You're the one that I want! Understanding the over-representation of women in the public sector*

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Abstract

The public sector hires dis-proportionally more women than men. Using microdata for the United States, the United Kingdom, France, and Spain, we document gender differences in employment, transition probabilities, hours, and wages in the public and private sector. We use the data to calibrate a search and matching model where men and women decide if to participate and if to enter private or public sector labor markets. We test whether the selection of women into the public sector is driven by: (i) lower gender wage gaps, (ii) better conciliation of work and family life, (iii) greater job security, or (iv) intrinsic preferences for public sector occupations. Quantitatively, women's higher public sector wage premia and their preferences for working in the public sector explain most of the over-representation. We calculate the monetary value of public sector job security and work-life balance premia, for both men and women, and we quantify how public sector wage and employment policies affect male and female unemployment, inactivity, and wages differently.

JEL Classification: J21, J16, J45, H10, E60.

Keywords: public sector employment, public sector wages, female labor force participation, gender wage gap.

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1 Introduction

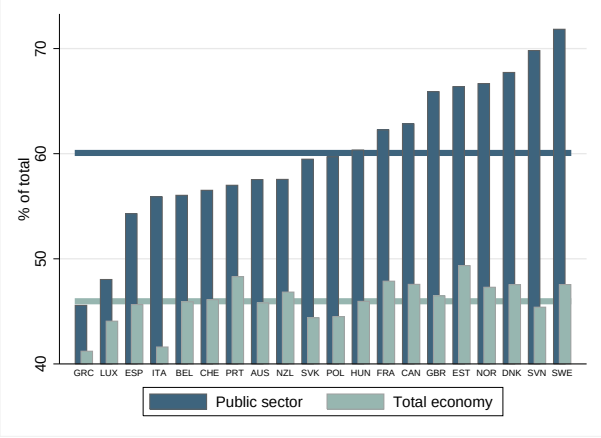
The public sector is a large employer. In OECD countries, public employment accounts for 10 to 35 percent of total employment. Also, the public sector hires significantly more women than men. Figure 1 displays the fraction of women in the public sector and in the total economy for 20 OECD countries. On average, women represent 60 percent of public sector workers but only 46 percent of all workers in the economy. With the exception of Greece and Luxembourg, the majority of public sector workers are women, their share reaching 70 percent in Sweden. Despite its importance for women's employment, there does not exist any quantitative study on the over-representation of women in the public sector.

We use microdata to document several facts which are common for the United States, the United Kingdom, France, and Spain regarding gender differences in employment, transition probabilities, hours, and wages in the public and private sector. The over-representation of women in public employment persists across age groups, regions, levels of education as well as over time. While less pronounced, this over-representation is also found when excluding health care and education from public employment. Gender wage gaps are smaller in the public compared to the private sector, and the public sector provides more job security manifested by a lower probability of moving from public employment to unemployment. We also estimate lower working hours and a lower probability of moving from employment to inactivity for public sector workers, which we interpret as indicators for a better conciliation of work and family life in public employment.

Motivated by these empirical findings, we build a search and matching model where men and women decide if to participate and if to enter private or public sector labor markets. We view the over-representation of women in public employment as driven by supply, meaning that the government does not explicitly hire more women, but it is women who choose the public sector more so than men. While women might prefer to be teachers or to work for a sector that provides a common good, we argue that part of the explanation lies with other characteristics of public sector jobs. Our objective is to understand why so many women want to work in the public sector, disentangling the importance of job characteristics, from gender differences, for instance regarding preferences for particular occupations.

We calibrate our model separately to the four countries, using statistics from our empirical analysis to identify key parameters. Running counterfactual experiments, we quantify how much of the selection of women into the public sector is driven by: (i) lower gender wage gaps and thus relatively higher wages for women in the public sector (estimated directly from the data), (ii) better conciliation of work and family life for public sector workers (identified based on differences in flows from private and public employment to inactivity),

Figure 1: Share of women in the public sector and total economy



Source: OECD [2015]; this data does not include the US; 56 percent of US public sector workers are women compared to 48 of all workers, see Hammouya [1999].

