain's economy by sector for 1980, 1995 and 2007.

1998). Applying this type of decomposition analysis to changes in the gender wage ratio R, we get:

$$\Delta R = R^1 - R^0 = \sum_{i=1}^{n}(f_i^1 d_i^1 s_i^1) - \sum_{i=1}^{n}(f_i^0 d_i^0 s_i^0) = \sum_{i=1}^{n}\Delta(f_i d_i s_i) =$$

$$\sum_{i=1}^{n}(\Delta f_i d_i s_i) + \sum_{i=1}^{n}(f_i \Delta d_i s_i) + \sum_{i=1}^{n}(f_i d_i \Delta s_i) = F + D + S \qquad (2)$$

Changes in R —and consequently in the GPG— can be explained on the basis of changes in the feminization index (F), the direct discrimination index (D), and the structural change (S).[5] In order to operationalize this expression in a discrete framework, since we have three explicative factors there are 3! different ways to explain changes in R in an exact form —i.e., without residuals or interaction terms—only considering different combination of weights for the factors that are unchanged in each step. Dietzenbacher and Los (1998) show that the simple average of the two polar solutions approximates well the average of all possible decompositional forms. So, our decomposition of R here is:

$$\Delta R = \sum_{i=1}^{n}\Delta(f_i d_i s_i) =$$

$$= \sum_{i=1}^{n}\Delta f_i\left(\frac{d_i^0 s_i^0 + d_i^1 s_i^1}{2}\right) + \sum_{i=1}^{n}\Delta d_i\left(\frac{f_i^1 s_i^0 + f_i^0 s_i^1}{2}\right) + \sum_{i=1}^{n}\Delta s_i\left(\frac{f_i^0 d_i^0 + f_i^1 d_i^1}{2}\right) =$$

$$= F + D + S \qquad (3)$$

In addition to this supply perspective, we also adopt a demand perspective. Input-output models allow us to relate these two perspectives. These models link the generation of employment, salary, and gender gaps related to production activities to the

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[5] Many other factors—such as institutions, culture, and family—are behind the evolution of the gender gap and are not captured in this analysis. We opted to focus strictly on the productive changes that enable changes in women engagement in economic activity and, hence, their wages. The analysis of other factors affecting the evolution of gender gaps is beyond the scope of this paper.

final use of the goods produced, establishing a clear relationship between the productive side and the demand side of the economy, which is given by equation (4): [6]

$$\mathbf{x} = (\mathbf{I} - \mathbf{A})^{-1}\mathbf{y} = \mathcal{A}\mathbf{y} \qquad (4)$$

where $\mathbf{x} = [x_j]$ is the production vector, $\mathbf{y} = [y_i]$ the final demand vector —comprised of household consumption, government expenditures, change in stocks, investment, and net exports, $\mathbf{A}$ the matrix of production coefficients—the formal representation of technology with $i, j = 1, \ldots, n$, and $\mathbf{I}$ is the identity matrix. Matrix $\mathcal{A} = [\alpha_{ij}] = (\mathbf{I} - \mathbf{A})^{-1}$ is the well-known Leontief inverse, with generic element $[\alpha_{ij}]$ showing the inputs generated by sector i, directly and indirectly incorporated in one unit of the final demand of sector j.

Moreover, we let $\boldsymbol{l} = [L_j]$ be the vector of employment by sector. It consists of $\boldsymbol{l}^f = [L_j^f]$ and $\boldsymbol{l}^m = [L_j^m]$, such that $\boldsymbol{l} = \boldsymbol{l}^f + \boldsymbol{l}^m$. We now can also define $\mathbf{e}' = \boldsymbol{l}'\hat{\mathbf{x}}^{-1} = \left[L_j / x_j \right]$ as the vector of employment coefficients, sector i's employment per unit of output (i.e., employment intensity); and separately for women and men it is:

$$\mathbf{e}^{\mathbf{f}\prime} = \mathbf{l}^{\mathbf{f}\prime}\hat{\mathbf{x}}^{-1} = [e_j^f] = \left[L_j^f / x_j \right] \text{ and } \mathbf{e}^{\mathbf{m}\prime} = \mathbf{l}^{\mathbf{m}\prime}\hat{\mathbf{x}}^{-1} = [e_j^m] = \left[L_j^m / x_j \right].$$

The Leontief inverse enables the allocation of employment to the final demand. That is to say, it lets us identify how much employment is used both directly and indirectly to enable the delivery of final goods. In this regard, the supply and demand perspectives are linked within the input-output framework.

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[6] Matrices are indicated by bold, Roman capital letters; vectors by bold, Roman lower-case letters; scalars by italicized lower case letters. Vectors are columns by definition, so row vectors are transposed vectors; transposition of any array is denoted by a prime ('). A diagonal matrices—square matrices with elements of a vector on the main diagonal and zeros elsewhere—are denoted by the symbol of the vector to be diagonalised, which then is capped by the circumflex (^).

So, departing from (4) we obtain matrix

$$\mathbf{H} = \hat{\mathbf{e}}\mathcal{A}\hat{\mathbf{y}} = \begin{pmatrix} e_1\alpha_{11}y_1 & \dots & e_1\alpha_{1n}y_n \\ \dots & e_i\alpha_{ij}y_j & \dots \\ e_n\alpha_{n1}y_1 & \dots & e_n\alpha_{nn}y_n \end{pmatrix},$$ whose representative element

$[h_{ij}] = [e_i\alpha_{ij}y_j]$ shows the labour incorporated in sector i directly and indirectly

used by sector j to obtain its final demand. The rows of **H** allocate employment used by

a sector according to the final good that its employment produces; whereas the columns

of **H** show the employment supporting production of the different sectors as they are

required (embedded in the supply chains) of each final good. The matrices $\mathbf{H}^f = [h_{ij}^f]$

and $\mathbf{H}^m = [h_{ij}^m]$ are obtained from female and male employment vectors $\mathbf{e}^f$ and $\mathbf{e}^m$, and

$\mathbf{H} = \mathbf{H}^f + \mathbf{H}^m$.

According to this demand-driven model, changes in final demand influence

economic growth and, as a consequence, the size and distribution of female and male

employment involved in the economic sectors. This distribution is mediated by the

sectoral structure of the economy and the employment intensity —i.e. employment per

unit of production— in each sector. Therefore, changes in these three components —

employment intensity (**E**), sectoral structure (**T**), and final demand (**Y**— over time are

reflected in changes in the female and male distributions of labour in the economy. To

study the contribution of these factors, we apply again an SDA as the average of the

corresponding polar solutions as equation (5) shows:

$$\Delta\mathbf{H} = \left(\frac{\Delta\hat{\mathbf{e}}\mathcal{A}^0\hat{\mathbf{y}}^0 + \Delta\hat{\mathbf{e}}\mathcal{A}^1\hat{\mathbf{y}}^1}{2}\right) + \left(\frac{\hat{\mathbf{e}}^1\Delta\mathcal{A}\hat{\mathbf{y}}^0 + \hat{\mathbf{e}}^0\Delta\mathcal{A}\hat{\mathbf{y}}^1}{2}\right) + \left(\frac{\hat{\mathbf{e}}^1\mathcal{A}^1\Delta\hat{\mathbf{y}} + \hat{\mathbf{e}}^0\mathcal{A}^0\Delta\hat{\mathbf{y}}}{2}\right) = \mathbf{E} + \mathbf{T} + \mathbf{Y} \quad (5)$$

The first addend in (5) represents the "intensity effect" **E**, showing the

contribution of changes in the employment per unit of output to the evolution of total

employment. The second addend **T** is the "technological effect" and shows the

contribution to employment of changes in the sectoral structure of production over time.

The third component **Y** is the "final demand effect", showing the contribution of changes in final demand, which can also be divided between the roles of final consumption, investment, and trade balance as drivers of work changes. Below, we conduct this type of breakdown for both women and men, identifying the variety of patterns associated with the evolution of final demands. Equations (6) and (7) show the corresponding decompositions for female and male employment:

$$\Delta \mathbf{H^f} = \left(\frac{\Delta \hat{e}^f \mathcal{A}^0 \hat{y}^0 + \Delta \hat{e}^f \mathcal{A}^1 \hat{y}^1}{2} \right) + \left(\frac{\hat{e}^{f1} \Delta \mathcal{A} \hat{y}^0 + \hat{e}^{f0} \Delta \mathcal{A} \hat{y}^1}{2} \right) + \left(\frac{\hat{e}^{f1} \mathcal{A}^1 \Delta \hat{y} + \hat{e}^{f0} \mathcal{A}^0 \Delta \hat{y}}{2} \right) = \mathbf{E}^f + \mathbf{T}^f + \mathbf{Y}^f$$

$$(6)$$

$$\Delta \mathbf{H^m} = \left(\frac{\Delta \hat{e}^m \mathcal{A}^0 \hat{y}^0 + \Delta \hat{e}^m \mathcal{A}^1 \hat{y}^1}{2} \right) + \left(\frac{\hat{e}^{m1} \Delta \mathcal{A} \hat{y}^0 + \hat{e}^{m0} \Delta \mathcal{A} \hat{y}^1}{2} \right) + \left(\frac{\hat{e}^{m1} \mathcal{A}^1 \Delta \hat{y} + \hat{e}^{m0} \mathcal{A}^0 \Delta \hat{y}}{2} \right) = \mathbf{E}^m + \mathbf{T}^m +$$

$$\mathbf{Y}^m \qquad\qquad (7)$$

Note that the reading by rows and by columns also holds for matrices **E** ($\mathbf{E}^f$ and $\mathbf{E}^m$), **T** ($\mathbf{T}^f$ and $\mathbf{T}^m$), and **Y** ($\mathbf{Y}^f$ and $\mathbf{Y}^m$). Reading across rows, we see how the evolution of the sectoral employment intensity, the production structure, and the demand for all products in the economy contribute to change in sectoral employment (total and by gender). Reading down columns, we observe how the changes in the components for all sectors contribute to change in employment embedded in the delivery of final goods to each sector. Both sets of results provide interesting information on the proximate causes of change in female-male wage ratios, at least those for the set of factors we use here. We strictly focus here on the decomposition of sectoral employment (i.e., reading by rows).

3. Empirical results

Recall, we justified the use of Spain for our study of female participation and gender gaps. Our analysis is based on available series of annual Spanish industry-by-industry

input-output tables for the period 1980-2007 (Cazcarro et al., 2013). We use labour data from EUKLEMS (O'Mahony and Timmer, 2009); specifically, we use total number of hours engaged and labour compensation/hour proxies the wage rate by gender and skill-category. Due to the lack of information on skills and gender shares, we extrapolated it for 2006 and 2007 using the aggregate data for these years and 2005 shares. A final aggregation level of 26 sectors has used to assure a match between labour, salaries, and other economic information. Although all results are developed at the highest disaggregation level at sectoral level and subsequently aggregated for readers' convenience; the aggregated results are available in the online Appendix in eight blocks of industries based upon sectors' technological characteristics.[7]

3.1. Spain's economic growth and its impact on female employment

The massive incorporation of women into the labour market at the beginning of the democratic period is what makes Spain an interesting case study (Merino, 2015). Starting in the 1980s, Spain entered a process of economic expansion and significant structural and social change that was maintained until the onset of the economic crisis in 2008. Figure 1 shows the annual growth rate of Spanish GDP from 1980 to 2007. Four subperiods are readily distinguished: 1980-1986, 1986-1993, 1993-2000 and 2000-2007. The final years of Franco's dictatorship in the 1970s and the beginning of the democratic era in the early 1980s are marked by growth accompanied by major social and legislative change. Integration into the EU in 1986 launched a process of economic openness and expansion of trade, providing an opportunity for the progressive adoption of technologies and modes of production common among neighbouring advanced countries. The accompanying increase in income per capita of Spanish citizens together

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[7] The 26 sectors are clustered according to their technological character following the OECD Analytical Business Enterprise Research and Development classifications (OECD, 2003).Detailed information on these industries is shown in the online Appendix Table A3.

with the coming wave of social changes and the adoption of new lifestyles by urban citizens brought significant changes in household consumption, both amount per household as well as in what was consumed. The rise in production plus the progressive adoption of international labour standards encouraged the incorporation of women into the Spanish labour market. The dynamism of the economy after the crisis of 1992, encouraged by the effective integration in the EU and the European Monetary System (EMS), the increasing competitiveness of Spanish exports and the macroeconomic stability of the European economy, lead to a long period of economic expansion in Spain. While this caused further rises in employment, it was characterized by low contributions to total factor productivity growth (technological change) due to the expansion's high dependence on labour-intensive sectors such as construction and services (Bielsa and Duarte, 2011). The specific nature of this structural transformation of the Spanish economy made it more vulnerable to the 2008 international recession. From the very start of 2008, Spain began to experience a rapid decline in most major macroeconomic measures (consumption, production, public and private investment) and per capita income; this in turn led to substantial rises in unemployment rates[8] and social inequality.