(iii) greater job security (derived from differences in flows from private and public employment to unemployment), or (iv) intrinsic preferences for public sector activities (identified as a residual). We find that women's preferences are important but do not explain all their over-representation in public employment. They explain 20 percent in France, 45 percent in Spain, 80 percent in the US, and 95 percent in the UK. The rest is explained by differences in public and private sector characteristics, namely relatively higher wages for women that explain around 30 percent in the US and Spain and 50 percent in France. Better work-life balance in the public sector matters in France and Spain, accounting for 20 to 30 percent of female over-representation. Higher job security in the public sector reduces the over-representation of women because it is valued more by men than by women.

These last results do not stand in contrast to men and women valuing better work-life balance and increased job security provided by the public sector; something we can quantify within our framework. We calculate how much of their wages private sector workers would be willing to sacrifice for job separation rates or working hours offered by the public sector. The work-life balance premium is very high in Spain (25 to 36 percent), high in France and the UK (7 to 15 percent) and lower in the US (7 to 9 percent). The job security premium is lower, ranging from 1-2 percent in the US and the UK to 3-4 percent in France and Spain, countries with higher unemployment rates. Women are willing to pay more for work-life balance. Men are willing to pay more for job security because they have lower opportunity costs of working and higher wages, and hence their job losses are more painful than women's.

Even though female labor force participation has increased remarkably over the past decades, gender gaps in participation and employment still persist. In the US, the UK, France, and Spain participation rates of prime age women are 10 percentage points lower

than men's. Women continue to earn lower wages. Many explanations for persisting gender gaps in the labor market have been proposed and tested.[1] However, one aspect persistently overlooked is the role of public employment for female labor market outcomes and hence for gender gaps in employment, participation, and wages. Two of the most influential surveys on female employment by Killingsworth and Heckman [1986] and Blundell and Macurdy [1999] do not even mention the public sector. This is a serious omission because unlike employment in any other sector of the economy, public sector hirings operate differently. The public sector does not face the same competitive forces and constraints as private firms, and its employment and wage policies are tailored to different objectives.[2] Incorporating a public sector into a search and matching model, we show that public employment slightly reduces the aggregate gender wage gap, and more importantly that wage and employment policies have stronger effects on female compared to male unemployment and inactivity rates.

There are only two cross-country empirical studies – Gornick and Jacobs [1998] and Anghel et al. [2011] – that explicitly address the over-representation of women in public employment. Both studies find some common patterns. Gornick and Jacobs [1998] establish that women face lower gender wage gaps in the public compared to the private sector and attribute it to a more compressed public sector wage distribution. Anghel et al. [2011] find that unemployed and inactive women are more likely to search for public sector jobs than men. Other studies tend to focus on one particular country or can be characterized as descriptive. Rosen's [1996] study on the expansion of the Swedish public sector reveals that between 1963 and 1993 employment of women in local government increased fourfold while that of men only doubled. Kolberg [1991] stresses that the expansion of the Scandinavian welfare state and increased public sector employment has led to more women participating in the labor market. According to Adserà [2004] higher fertility rates in Scandinavian countries are partly due to the higher share of women in stable public sector jobs. In line with this finding, Pertold-Gebicka et al. [2016] highlight that after the birth of their first child, Danish women attempt to switch from the private to the public sector. For France, Italy, and the UK, Lucifora and Meurs [2006] find that for women, wages in the public sector are higher compared to the private sector while for men in the upper part of the distribution the

[1] Ranging from gendered education choices which lead to men and women working in differently compensated industries (Gemici and Wiswall [2014]), to maternity and institutional aspects like availability of child care and possibility of working part time (Del Boca [2002]), to maternity and better paid jobs in industries with inflexible working hours (Goldin [2014]), to behavioral gender differences showing that women shy away from competition (Manning and Saidi [2010]), to differences in time spent on household chores (Albanesi and Olivetti [2009]).