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[8] In 2007 Spain's unemployment rate was 8.8%, while in 2013 it was 25.5% and in 2018, 14.3%. .

Figure 1. Spanish Gross Domestic Product, 1980-2007 (annual growth rate %).
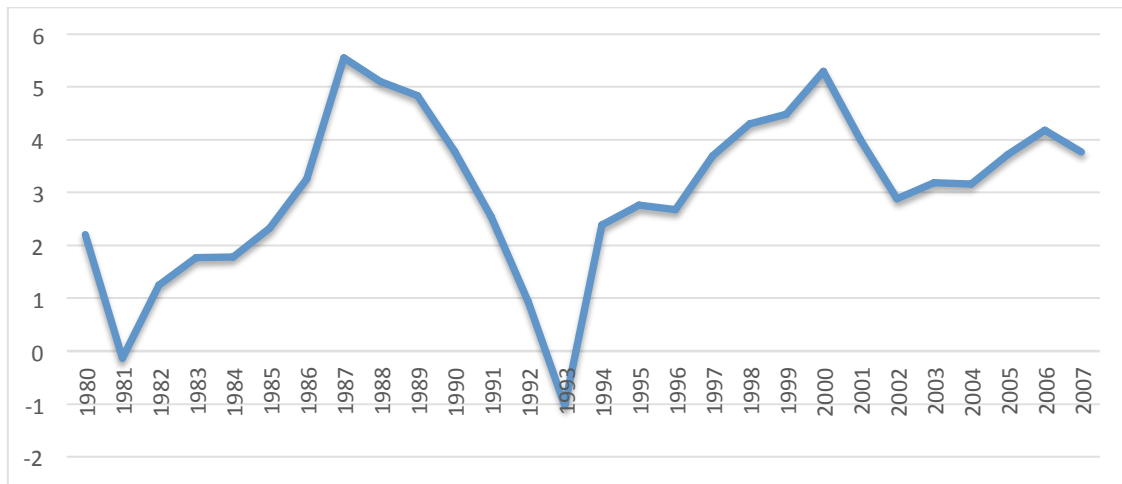
Source: Own elaboration from World Data Bank (2017).

The afore-described stylized facts affect female engagement in labour markets. Figure 2 shows the evolution of two indices of the gender gap over the period: GEG that accounts for differences in participation in the labour market between women and men, while GPG accounts for wage differences.[9]

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[9] Average wages have been calculated from EUKLEMS by dividing total labour compensation by total employment (in hours).

Figure 2. Evolution of gender employment gap and gender pay gap, Spain 1980-2007.

2a.
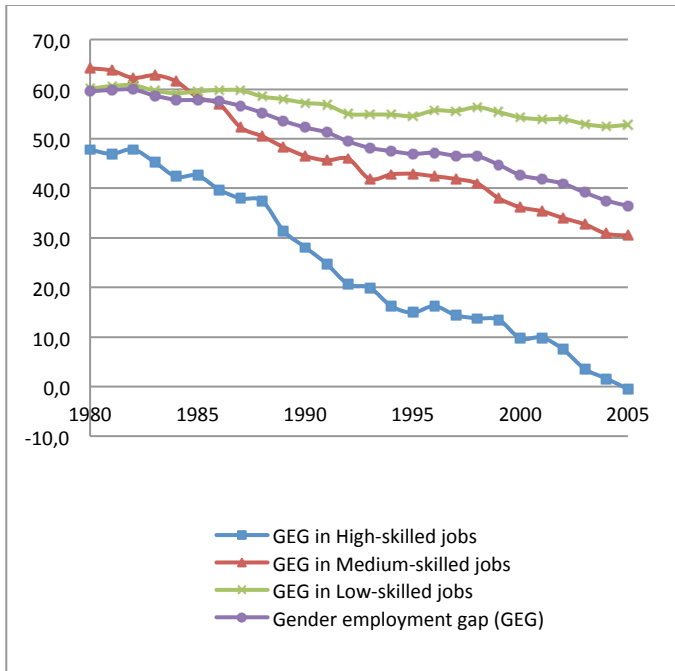
2b.
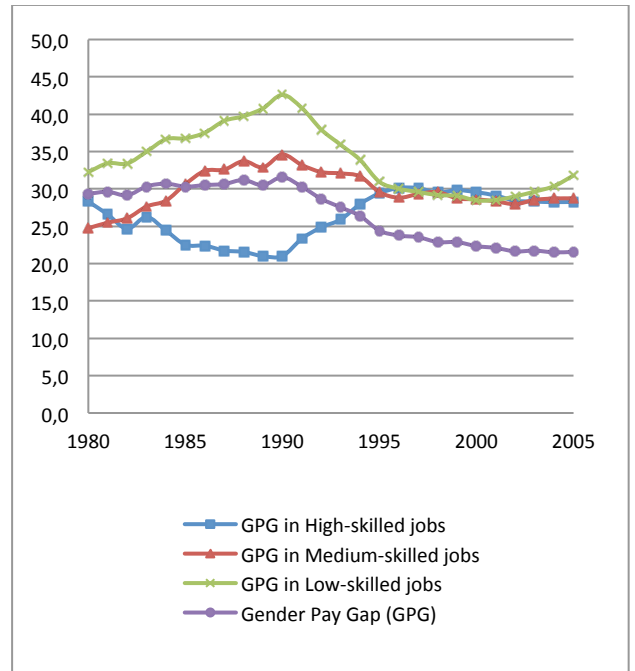
Source: Own elaboration.

According to these data, an important change in labour participation took place during the period 1980-2007, as reflected by a global reduction of GEG by 38%, mainly due to drops in the GEG for high- and medium-skilled occupations (see Figure 2a). In contrast, the data reveal irregular trends in wages over the study period—i.e., increasing GPG in the 1980s, some decline in the early 1990s and effective stagnation since (see Figure 2b).

Table 1. Sectoral contribution to employment change by gender and skill categories, Spain 1980-2007.

	Total change (thousand hours)	Relative change (%)	PS	ES	HTI-MHTI	MLTI	LTI	C	KIS	RS	Total
High-skilled women	3007	468	0.23	0.14	0.52	0.75	0.80	0.76	4.61	21.74	29.56
High-skilled men	2408	197	0.38	0.22	1.24	0.74	0.89	2.37	5.70	12.13	23.67
Medium-skilled women	3963	878	0.74	0.10	0.88	0.80	1.69	0.99	4.70	29.05	38.95
Medium-skilled men	5083	406	1.82	0.42	3.60	2.75	3.30	9.93	4.53	23.61	49.96
Low-skilled women	-742	-13	-7.07	-0.01	-0.18	-0.46	-3.66	0.32	3.16	0.60	-7.29
Low-skilled men	-3546	-25	-18.74	-1.63	-5.91	-3.42	-5.67	12.10	0.54	-12.14	-34.86
Women labour	6228	93	-6.09	0.24	1.23	1.10	-1.17	2.07	12.47	51.39	61.22
Men labour	3945	24	-16.54	-0.99	-1.08	0.07	-1.47	24.41	10.77	23.61	38.78
Total changes	**10173**	**44**	**-22.63**	**-0.75**	**0.15**	**1.16**	**-2.64**	**26.48**	**23.24**	**75.00**	**100.00**

Source: Own elaboration.
Note: PS: Primary sector; ES: Energy sector; HTI-MHTI: High- and medium-high technology industry; MLTI: Medium-low technology industry; LTI: Low-technology industry; C: Construction; KIS: Knowledge intensive services; RS: Rest of services.

Table 1 summarizes the main changes observed over the period in terms of the composition of employment and the sectoral contributions to them. Sectoral details are shown in the online Appendix Table A1. From the beginning to the end of the period, the number of total hours worked grew by 44% (a total of 10,173 thousand of hours over levels in 1980): Women increased their work hours by 93%, while men increased theirs by 24%. The incorporation of more women into the labour market explains their share of 61.22% of the total growth in employment over the study period, with the remaining 38.78% due to an increase in men's hours worked.

The 1980s were characterized by a significant transformation of the Spanish economy. Development plans of the 1960s and 1970s started to transform Spain's industry and encouraged the displacement of the Spanish population from rural to urban areas. This enabled a notable rise in employment opportunities nationwide (Merino, 2015). Moreover, the conversion to a democratic period enabled a sudden burst of the tourism with major effects on associated service sectors. This also added employment with a high incidence on female employment— affecting women even more over

ensuing decades. Spain's incorporation into the EU in the mid-1980s was without doubt one of the most important engines of economic transformation for the country. It intensified the openness process, attracted foreign investment and boosted innovation. The radical transformation in industry and services sectors was accompanied by a greater emphasis on schooling and push toward diploma attainment from high schools and universities, both of which affected outcomes for women in particular.

By skill and gender categories, the increase in labour is mainly explained by three elements. First, the significant incorporation of medium-skilled workers—both female and male—into the labour market. Second, an impressive upswing in the availability of high-skill positions in which females significantly increased their participation. Third, an important decline in low-skilled occupations for men; this behaviour was much more moderated for female labour since women remained tied to low-skilled work, albeit concentrated in services.

By sectoral blocks, the contribution to total employment has been unequal over time. Traditional services sectors (rest of services, RS) explain nearly 75% of this growth, together with the increase observed construction (C, 26.48%) and knowledge-intensive services (KIS, 23.4%). Reductions of employment mainly concentrate on primary sectors (PS, 22.63%) and Low-technology industry (LTI, -2.64%). The reduction of employment mainly affected low-skilled workers—both women and men—in almost all sectors, while high- and medium-high skilled workers (particularly women) increased their participation mainly through services.

These sectoral changes also determine the degree that women and men concentrate their employment across sectors. This is analysed as horizontal segregation in the labour market. Figures 3 and 4 show the evolution of the concentration of female and male labour by sector. We detail the analysis for those sectors that account for 80%

of the total employment (men and women combined) in 1980; We group the remaining in the "Rest of economic sectors". Results confirm that female labour is far more concentrated than male labour, although a tendency to spread in the first case and certain invariance in the second is observable.