[2] For instance, attaining budgetary targets (Poterba and Rueben [1995], Gyourko and Tracy [1989]), redistributing resources (Alesina et al. [2000] and [2001]) or satisfying interest groups for electoral gains (Borjas [1984], Matschke [2003]).

public-private wage gap turns negative. Controlling for the endogenous selection of workers into the Spanish public sector, Hospido and Moral-Bonito [2016] estimate a positive public sector wage premium for both men and women along the entire distribution. In our model, public-private wages differentials for men and women are taken as given, and we incorporate on average higher opportunity costs of working for women – for instance due to a reduced availability of child care – that can lead to more women searching for public sector jobs.

The literature on the intersection of public employment and female labor market outcomes is thus limited to empirical works, with the exception of a paper by Bradley et al. [2017].[3] The authors set up a model of public employment which they calibrate for different markets segmented by gender and education, hence ignoring the interaction of women and men in the labor market. Focusing on the effect that public sector hirings have for private employment, the authors do not model individuals' participation decisions. However, given the importance of women's transitions from and to inactivity, it seems natural to extend the decision space to include non-participation when explicitly incorporating women into a search and matching model. Modeling non-participation goes back to Pissarides [1990] Chapter 6, but has been advanced by Garibaldi and Wasmer [2005], Pries and Rogerson [2009], Krusell et al. [2011], Haefke and Reiter [2011] and Albanesi and Şahin [2018]; none of which specify a public sector. Hence, to the best of our knowledge we are the first to propose a theoretical framework that combines both, public sector employment and participation decisions, and where men and women interact. The latter is key for understanding how public sector wage and employment policies affect the over-representation of women. For instance, a public sector that offers better conditions for work-life balance will attract more women, thus lowering the probability of finding public sector jobs for both men and women. Men who value such conditions less will hence turn to the private sector, reinforcing the gender imbalance in the public sector.

The remainder of this paper is organized as follows: The next section presents our empirical analysis. Sections 3 and 4 present the model and its calibration. In Section 5 we use our model to carry out counterfactual experiments, and we briefly discuss alternative model specifications. Section 6 concludes.

[3]Separately the topics (i) female labor market outcomes and (ii) public employment have generated a large body of theoretical literature. Regarding (i) the focus has been on aspects such as child care costs (e.g. García-Morán and Kuehn [2017]), parental leaves (e.g. Erosa et al [2010]) divorce risk (e.g. Fernández and Wong [2014]), or welfare states (e.g. Greenwood et al [2000]), but none considers the effects of public sector employment. Regarding (ii), theoretical models tend to emphasize aggregate labor market effects, in particular the effects on private wages and the crowding out of private employment (see e.g. Finn [1998] in an RBC model or Gomes [2015] in a search and matching model). Recent contributions to this last literature include Navarro and Tejada [2020], Boeing-Reicher and Caponi [2016], or Geromichalos and Kospentaris [2020].

2 Empirical analysis

We study the role of public employment for labor market outcomes of men and women, analyzing gender differences in employment, transition probabilities to unemployment and inactivity, hours, and wages in the public and private sector. We focus on four countries: the United States, the United Kingdom, France, and Spain. We choose these countries because their sizable public sectors encompass different industries and employ distinct hiring processes, and because these large economies have different labor market institutions and gender policies. This makes it more likely that common findings are intrinsic characteristics of the public sector and not driven by country specificities. For each country, we use the representative labor force survey from which official statistics are drawn: the French *Labour Force Survey* (FLFS), the UK *Labour Force Survey* (UKLFS), the Spanish *Labour Force Survey* (SLFS) and the US *Current Population Survey* (CPS). The CPS is conducted on a monthly basis while the other surveys are quarterly.

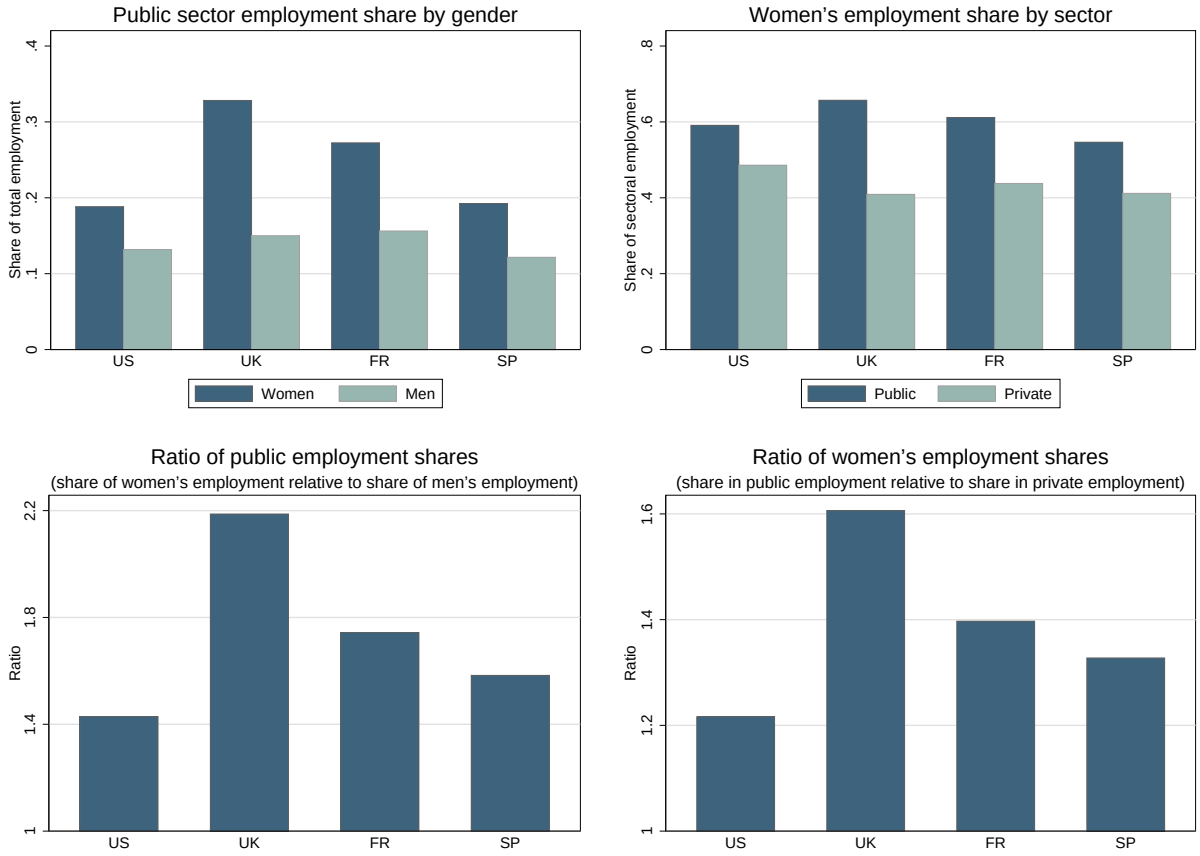
The surveys include individuals' demographic characteristics, as well as information on their labor force status, sector of employment, occupation, industry of employment, weeks worked, and hours per week worked. We restrict our sample to individuals aged 16 to 64. For calculating stocks of unemployed, employed, and inactive individuals we use averages from 2003 to 2018. We define public employment in line with each country's official statistics. For the US, the public sector includes individuals who work for the government (further disaggregated into Federal, State or Local government). In the UK, we include the following categories: i) Central Government, Civil Service; ii) Local government or council (including police, fire services and local authority controlled schools or colleges); iii) University or other grant-funded educational establishments; iv) Health authority or NHS trust; and v) Armed forces. We exclude from our definition every private organization, as well as: i) Public company; ii) Nationalised industry or state corporation; iii) Charity, voluntary organisation or trust; and iv) other organisation.[4] A similar definition is used for France. For Spain, the survey asks directly whether respondents work for the public or the private sector.