Figure 3. Female labour concentration (horizontal segregation), Spain 1980-2007.
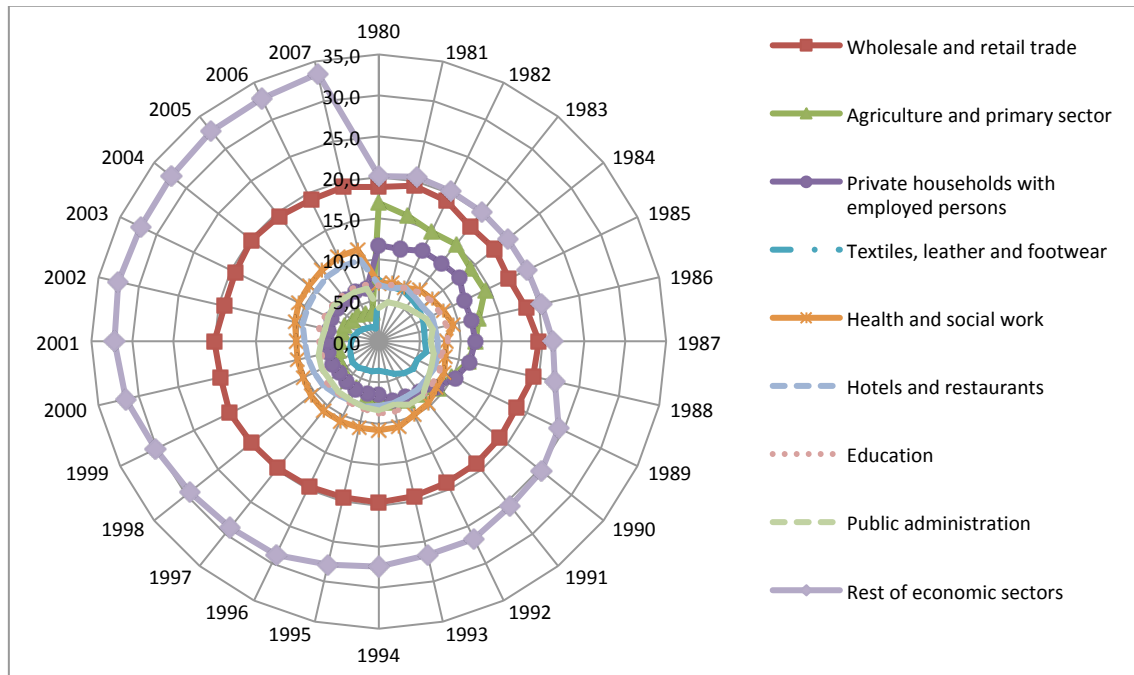
Source: Own elaboration.
Note: Concentration calculated as industry's share of the economy's female employment (in %). Only main sectors are presented.

According to Figure 3, the most important features are a progressive tendency to expand the number of sectors in which women significantly participate. By 2007, the eight sectors in which female workers dominate account for 66.5% of the total. The figure displays invariant shares in the wholesale and retail trade sector (around 20%); a drop in shares of female workers in agriculture and the primary sector (from 17% to 4%), private households (12% to 7%), and the textile sector (8% to 2%); and a sharp pick up in the shares of more-skilled services such as real estate and business services (from 2% to 12%), health and social work sector (7 to 11%), public administration (4% to 7%), and hotels and restaurants (7% to 10%).

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Figure 4. Male labour concentration (horizontal segregation), Spain 1980-2007.
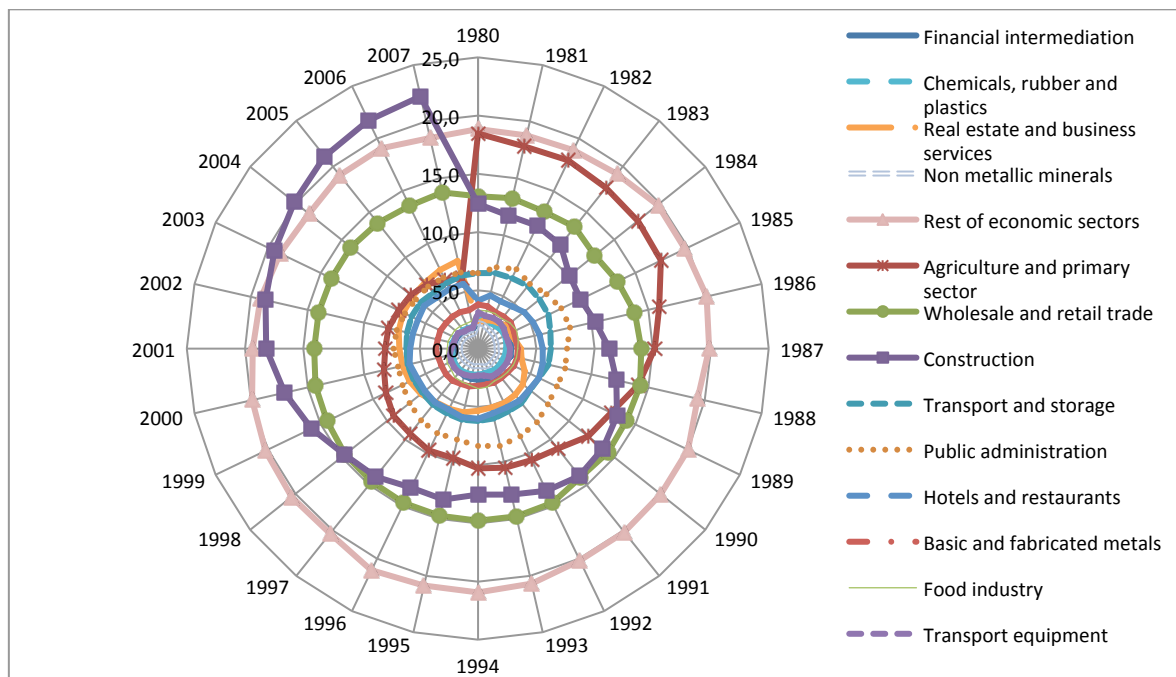
Regarding the employment distribution of men (Figure 4), 13 sectors explain about 80% of employment in 1980— as in the case of women, the rest of are aggregated together. The fact that it takes 13 rather than 8 sectors to build up to 80% of male employment is a clear sign of lower degree of concentration. We find greater dispersion in the distribution of male employment among sectors but surprising more stability; These 13 sectors represent 81.1% of the employment in 1980 and 81.4% 27-years later. The main changes for male employment follow the evolution of the general economy; that is, agriculture and primary sector fell from 18.5% to 6.2% of total employment, construction's share increased from 12.4% to 22.2%, real estate and business services also increased their slice of employment from 2.2% to 7.7%, and all remaining sectors more or less maintained their participation over the period with some occasional modest decline.

Table 2. General changes in female-male participation, Spain 1980-2007.

	Average annual growth rate (%)				Labour composition (% share in total hours worked)				
	1980-1986	1986-1993	1993-2000	2000-2007	1980	1986	1993	2000	2007
High-skilled women	4.9	8.4	7.3	5.7	2.78	4.02	6.37	8.75	10.95
High-skilled men	2.6	4.0	5.5	4.1	5.29	6.71	7.95	9.69	10.90
Medium-skilled women	8.3	13.3	8.4	5.3	1.95	3.43	7.38	10.86	13.25
Medium-skilled men	5.2	8.5	6.9	4.0	5.41	7.98	12.71	17.00	19.01
Low-skilled women	-2.8	0.2	-0.2	0.4	24.29	22.26	20.36	16.84	14.65
Low-skilled men	-2.7	-1.4	-0.4	0.0	60.29	55.59	45.23	36.86	31.24
Total women	-1.0	3.6	3.5	3.3	29.02	29.72	34.11	36.45	38.85
Total men	-1.6	0.6	2.0	1.8	70.98	70.28	65.89	63.55	61.15
Total employment (hours)	-1.4	1.5	2.6	2.4	100.00	100.00	100.00	100.00	100.00

Source: Own elaboration.

Table 2 brings supplies an overall view of the general changes in female-male participation by skill categories over the four subperiods. Except for 1980-1986, the employment growth rate in Spain was generally positive, higher than 2% from the mid-1990s until the 2008 recession. The female employment growth rate was particularly vibrant at six times the male annual average rate from 1986 to 1993, nearly double that of corresponding male employment growth rates in the latter two subperiods (1993-2000 and 2000-2007). Employment growths in high- and medium-skilled categories were highest, particularly for women for whom the average annual growth rate reached 8.4% (for high-skilled) and 13.3% (for medium-skilled) in 1986-1993. More specifically, the brief recession of the early 1990s and subsequent recovery also marked a change in the growth structure for Spain. The year 1993 appears to be the starting point for an economic expansion that is characterized by a liberalization of markets, a process that privatized Spanish state-owned enterprises, macroeconomic stability, but also low marginal growth in total factor productivity (i.e., technological change). The expansion period enabled significant population and employment growth, as well as rises in consumption and imports.

These data also offer initial insights into structural change of the economy, with two marked trends: first, Spain experienced a significant shift towards the incorporation of high- and medium-skilled workers; and second, women truly became engaged in Spain's formal economy, apparently via those high- and medium-skilled jobs. Over the 27 study years, women made progressive process in engaging in the economy. The share of high- and medium-skilled women among all workers rose from 4.73% in 1980 to 24.2% in 2007. Still, in 2007 the total share of all worker hours contributed by women (38.85%) remained far less than men's share (61.15%).

3.2. Decomposition of changes in the Spanish GPG

Changes in female and male employment as described in Section 3.1 had consequences for the evolution of the GPG over the study period. As shown in equation (2), the evolution of the gender wage ratio—and consequently of the GPG— can be explained on the basis of changes in feminization or horizontal segregation, direct discrimination, and structural change of the economy. Table 3 shows the results of this decomposition for the 1980-2007 period as well as for the four subperiods considered in the analysis of the Spanish economy (sectoral results can be seen in Appendix Table A2).

Table 3. Decomposition of changes in gender pay gap (GPG), Spain 1980-2007 (%).

	1980-2007	1980-1986	1986-1993	1993-2000	2000-2007
GPG	(29.55 to 22.23)	(29.55 to 30.81)	(30.81 to 27.73)	(27.73 to 22.50)	(22.50 to 22.23)
Changes in the ratio of salaries	**7.32**	**-1.26**	**3.08**	**5.23**	**0.27**
Feminization	12.88	4.61	4.61	0.69	1.48
Direct discrimination	2.16	-3.66	2.15	2.16	0.95
Structural change	-7..73	-2.22	-3.68	2.38	-2.16

Source: Own elaboration.

From 1980 to 1986 the GPG increased, and from 1986 to 2007 it decreased, corresponding the sharp decline from 1986 to 2000. In Spain, feminization of the labour force actively contributed to declines in the GPG in the 1980s, but its influence is much more moderate in this period than from 1993 to 2000. Direct discrimination —i.e. salary

differences between women and men within sectors— also had effects on the GPG that changed over the study subperiods. From 1980 to 1986, it contributed to a rise in GPG; but wage convergence contributed positively to its reduction starting in the mid-1980s —it was even more important than was feminization from 1993 to 2000— although its share moderates substantially by the last subperiod. Finally, changes in economic structure were also important in explaining GPG change. In fact, results suggest that the evolution of the average wage —driven by specialization in the economy—helped to increase GPG over most of the period..

In sum, we can infer that the Spanish GPG followed a sort of inverted U-shape. During the early 1980s, while feminization actively played helped narrow the gap between between women's and men's wages, direct discrimination and structural change played seems to have militated against feminization, via a rising wage differences in many industries and the retention of employment in sectors with wide gender wage gaps, like textiles, wholesale and retail trade, hotels and restaurants and private households with employed persons. Sectoral convergence in wages (reduction of discrimination indices) subsequently contributed most to reducing GPGs from 1986 to 2007, although the effect moderated from the prior subperiod. Over the whole period, wage convergence, notably in services sectors (Business activities, Public Administration, Education, Health, Other community services) and more moderated in the industry (for instance, Chemicals and Metals made weak contributions in the final periods) contributed to reduce the GPG. Changes in the economic structure contributed too, most notably by enabling female participation in the labour market but also to GPG change. Declines in relative average salaries in sectors with a significant share of women like Hotels and restaurants, Public administration, and Health and other services, ceteris paribus, put upward pressure on the GPG from 2000 to 2007.