2.1 Over-representation of women in the public sector

The top graphs of Figure 2 display two direct measures for the over-representation of women in the public sector, the share of public sector employment by gender and the share of women in public and private sector employment. The size of the public sector varies across

[4] As in Fontaine et al. [2020], we exclude publicly-owned companies because those sell their goods and services and thus face market forces. Including them into private employment, together with non-profit institutions tends to reduce the observed differences between the two sectors.

Figure 2: Different measures for the over-representation of women in public employment



Note: At the top, the graph on the left shows the public sector employment shares by gender and the graph on the right the share of women in sectoral employment. At the bottom, the graph on the left shows the ratio of public employment shares (rg), and the graph on the right shows the ratio of women's employment shares (rf). For the United States the data is taken from the CPS (2003-2018), for the United Kingdom from the UK Labour Force Survey (2003-2018), for France from the French Labour Force Survey (2003-2017) and for Spain from the Spanish Labour Force Survey (2003-2018).

countries, and is larger in the UK and France, representing around 22 percent of total employment. It is smaller in the US and Spain where it represents 16 percent of total employment. Despite differences in the size of the public sector, in all countries the share of public sector employment is larger for women who are the majority of public sector workers.

To abstract from the size of the public sector, we construct two indicators for the over-representation of women in public employment. We denote total employment by e, and the number of employed men and women by e_m and e_f. An additional subscript g (p) refers to the public (private) sector. Hence for example $e_{g,f}$ indicates the stock of employed female public-sector workers. The first indicator is the ratio of public employment shares, defined as the public sector employment share for women over the public sector employment share for men $(\frac{e_{g,f}}{e_f} / \frac{e_{g,m}}{e_m})$. The second indicator is the ratio of women's employment shares,

defined as the share of women out of all public sector workers over the share of women out of all private sector workers ($\frac{e_{g,f}}{e_g}/\frac{e_{p,f}}{e_p}$). The bottom graphs of Figure 2 display these two indicators. In case of perfect gender symmetry across sectors, both indicators would take on a value of 1. However, for the four countries the ratio of public employment shares lies above 1.4, and the ratio of women's employment shares lies above 1.2, indicating that women are over-represented in public employment.