Contrarily, the rise of services starting in the mid-1990s reduced the GPG mainly as knowledge-intensive services surged.

3.3. Decomposition of changes in the Spanish GEG: a demand approach

We now address the evolution of female and male employment in terms of the contribution of different SDA factors. Equations (5) to (7) distinguish three factors: the so-called intensity effect, which shows the proximate contribution of changes in employment per unit of output; the technology effect, which reflects changes in sectoral composition of production over time; and the final demand effect, which reflects the influence of changes in final demand components (private and public consumption, investment and net exports). Table 4 presents the results of this decomposition for the period 1980-2007, the four sub-periods, different categories of skills and gender (sectoral results are available in Appendix Table A3).

Table 4. Decomposition of changes in gender employment gap (GEG), Spain 1980-2007 (%).

		Women					Men				
		1980-2007	1980-1986	1986-1993	1993-2000	2000-2007	1980-2007	1980-1986	1986-1993	1993-2000	2000-2007
High-skilled	**Total change**	**17.3**	**5.5**	**10.9**	**9.1**	**6.8**	**7.3**	**2.8**	**4.5**	**6.5**	**4.7**
	Intensity	7.6	3	5.7	5.5	0	0.4	0.5	-0.3	2.4	-1.3
	Technology	1.3	0.2	0.3	-0.1	2	1.4	0.5	0.9	0.1	1.9
	Demand	8.5	2.3	4.8	3.8	4.8	5.5	1.8	4	4	4.1
	Consumption	7.6	2.5	5	2.7	4.1	4.4	2.2	4	2.4	3.2
	Investment	1.6	-0.2	0.1	1.6	1.2	1.8	-0.3	0.3	2.4	1.7
	Trade	-0.7	-0.1	-0.3	-0.5	-0.5	-0.7	-0.1	-0.3	-0.8	-0.8
Medium-skilled	**Total change**	**32.5**	**10.2**	**19.9**	**10.8**	**6.3**	**15**	**5.9**	**11**	**8.5**	**4.6**
	Intensity	18.6	7.8	13.3	6.5	0.6	6.5	3.7	5.7	3.8	-0.3
	Technology	1.9	0.5	1.1	0.1	1.7	1.3	0.5	0.7	0.4	1.5
	Demand	12	2	5.5	4.2	3.9	7.2	1.7	4.6	4.3	3.4
	Consumption	10.1	2.6	5.7	2.3	3.2	5.1	2.2	4.4	2	2.1
	Investment	3.2	-0.5	0.2	2.5	1.4	3.3	-0.5	0.5	3	2.2
	Trade	-1.3	0	-0.4	-0.6	-0.6	-1.1	0	-0.3	-0.8	-0.9
Low-skilled	**Total change**	**-0.5**	**-2.6**	**0.2**	**-0.2**	**0.4**	**-0.9**	**-2.6**	**-1.4**	**-0.4**	**0**
	Intensity	-3.6	-4.4	-3.6	-2.9	-3.4	-4.1	-4.1	-5.1	-3.7	-3.8
	Technology	0.4	0.2	0.4	0	1	0.6	0.2	0.2	0.5	1.1
	Demand	2.7	1.6	3.4	2.7	2.8	2.6	1.3	3.5	2.8	2.7
	Consumption	2.3	1.9	3.8	1.3	2.3	1.7	1.7	3.1	1.1	1.4
	Investment	0.6	-0.6	-0.2	1.7	1	1.2	-0.7	0.5	2.1	2.1
	Trade	-0.2	0.3	-0.2	-0.3	-0.5	-0.3	0.3	-0.1	-0.4	-0.7
Total	**Total change**	**3.4**	**-1**	**4**	**4**	**3.7**	**0.9**	**-1.5**	**0.6**	**2.2**	**1.9**
	Intensity	-1.1	-2.9	-0.4	0.7	-1.4	-3	-3.2	-3.4	-1.5	-2.5
	Technology	0.6	0.2	0.4	0	1.5	0.7	0.3	0.3	0.4	1.3
	Demand	3.9	1.7	3.9	3.3	3.6	3.2	1.4	3.7	3.2	3.1
	Consumption	3.3	2	4.2	1.8	3	2.2	1.8	3.3	1.4	1.8
	Investment	0.9	-0.5	-0.1	1.8	1.1	1.4	-0.6	0.5	2.3	2.1
	Trade	-0.3	0.2	-0.2	-0.4	-0.5	-0.4	0.2	-0.1	-0.5	-0.8

Source: Own elaboration.

For the overall economy, the intensity effect was negative across all subperiods, i.e., employment per unit of production progressively declined over the study period. Its effect induced a larger reduction for men than for women, suggesting a change in the labour composition of production *ceteris paribus*, with women's share rising—the aforementioned rise in the feminization in production. Moreover, looking at occupations, the negative intensity effect mainly appears to originate via strong declines

in low-skilled work for both women and men. Whereas the effect reacts positively to the rise in high- and medium-skilled occupations, which, interestingly enough, is larger for women than for men across most subperiods.

The technology effect drove employment increases, especially from 2000 onward. But the proximate contribution of the change by gender varied over time. Thus, during the expansion (1993-2000), technological and structural changes enabled sectors to increase more male than female employment participation. During recessionary periods (1986-1993 and 2000-2007) however, technological change favoured female workers.

Demand expansion was quite important across all periods. Changes in private and public consumption increasingly improved the demand for goods traditionally produced in sectors dominated by female labour from each subperiod to the next. Growth induced by investment, which naturally focused on construction and related supplying sectors, had bigger positive effect on male workers. Finally, trade expansion (net exports), which displayed an ever-growing negative balance over the subperiods, was a drag on employment *ceteris paribus*. Trade expansion mainly involved the import substitution of domestic production by traditional sectors that were loaded with low-skilled labour and, thus, facilitated the restructuring and decline of selected sectors in Spain, such as energy and textiles. This affected employment, which in general terms had been stronger for men than for women, except during the 1980s when most of the textile industry made its exodus.

To summarize, during the study period Spain experienced general productivity growth (labour intensity declined); high-technology services enhanced female employment; Spain's infrastructure investments (experienced as an expansion in construction and related services) had a damping effect on female employment.

4. Conclusions

In this paper we examine the proximate effects of economic growth and industry specialization on the size and composition of female employment and on gender-based labour gaps. With Spain as a case study, we take two complementary approaches, both of which exploits the multisectoral character of the economy. First, we decompose changes in the gender pay gap (GPG) by examining three factors: (1) the feminization of the economy at large, (2) direct discrimination within sectors, and (3) structural change within the economy. Second, via structural decomposition analysis, we study the roles of labour intensity, structural and technological change, as well as how changes in final demand (and its components) have affected Spain's employment outcomes by gender and skill characteristics of employment across subperiods from 1980-2008.

Our results confirm the suitability of the multisectoral input-output framework to analyse structural and technological changes and their impact on the GPG. Moreover, this work illustrates the potential benefit applying gender issues to macroeconomic analysis, given the strong relationship of national input-output relationships to labour accounts. It enables special insight from more general indicators of employment distribution by industry, horizontal segregation, direct discrimination, structural changes, and the evolution of economic size and composition.

Our paper is a first step and examines the vertical integration of production — i.e., the study of the different steps of the production chain, from final demand to primary resources. The general approach can also allow for the identification of main intersectoral linkages (those key connections between the supply and demand perspectives) as well as detailed impacts on male and female labour worldwide, given final demands across nations.

From the study of the Spanish economy, we conclude that from 1980 to 2007 there was continuous positive employment growth (on average, more than 2.5% per year). Labour productivity constantly rose (which in total meant less labour per unit of production), and employment creation benefited from technology change as demand rose for medium and high-skilled labour due in part to a demand for higher-skilled work per unit of final demand —mainly linked to demand oriented sectors and services sectors.. The increase of demand (scale effect) was also an important driver of employment growth.

From a gender perspective, structural change meant greater shares of women in participating in the labour market. More specifically, we observed a structural change steering Spain towards more female employment per unit of final demand, particularly important in high and medium-skilled categories (knowledge intensive services, KIS), greater demand (scale effects of rest of services), and a shift toward a more service-oriented economy. Sectoral feminization and the reduction of direct discrimination helped to reduce the GPG in Spain in the final decade of the study period.

Given the long-term approach followed in this paper and the lack of detailed data on the origin and destination of imports and exports, our analysis necessarily focused on Spanish domestic production and its impact on employment. We thereby avoided an analytical discussion of any associated internationally induced worldwide effects of changes in global production and employment. Additionally, and more importantly, certain limitations in current data and accounting systems affect the nature of our results. That is, the contribution of women to the economy is undervalued because contribution of household work and much family care—mainly supplied without *apparent* cost by women within households—remain excluded from national economic accounts despite the importance of their inclusion as emphasized by feminist

economists such as Waring (1988), Elson (2002), Uriel et al. (2005), Carrasco and Serrano (2011), Razavi and Staab (2011) and recently Saunders and Dalziel (2017), among others. Moreover, Elson (2002) highlights the negative feedbacks experienced as productivity falls and the increasing costs that can crop up in private and public sectors, when unpaid care is treated as a free good in limitless supply (cf. the case study by Hoenig and Page, 2012).

In this context, our work is a first step in the study of female employment and gender gaps for Spain with multisectoral input-output models, focusing on historical structural changes (size, sectoral composition and intersectoral linkages), and their evaluation in terms of gender employment and pay gaps. Once factors are identified to explain gender gaps, one of the potential extensions of the current analysis is to require addressing not only income formation but also income distribution by gender and, consequently, the overall effects on income. This could be captured with a gender-informed social accounting matrix framework. Such a framework could lead to the implementation and evaluation of gender strategies through the development of a gender-informed computable general equilibrium model for Spain with gender disaggregation in labour, production and households, and interestingly, the integration of nonmarket activities in line with previous developments for other economies (see Arndt and Tarp, 2000, Fontana and Wood, 2000; Fontana, 2002; Arndt et al. 2011; Severini et al. 2018, among others). Additionally, extension of such analyses to a multinational economy framework is a clear next step in our work. It will provide a more complete picture of the global nature of gender issues in a highly globalized economy.

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Appendix

Figure A1. Evolution of salaries by gender, Spain 1980-2007
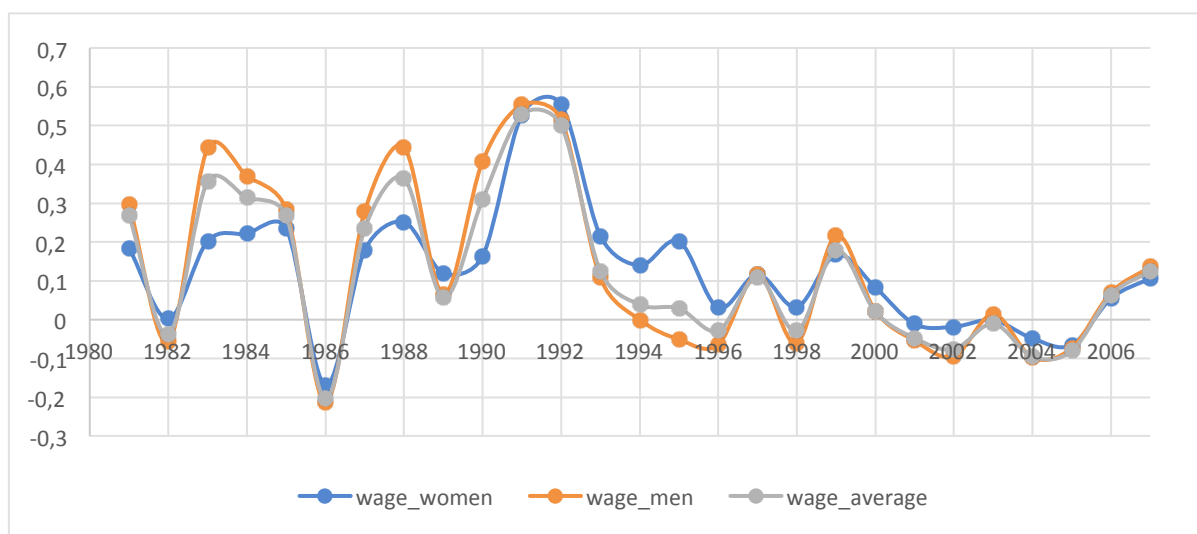
Source: Own elaboration.

Figure A2. Sectoral distribution of salaries by gender, Spain 1980
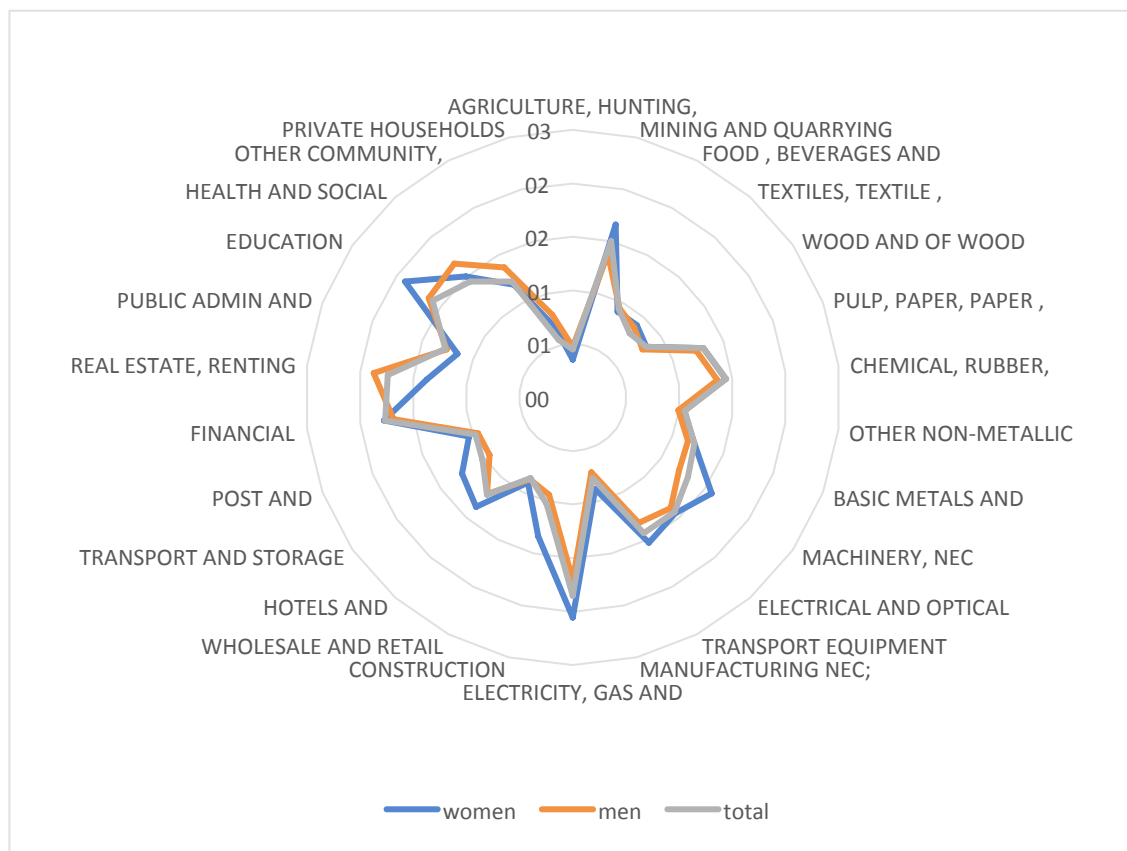
Source: Own elaboration.

Note: Concentration calculated as industry's share of the economy's female employment (in %). Only main sectors are presented.

Figure A3. Sectoral distribution of salaries by gender, Spain 1995
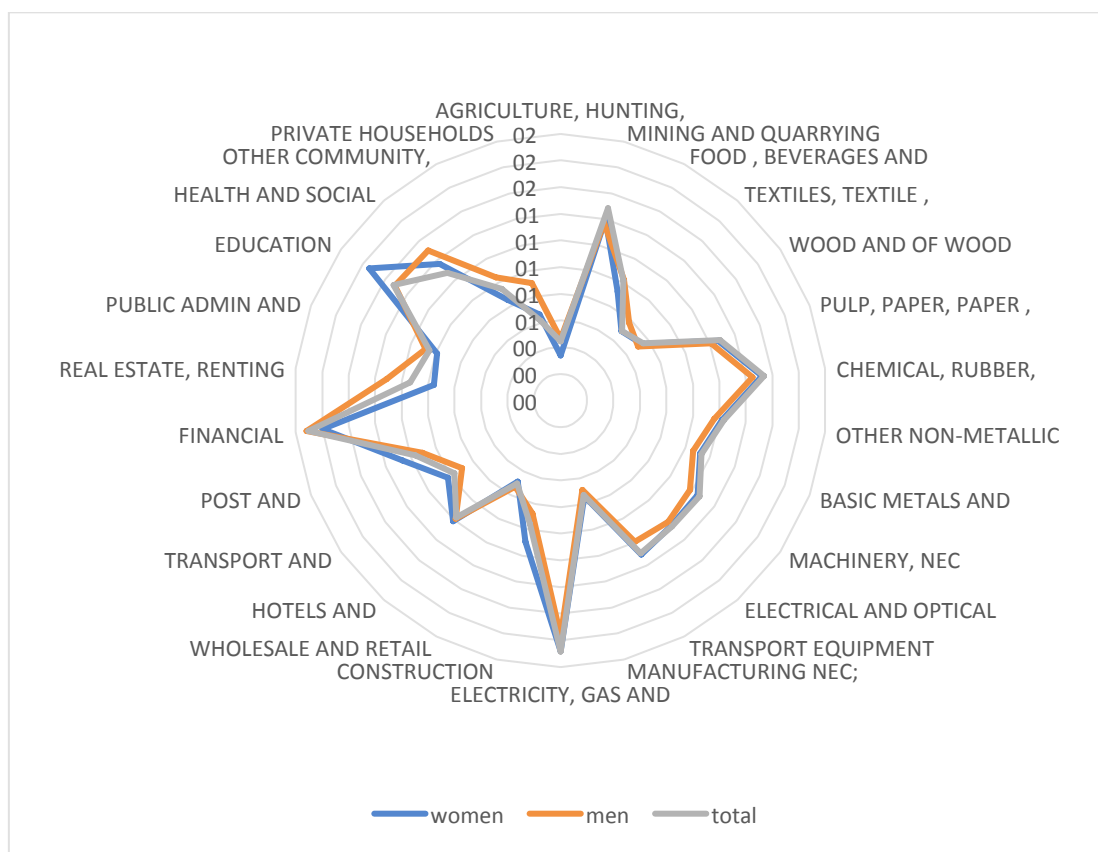
Source: Own elaboration.

Note: Concentration calculated as industry's share of the economy's female employment (in %). Only main sectors are presented.

Figure A4. Sectoral distribution of salaries by gender, Spain 2007
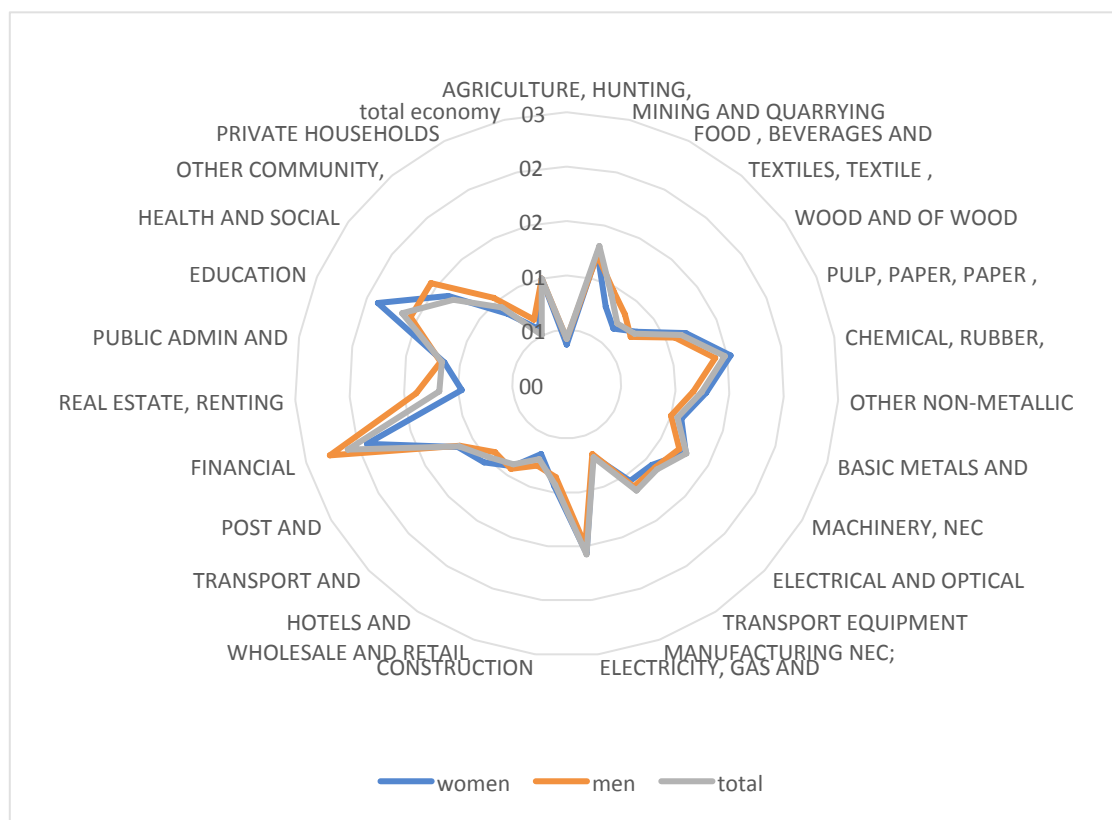
Source: Own elaboration.
Note: Concentration calculated as industry's share of the economy's female employment (in %). Only main sectors are presented.

Table A1. Sectoral contribution to employment change by gender and skill categories,
Spain 1980-2007 (in %)

Sector	High-skilled Women	High-skilled Men	Medium-skilled Women	Medium-skilled Men	Low-skilled Women	Low-skilled Men
1. AGRICULTURE, HUNTING, FORESTRY AND FISHING	0.76	1.54	1.85	3.52	107.79	54.75
2. MINING AND QUARRYING	0.07	0.05	0.04	0.22	0.14	2.61
3. FOOD, BEVERAGES AND TOBACCO	0.88	1.62	1.70	2.28	5.60	5.80
4. TEXTILES, TEXTIL LEATHER AND FOOTWEAR	0.35	0.28	0.99	0.68	48.41	5.56
5. WOOD AND OF WOOD AND CORK	0.33	0.33	0.25	0.66	1.41	2.00
6. PULP, PAPER, PAPER, PRINTING AND PUBLISHING	0.67	0.90	0.55	1.51	0.92	1.40
7. CHEMICAL, RUBBER, PLASTICS AND FUEL	0.86	0.94	0.67	1.79	3.11	4.43
8. OTHER NON-METALLIC MINERAL	0.60	0.53	0.44	1.15	3.23	4.52
9. BASIC METALS AND FABRICATED METAL	1.54	1.98	1.26	3.42	2.97	4.40
10. MACHINERY, NEC	0.23	1.37	0.53	2.47	-0.45	2.94
11. ELECTRICAL AND OPTICAL EQUIPMENT	0.48	1.30	0.71	1.34	3.34	3.29
12. TRANSPORT EQUIPMENT	0.52	1.88	0.60	2.25	-2.02	8.06
13. MANUFACTURING NEC; RECYCLING	0.42	0.50	0.68	1.30	1.48	2.08
14. ELECTRICITY, GAS AND WATER SUPPLY	0.40	0.83	0.20	0.59	-0.03	1.89
15. CONSTRUCTION	2.59	10.05	2.55	20.08	-4.74	-33.06
16. WHOLESALE AND RETAIL TRADE	10.59	8.43	22.75	17.39	-4.03	12.34
17. HOTELS AND RESTAURANTS	4.42	3.34	11.24	7.03	-40.07	-1.16
18. TRANSPORT AND STORAGE	2.81	3.42	2.64	7.62	-3.14	6.39
19. POST AND TELECOMMUNICATIONS	1.44	2.56	1.82	1.61	3.29	1.69
20. FINANCIAL INTERMEDIATION	4.92	5.33	2.08	-0.25	3.23	5.46
21. REAL ESTATE, RENTING AND BUSINESS ACTIVITIES	16.48	25.35	11.91	8.74	-59.55	-4.17
22. PUBLIC ADMIN AND DEFENCE; COMPULSORY SOCIAL SECURITY	11.10	8.56	5.97	7.32	-1.36	7.78
23. EDUCATION	12.82	6.98	1.99	0.90	1.01	0.44
24. HEALTH AND SOCIAL WORK	17.06	5.00	13.35	1.97	4.35	1.49
25. OTHER COMMUNITY, SOCIAL AND PERSONAL SERVICES	5.76	6.75	7.49	4.01	-5.00	-1.88
26 PRIVATE HOUSEHOLDS WITH EMPLOYED PERSONS	1.89	0.17	5.73	0.41	30.19	0.96
TOTAL ECONOMY	**100**	**100**	**100**	**100**	**100**	**100**

Source: Own calculation.

Table A2. Sectoral decomposition of changes in the ratio of salaries, Spain 1980-2007

	Changes in the ratio of salaries (R)					Changes in feminization index (F)					Changes in Discrimination index (D)					Changes in the structure (S)				
	1980-2007	1980-1986	1986-1993	1993-2000	2000-2007	1980-2007	1980-1986	1986-1993	1993-2000	2000-2007	1980-2007	1980-1986	1986-1993	1993-2000	2000-2007	1980-2007	1980-1986	1986-1993	1993-2000	2000-2007
. AGRICULTURE, HUNTING, FORESTRY AND FISHING	15.34	-2.61	3.73	6.58	7.65	-3.51	-1.04	-1.15	-0.70	-0.40	0.67	-0.18	0.17	0.20	0.15	-0.29	-0.05	-0.01	0.02	-0.14
. MINING AND QUARRYING	-6.01	-9.86	2.60	16.07	-14.81	-0.01	0.03	-0.03	-0.02	0.01	0.00	-0.01	0.00	0.01	-0.01	-0.01	0.00	0.00	-0.01	0.00
. FOOD, BEVERAGES AND TOBACCO	-3.63	-7.55	2.70	3.15	-1.94	-0.71	-0.30	-0.10	-0.20	-0.11	-0.09	-0.21	0.07	0.08	-0.04	0.04	0.09	0.06	-0.07	-0.03
. TEXTILES, TEXTIL LEATHER AND FOOTWEAR	-11.02	-10.46	-1.06	4.31	-3.81	-3.40	-1.08	-0.92	-0.12	-0.99	-0.43	-0.58	-0.04	0.13	-0.08	-0.11	-0.26	-0.02	-0.10	0.13
. WOOD AND OF WOOD AND CORK	11.30	-3.83	5.73	4.22	5.18	-0.07	-0.05	0.01	0.02	-0.05	0.03	-0.01	0.01	0.01	0.01	-0.02	-0.02	0.00	0.00	0.01
. PULP, PAPER, PAPER, PRINTING AND PUBLISHING	11.30	-3.83	5.73	4.22	5.18	0.01	-0.04	0.07	0.10	-0.11	0.07	-0.02	0.04	0.03	0.03	-0.07	0.00	-0.01	-0.04	-0.03
. CHEMICAL, RUBBER, PLASTICS AND FUEL	11.30	-3.83	5.73	4.22	5.18	-0.24	-0.14	-0.09	0.18	-0.18	0.13	-0.05	0.06	0.05	0.06	0.02	0.07	0.01	-0.09	0.02
. OTHER NON-METALLIC MINERAL	11.30	-3.83	5.73	4.22	5.18	-0.24	-0.18	-0.01	0.08	-0.10	0.08	-0.03	0.03	0.03	0.03	0.09	0.03	0.04	-0.03	0.05
. BASIC METALS AND FABRICATED METAL	11.30	-3.83	5.73	4.22	5.18	-0.06	-0.21	-0.03	0.25	-0.06	0.16	-0.05	0.07	0.05	0.07	-0.16	-0.03	-0.01	-0.09	-0.01
0. MACHINERY, NEC	-9.93	-8.08	-5.47	3.30	0.32	0.06	-0.20	0.05	0.17	0.00	-0.05	-0.03	-0.01	0.01	0.00	0.00	0.01	-0.01	-0.03	0.03
1. ELECTRICAL AND OPTICAL EQUIPMENT	1.55	-5.35	4.85	4.00	-1.95	-0.24	0.02	0.07	0.06	-0.37	0.01	-0.06	0.05	0.05	-0.02	-0.14	-0.05	-0.05	-0.03	-0.04
2. TRANSPORT EQUIPMENT	-8.15	-5.33	-4.21	6.89	-5.51	0.20	-0.09	0.11	0.11	0.05	-0.05	-0.03	-0.02	0.04	-0.04	-0.08	-0.01	-0.02	-0.04	0.00
3. MANUFACTURING NEC; RECYCLING	-5.36	-8.87	2.80	3.62	-2.90	-0.09	-0.19	0.05	0.08	-0.04	-0.03	-0.04	0.01	0.02	-0.01	-0.02	-0.01	-0.01	0.00	0.00
4. ELECTRICITY, GAS AND WATER SUPPLY	-3.34	-7.20	-4.32	1.54	6.64	0.15	0.10	0.00	0.02	0.03	-0.01	-0.02	-0.01	0.00	0.02	-0.03	0.02	-0.02	-0.01	-0.03
5. CONSTRUCTION	-15.16	-9.60	-3.63	0.01	-1.94	1.10	-0.10	0.39	0.31	0.36	-0.19	-0.05	-0.02	0.00	-0.03	-0.09	-0.07	0.04	-0.09	0.09
6. WHOLESALE AND RETAIL TRADE	-6.14	-6.55	0.98	0.13	-0.71	0.29	-0.29	0.49	0.22	-0.20	-0.97	-1.02	0.14	0.02	-0.11	-0.92	-0.74	-0.71	0.39	0.18
7. HOTELS AND RESTAURANTS	-4.55	-6.28	-0.05	1.62	0.16	2.72	0.15	0.61	1.03	1.05	-0.42	-0.52	0.00	0.17	0.02	-1.80	-0.09	-0.14	0.74	-2.52
8. TRANSPORT AND STORAGE	-4.54	-11.13	-1.44	7.86	0.17	1.00	0.07	0.12	0.37	0.36	-0.06	-0.10	-0.01	0.10	0.00	-0.05	0.01	-0.06	0.00	0.03
9. POST AND TELECOMMUNICATIONS	2.88	-0.26	5.23	-3.37	1.28	0.20	-0.02	0.09	0.27	-0.13	0.03	0.00	0.05	-0.05	0.02	0.16	-0.02	0.14	0.16	-0.12
0. FINANCIAL INTERMEDIATION	-8.35	-6.31	-0.12	0.56	-2.49	1.25	0.16	0.85	-0.05	0.30	-0.30	-0.18	0.00	0.02	-0.12	0.76	0.41	-0.19	0.25	0.25
1. REAL ESTATE, RENTING AND BUSINESS ACTIVITIES	2.83	1.88	0.07	0.12	0.76	8.15	1.07	3.60	1.36	1.08	0.36	0.10	0.01	0.02	0.12	-1.90	-0.75	-0.31	0.33	-0.02
2. PUBLIC ADMIN AND DEFENCE; COMPULSORY SOCIAL ECURITY	11.03	-0.68	2.24	6.33	3.13	2.12	2.01	0.86	-0.29	-0.75	0.72	-0.04	0.18	0.53	0.25	-0.31	-0.38	-0.36	0.10	0.45
3. EDUCATION	11.91	3.54	2.87	2.39	3.11	0.38	2.19	0.30	-2.14	-0.09	1.32	0.42	0.35	0.28	0.35	-0.42	-1.22	-0.28	1.10	0.02
4. HEALTH AND SOCIAL WORK	4.15	0.72	6.49	-2.57	-0.48	4.68	2.35	1.47	-0.54	1.35	0.63	0.10	0.99	-0.39	-0.08	-0.67	-0.18	-1.52	0.53	0.56
5. OTHER COMMUNITY, SOCIAL AND PERSONAL SERVICES	1.86	-4.22	1.48	4.00	0.60	1.50	0.44	-0.03	0.67	0.35	0.11	-0.23	0.08	0.22	0.04	-1.01	-0.21	-0.30	-0.20	-0.22
6 PRIVATE HOUSEHOLDS WITH EMPLOYED PERSONS	6.70	-7.81	-0.61	8.58	6.54	-2.34	-0.05	-2.15	-0.53	0.13	0.44	-0.81	-0.06	0.54	0.33	-0.70	1.19	0.05	-0.43	-0.83
OTAL ECONOMY	**7.32**	**-1.26**	**3.08**	**5.23**	**0.27**	**12.88**	**4.61**	**4.61**	**0.69**	**1.48**	**2.16**	**-3.66**	**2.15**	**2.16**	**0.95**	**-7.73**	**-2.22**	**-3.68**	**2.38**	**-2.16**

Source: Own calculation.

Table A3. Sectoral decomposition of changes in gender employment gap (GEG) by gender and skill categories, Spain 1980-2007 (yearly average of change in %)

		1980-1986									1986-1993									1993-2000									2000-2007								
		PS	ES	HT-MHTI	MLTI	LTI	C	KIS	RS	Total	PS	ES	HT-MHTI	MLTI	LTI	C	KIS	RS	Total	PS	ES	HT-MHTI	MLTI	LTI	C	KIS	RS	Total	PS	ES	HT-MHTI	MLTI	LTI	C	KIS	RS	Total
High-skilled Women	Total change	18.5	4.2	2.3	13.0	10.2	24.1	12.9	5.1	5.5	18.7	0.2	21.7	26.5	13.2	15.1	35.7	9.4	10.9	9.0	21.2	22.1	24.5	28.7	44.4	22.4	6.8	9.1	11.1	18.2	1.4	8.0	4.0	21.9	7.3	6.6	6.8
	Intensity	13.2	2.1	-0.6	14.3	9.3	24.8	7.9	2.7	3.0	13.2	-2.3	15.9	26.0	9.0	6.9	17.3	4.8	5.7	7.7	17.9	11.6	14.9	24.8	36.1	11.9	4.1	5.5	12.5	10.9	-1.0	2.8	3.0	12.0	0.5	-0.5	0.0
	Technology	1.1	0.3	1.9	-2.4	-0.8	-0.1	3.4	0.1	0.2	-1.0	-5.0	0.5	-4.6	0.9	0.7	11.6	-0.1	0.3	-1.4	0.3	0.3	1.8	2.8	3.5	2.0	-0.5	-0.1	-3.0	12.8	0.4	2.5	0.7	2.4	3.1	1.9	2.0
	Demand	4.2	1.7	1.1	1.1	1.7	-0.6	1.6	2.3	2.3	6.5	7.4	5.3	5.1	3.4	7.5	6.8	4.7	4.8	2.8	3.0	10.1	7.8	1.1	4.8	8.5	3.2	3.8	1.6	-5.5	1.9	2.7	0.3	7.5	3.7	5.3	4.8
	- Consumption	3.6	3.1	2.3	1.7	2.7	0.7	2.8	2.5	2.5	6.0	6.8	5.6	4.1	4.9	1.4	6.4	5.0	5.0	0.1	4.4	2.8	1.4	-0.9	1.4	3.7	2.7	2.7	1.6	6.2	1.0	1.0	0.5	0.5	2.3	4.8	4.1
	- Investment	-2.0	-2.8	1.4	-0.9	-1.0	-1.4	-1.2	-0.1	-0.2	-0.4	-1.3	0.1	3.0	-0.2	6.1	1.4	0.0	0.1	1.4	10.9	11.5	7.3	3.6	3.9	7.0	0.7	1.6	0.4	5.0	3.6	4.2	1.1	7.2	3.1	0.6	1.2
	- Trade	2.5	1.4	-2.6	0.3	0.1	0.1	0.1	0.0	-0.1	0.9	1.9	-0.5	-2.0	-1.3	0.0	-1.0	-0.2	-0.3	1.3	-12.3	-4.1	-1.0	-1.7	-0.5	-2.2	-0.2	-0.5	-0.4	-16.8	-2.7	-2.5	-1.3	-0.2	-1.7	-0.1	-0.5
High-skilled Men	Total change	3.4	1.7	2.1	-1.8	4.6	1.2	4.7	2.8	2.8	0.2	12.7	7.1	0.7	3.9	3.3	11.7	3.4	4.5	12.7	0.3	7.1	13.1	8.2	17.0	10.8	4.6	6.5	5.5	1.9	3.5	4.2	1.9	18.2	4.8	4.0	4.7
	Intensity	-0.5	-0.5	-1.6	-1.0	3.6	1.6	0.8	0.5	0.5	-3.3	8.7	2.9	0.2	0.5	-2.9	-1.1	-0.5	-0.3	11.2	-2.2	-1.1	5.3	5.7	11.6	2.4	1.9	2.4	6.6	-3.4	0.8	-0.5	0.5	8.9	-1.6	-2.6	-1.3
	Technology	0.8	0.7	2.3	-1.6	-0.5	-0.1	2.7	0.2	0.5	-0.6	-4.4	0.4	-2.4	0.7	0.5	8.5	-0.1	0.9	-1.5	-0.3	0.7	1.5	1.8	2.3	1.7	-0.5	0.1	-2.5	8.0	0.4	2.3	0.6	2.3	2.9	1.8	1.9
	Demand	3.0	1.5	1.5	0.8	1.4	-0.4	1.1	2.1	1.8	4.2	8.4	3.8	2.9	2.7	5.7	4.3	4.0	4.0	3.0	2.7	7.6	6.2	0.7	3.1	6.7	3.2	4.0	1.4	-2.8	2.2	2.4	0.8	7.0	3.5	4.8	4.1
	- Consumption	2.6	2.8	2.6	1.2	2.2	0.4	2.2	2.3	2.2	3.9	8.1	4.0	2.3	3.9	1.0	4.1	4.1	4.0	0.1	2.6	2.3	1.1	-0.6	0.9	2.8	2.6	2.4	1.4	3.5	0.9	0.9	0.7	0.4	2.1	4.3	3.2
	- Investment	-1.4	-2.2	1.0	-0.6	-0.7	-0.8	-1.0	-0.2	-0.3	-0.3	-1.3	0.1	1.7	-0.2	4.7	0.9	0.0	0.3	1.5	5.1	8.4	5.8	2.3	2.5	5.6	0.9	2.4	0.3	2.9	4.1	3.8	1.1	6.8	3.0	0.6	1.7
	- Trade	1.8	0.9	-2.2	0.2	0.0	0.0	0.0	0.0	-0.1	0.6	1.6	-0.2	-1.1	-1.1	0.0	-0.6	-0.2	-0.3	1.4	-5.0	-3.1	-0.7	-1.0	-0.3	-1.7	-0.3	-0.8	-0.4	-9.2	-2.8	-2.3	-1.0	-0.2	-1.6	-0.1	-0.8
Medium-skilled Women	Total change	25.1	19.7	4.7	3.8	6.8	1.4	18.6	10.5	10.2	13.2	12.7	16.1	15.8	22.1	34.2	29.2	18.7	19.9	14.8	0.0	9.2	10.5	12.5	11.6	8.9	11.1	10.8	11.3	3.8	2.6	1.4	0.3	5.3	6.3	7.1	6.3
	Intensity	19.1	16.7	1.1	4.8	6.0	1.9	13.4	8.0	7.8	8.3	8.5	10.9	15.3	17.9	22.9	12.3	13.0	13.3	13.2	-2.7	1.1	3.1	9.9	6.9	0.7	7.6	6.5	12.7	-1.7	0.1	-3.0	-0.2	-1.8	-0.3	0.9	0.6
	Technology	1.3	1.1	2.1	-1.9	-0.8	-0.1	3.6	0.3	0.5	-0.9	-3.2	0.4	-3.7	0.8	0.9	10.8	0.2	1.1	-1.6	-0.6	0.4	1.5	1.6	2.0	1.7	-0.4	0.1	-3.0	8.9	0.4	2.1	0.9	1.8	3.0	1.6	1.7
	Demand	4.7	1.9	1.5	0.9	1.6	-0.4	1.6	2.3	2.0	5.8	7.4	4.8	4.2	3.4	10.4	6.1	5.6	5.5	3.2	3.3	7.7	5.9	1.0	2.7	6.5	3.9	4.2	1.6	-3.4	2.2	2.2	-0.4	5.2	3.6	4.6	3.9
	- Consumption	4.1	4.3	2.8	1.4	2.4	0.4	3.0	2.7	2.6	5.3	7.4	5.2	3.4	5.7	1.9	5.8	5.9	5.7	0.1	2.6	2.3	1.1	-0.4	0.8	2.9	2.6	2.3	1.7	4.2	1.0	0.8	0.1	0.3	2.3	3.9	3.2
	- Investment	-2.2	-3.6	0.9	-0.7	-0.9	-0.8	-1.4	-0.4	-0.5	-0.4	-1.0	0.2	2.5	-0.3	8.4	1.2	-0.2	0.2	1.6	4.2	8.7	5.5	2.8	2.2	5.3	1.5	2.5	0.4	3.4	3.9	3.5	0.8	5.1	3.0	0.8	1.4
	- Trade	2.8	1.2	-2.2	0.2	0.1	0.0	0.0	0.0	0.0	0.8	1.0	-0.6	-1.6	-1.9	0.0	-0.9	-0.2	-0.4	1.5	-3.5	-3.2	-0.7	-1.4	-0.3	-1.6	-0.2	-0.6	-0.4	-11.0	-2.7	-2.1	-1.4	-0.2	-1.6	-0.2	-0.6
Medium-skilled Men	Total change	7.6	13.2	5.7	1.2	5.8	4.1	12.7	5.7	5.9	5.5	5.0	9.0	9.2	9.8	28.7	14.9	10.3	11.0	11.4	3.5	8.7	12.6	8.3	18.5	7.3	6.8	8.5	4.8	1.8	1.4	2.3	2.4	13.3	3.1	4.1	4.6
	Intensity	3.3	10.3	2.4	2.1	5.0	4.6	7.6	3.3	3.7	1.4	1.6	4.8	8.7	5.3	18.3	1.9	5.6	5.7	9.9	0.9	0.2	4.9	5.4	13.0	-1.5	3.4	3.8	5.9	-3.1	-1.2	-2.1	0.9	4.9	-3.1	-1.2	-0.3
	Technology	0.9	0.5	1.8	-1.8	-0.5	-0.1	3.4	0.5	0.5	-0.7	-3.3	0.3	-3.1	0.9	0.8	8.3	0.2	0.7	-1.5	-0.2	0.8	1.5	1.5	2.3	2.1	-0.4	0.4	-2.5	10.0	0.3	2.2	0.9	2.1	2.8	1.5	1.5
	Demand	3.3	2.4	1.5	0.8	1.3	-0.4	1.7	1.9	1.7	4.8	6.7	3.9	3.7	3.5	9.5	4.7	4.5	4.6	2.9	2.8	7.7	6.2	1.5	3.2	6.7	3.7	4.3	1.3	-5.1	2.3	2.3	0.6	6.3	3.3	3.8	3.4
	- Consumption	2.9	3.6	2.8	1.3	1.9	0.4	2.8	2.3	2.2	4.5	6.5	4.0	2.9	4.6	1.8	4.7	4.8	4.4	0.1	2.9	2.5	1.1	-0.2	0.9	3.3	2.4	2.0	1.4	4.7	0.7	0.8	0.6	0.4	2.1	3.2	2.1
	- Investment	-1.6	-2.8	0.8	-0.7	-0.7	-0.9	-1.2	-0.5	-0.5	-0.3	-1.0	-0.1	2.1	0.0	7.8	0.7	-0.1	0.5	1.5	6.0	8.5	5.8	2.7	2.6	4.8	1.7	3.0	0.3	3.8	3.9	3.6	1.2	6.1	2.6	0.9	2.2
	- Trade	2.0	1.6	-2.1	0.2	0.0	0.1	0.1	0.1	0.0	0.7	1.2	0.0	-1.4	-1.0	0.0	-0.7	-0.2	-0.3	1.3	-6.2	-3.3	-0.7	-1.0	-0.3	-1.4	-0.3	-0.8	-0.4	-13.6	-2.3	-2.2	-1.2	-0.2	-1.4	-0.3	-0.9
Low-skilled W	Total change	-4.6	4.5	-4.9	-5.8	-4.8	-6.4	1.1	-1.4	-2.6	-3.6	-4.8	1.6	-2.0	-1.3	11.5	17.3	0.5	0.2	-3.1	2.4	2.4	3.7	0.3	2.5	1.8	-0.2	-0.2	-2.7	-1.4	-1.1	-0.9	-3.1	8.3	1.7	1.2	0.4

Group	Component																																				
	Intensity	-7.7	2.6	-8.3	-5.0	-5.2	-6.0	-2.7	-3.1	-4.4	-6.8	-6.8	-2.3	-2.6	-2.9	3.9	3.3	-3.3	-3.6	-4.0	0.4	-4.5	-2.6	-0.8	-1.3	-4.9	-2.8	-2.9	-1.8	-5.7	-3.3	-4.9	-2.6	0.7	-4.2	-3.7	-3.4
	Technology	0.7	0.0	2.2	-1.4	-0.7	0.0	2.6	0.1	0.2	-0.6	-4.7	0.4	-2.1	0.2	0.6	9.0	0.2	0.4	-0.9	0.3	0.3	1.3	1.3	1.6	1.3	-0.3	0.0	-1.9	9.4	0.4	2.0	0.6	1.9	2.7	1.3	1.0
	Demand	2.4	1.8	1.2	0.7	1.1	-0.3	1.2	1.6	1.6	3.7	6.6	3.5	2.7	1.4	7.0	4.9	3.6	3.4	1.9	1.7	6.7	5.0	-0.1	2.2	5.3	2.9	2.7	1.0	-5.1	1.8	2.1	-1.1	5.6	3.2	3.6	2.8
	- Consumption	2.1	3.2	2.2	1.0	1.8	0.3	2.1	2.0	1.9	3.4	6.0	3.7	2.1	3.1	1.3	4.7	4.0	3.8	0.0	2.8	1.8	0.9	-0.7	0.7	2.1	1.8	1.3	1.1	4.2	0.8	0.7	-0.2	0.3	1.9	3.1	2.3
	- Investment	-1.1	-3.1	1.0	-0.5	-0.8	-0.6	-0.9	-0.4	-0.6	-0.2	-1.1	0.2	1.6	-0.4	5.7	1.0	-0.3	-0.2	0.9	7.0	7.6	4.6	1.7	1.8	4.6	1.2	1.7	0.2	3.5	3.4	3.3	0.5	5.5	2.8	0.7	1.0
	- Trade	1.5	1.7	-2.0	0.2	0.1	0.0	0.0	0.0	0.3	0.5	1.7	-0.5	-1.0	-1.3	0.0	-0.7	-0.1	-0.2	0.9	-8.1	-2.7	-0.6	-1.1	-0.3	-1.4	-0.1	-0.3	-0.3	-12.8	-2.5	-2.0	-1.4	-0.2	-1.5	-0.1	-0.5
Low-skilled Men	Total change	-3.3	-2.8	-4.0	-4.2	-2.3	-4.0	1.7	-1.2	-2.6	-5.0	-4.5	-2.6	-1.6	-1.4	2.9	2.0	-0.7	-1.4	-2.2	-5.2	-1.6	0.2	-1.0	5.4	-2.7	-1.4	-0.4	-3.0	-2.4	-2.8	-0.7	-2.3	4.4	2.3	-0.7	0.0
Low-skilled Men	Intensity	-6.6	-4.0	-6.4	-3.4	-2.9	-3.7	-2.4	-2.9	-4.1	-8.0	-6.2	-5.4	-2.1	-4.6	-3.3	-7.9	-4.5	-5.1	-3.2	-6.3	-8.3	-5.5	-3.1	1.3	-9.6	-4.3	-3.7	-2.1	-5.5	-5.1	-4.8	-3.7	-2.5	-3.7	-4.7	-3.8
Low-skilled Men	Technology	0.7	0.8	1.3	-1.5	-0.4	-0.1	2.7	0.2	0.2	-0.6	-5.7	0.1	-2.2	0.6	0.5	6.5	0.5	0.2	-1.0	0.7	1.0	1.2	0.9	1.8	1.8	0.0	0.5	-1.9	13.7	0.2	2.0	1.1	1.8	2.7	1.1	1.1
Low-skilled Men	Demand	2.5	0.3	1.2	0.7	1.0	-0.3	1.4	1.4	1.3	3.5	7.5	2.7	2.7	2.6	5.7	3.4	3.3	3.5	1.9	0.4	5.6	4.5	1.3	2.3	5.1	2.9	2.8	1.0	-10.5	2.0	2.1	0.2	5.1	3.3	3.0	2.7
Low-skilled Men	*- Consumption*	2.2	2.8	2.2	1.1	1.5	0.3	2.2	1.9	1.7	3.3	6.7	2.9	2.1	3.3	1.0	3.5	3.6	3.1	0.0	2.2	2.1	0.8	0.0	0.7	2.5	1.6	1.1	1.1	6.3	0.6	0.7	0.4	0.3	2.1	2.4	1.4
Low-skilled Men	*- Investment*	-1.2	-2.9	0.3	-0.6	-0.5	-0.7	-0.9	-0.5	-0.7	-0.2	-1.4	-0.2	1.6	0.0	4.6	0.4	-0.2	0.5	1.0	6.6	5.7	4.2	2.1	1.9	3.7	1.4	2.1	0.2	5.1	3.2	3.3	0.9	5.0	2.6	0.9	2.1
Low-skilled Men	*- Trade*	1.5	0.4	-1.4	0.2	0.0	0.0	0.1	0.1	0.3	0.5	2.2	0.0	-1.0	-0.7	0.0	-0.5	-0.2	-0.1	0.9	-8.4	-2.2	-0.5	-0.8	-0.3	-1.1	-0.2	-0.4	-0.3	-21.9	-1.8	-2.0	-1.1	-0.2	-1.4	-0.3	-0.7
Women	Total change	-4.5	7.7	-3.2	-4.1	-4.2	-3.2	4.9	0.4	-1.0	-3.3	1.7	6.3	3.3	0.5	20.3	22.7	4.4	4.0	-2.3	4.2	7.2	8.8	3.4	10.9	7.5	3.9	4.0	-1.1	7.0	0.8	1.9	-1.6	9.4	4.8	4.4	3.7
Women	Intensity	-7.6	5.5	-6.5	-3.3	-4.6	-2.8	0.8	-1.4	-2.9	-6.4	-1.1	2.0	2.7	-1.3	11.3	7.4	0.2	-0.4	-3.2	1.6	-0.6	1.7	1.9	6.2	-0.3	1.0	0.7	-0.2	1.3	-1.6	-2.5	-1.5	1.7	-1.6	-1.5	-1.4
Women	Technology	0.7	0.3	2.1	-1.5	-0.7	-0.1	2.8	0.1	0.2	-0.6	-4.2	0.4	-2.6	0.3	0.7	9.8	0.2	0.4	-1.0	-0.2	0.3	1.4	1.4	2.0	1.6	-0.3	0.0	-2.1	10.3	0.4	2.2	0.7	2.0	2.9	1.5	1.5
Women	Demand	2.4	1.8	1.2	0.7	1.1	-0.3	1.3	1.7	1.7	3.7	7.0	3.9	3.1	1.5	8.3	5.5	4.1	3.9	1.9	2.8	7.5	5.6	0.1	2.7	6.2	3.2	3.3	1.1	-4.5	2.0	2.2	-0.8	5.8	3.5	4.4	3.6
Women	*- Consumption*	2.1	3.4	2.3	1.1	1.8	0.4	2.3	2.1	2.0	3.5	6.6	4.2	2.5	3.3	1.5	5.2	4.4	4.2	0.0	2.9	2.1	1.0	-0.7	0.8	2.6	2.2	1.8	1.1	4.9	0.9	0.8	-0.1	0.4	2.1	3.8	3.0
Women	*- Investment*	-1.2	-3.1	1.0	-0.6	-0.8	-0.7	-1.0	-0.4	-0.5	-0.2	-1.1	0.2	1.8	-0.4	6.7	1.1	-0.2	-0.1	1.0	6.1	8.5	5.3	1.9	2.2	5.2	1.2	1.8	0.3	3.9	3.6	3.6	0.6	5.6	3.0	0.7	1.1
Women	*- Trade*	1.5	1.5	-2.1	0.2	0.1	0.0	0.0	0.0	0.2	0.5	1.5	-0.5	-1.2	-1.3	0.0	-0.8	-0.1	-0.2	0.9	-6.3	-3.1	-0.7	-1.2	-0.3	-1.6	-0.2	-0.4	-0.3	-13.3	-2.6	-2.1	-1.4	-0.2	-1.6	-0.1	-0.5
Men	Total change	-3.1	-1.5	-2.7	-3.6	-1.6	-3.7	4.1	0.0	-1.5	-4.7	-2.0	-0.1	-0.2	-0.1	4.3	7.3	1.5	0.6	-1.2	-2.6	2.0	3.4	1.0	7.3	4.4	1.4	2.2	-1.8	-0.3	-0.5	0.7	-0.8	6.6	3.6	1.7	1.9
Men	Intensity	-6.4	-2.8	-5.3	-2.8	-2.2	-3.3	-0.1	-1.8	-3.1	-7.7	-4.2	-3.2	-0.7	-3.4	-2.1	-4.0	-2.4	-3.4	-2.2	-4.2	-5.4	-2.8	-1.3	3.0	-3.5	-1.6	-1.5	-0.9	-4.4	-2.9	-3.6	-2.3	-0.7	-2.6	-3.3	-2.5
Men	Technology	0.7	0.8	1.4	-1.5	-0.4	-0.1	2.8	0.2	0.3	-0.6	-5.3	0.1	-2.3	0.7	0.6	7.4	0.4	0.3	-1.0	0.4	0.9	1.3	1.0	1.8	1.8	-0.1	0.4	-2.0	11.4	0.3	2.1	1.0	1.9	2.8	1.3	1.3
Men	Demand	2.5	0.5	1.2	0.7	1.0	-0.3	1.4	1.6	1.4	3.6	7.5	3.0	2.8	2.7	5.9	3.9	3.6	3.7	2.0	1.3	6.4	4.9	1.3	2.5	6.1	3.1	3.2	1.1	-7.3	2.1	2.2	0.4	5.4	3.4	3.6	3.1
Men	*- Consumption*	2.2	2.9	2.3	1.1	1.5	0.4	2.3	2.0	1.8	3.3	6.8	3.2	2.2	3.5	1.1	3.9	3.9	3.3	0.0	2.4	2.2	0.9	-0.1	0.7	2.9	1.9	1.4	1.1	5.3	0.7	0.8	0.5	0.3	2.1	3.0	1.8
Men	*- Investment*	-1.2	-2.9	0.4	-0.6	-0.5	-0.7	-1.0	-0.5	-0.6	-0.2	-1.3	-0.2	1.7	0.0	4.8	0.6	-0.1	0.5	1.0	6.3	6.7	4.6	2.2	2.0	4.6	1.4	2.3	0.3	4.3	3.6	3.5	1.0	5.3	2.8	0.8	2.1
Men	*- Trade*	1.5	0.5	-1.5	0.2	0.0	0.0	0.1	0.1	0.2	0.5	2.0	0.0	-1.0	-0.8	0.0	-0.6	-0.2	-0.1	0.9	-7.4	-2.6	-0.6	-0.8	-0.3	-1.4	-0.2	-0.5	-0.3	-16.9	-2.1	-2.1	-1.1	-0.2	-1.5	-0.2	-0.8

Source: Own elaboration.

Note: The original 26 sectors are clustered according to their technological character following the OECD Analytical Business Enterprise Research and Development classifications (OECD, 2003) in PS: Primary industry (agriculture, hunting, forestry and fishing); ES: Energy industry (mining and quarrying); HT-MHTI: High- and medium-high technology industry (electricity, gas and water supply; electrical and optical equipment; chemical and chemical products; machinery n.e.c; transport equipment); MLTI: Medium-low technology industry (coke, refined petroleum and nuclear fuels; rubber and plastics; other non-metallic mineral; basic metals and fabricated metal); LTI: Low technology

industry (food, beverage and tobacco; textiles, textile leather and footwear; wood and of wood and cork; pulp, paper, paper printing and publishing; manufacturing n.e.c., recycling); C: Construction (construction); KIS: Knowledge intensive services (post and telecommunications; business activities); and RS: Rest of services (wholesale and retail trade; hotels and restaurants; transport and storage; financial intermediation; real estate activities; other services).