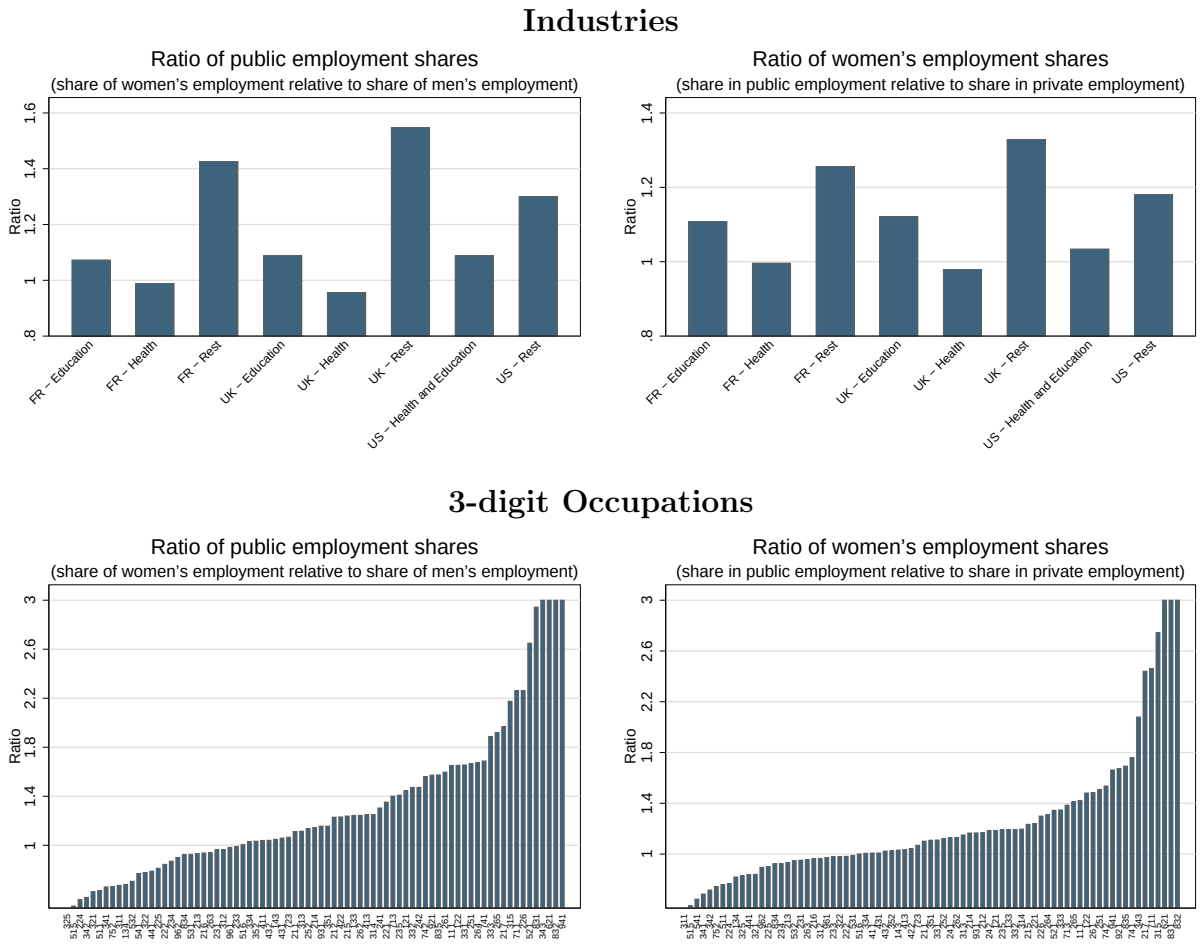
One explanation for the over-representation of women in public employment is that certain types of jobs predominately carried out by the government are preferred by women. As the two top graphs of Figure 3 reveal, for the US, the UK, and France, once we exclude health care and education, while lower, women's public employment is still 20-50 percent higher than men's. Unfortunately, the Spanish LFS does not allow for a disaggregation of public employment by industry. Interestingly enough, as Figure A.1 in Appendix A shows, the over-representation of women is less pronounced within public health care and public education compared to other branches of public employment. Men and women are equally likely to work in public or private sectors within education and health care, but part of the imbalance is due to women representing a larger fraction of educators and health care professionals. In the UK, disregarding health care and education decreases the over-representation of women, their employment share in the public sector dropping from 65 to 50 percent.

Along similar lines, but only for the US, we analyze the gender composition of public sector jobs based on a 3-digit ISCO-08 occupational classification. We consider only occupations with non-trivial public and private sector employment, i.e. occupations where the share of the public sector in total employment is larger than 5 percent and smaller than 95 percent.[5] Two-thirds of these occupations display ratios of public employment shares and ratios of women's employment shares that are larger than 1; see bottom graphs of Figure 3. As Figure A.1 in Appendix A shows, this result is robust to using the direct measures instead of the indicators. Overall, we observe quite some variability in the over-representation of women in public employment across industries and occupations, which indicates that women's preferences for certain jobs and industries matter. However, our statistics also show that this variability alone cannot account for the entire over-representation of women. In our model, we include gender differences in preferences for public sector jobs but also additional explanations related to job characteristics (wages, job security, work-life balance), and we test for the importance of each.

To pin down one of the model's key parameters in our calibration we use the regional

[5]This implies that some top-paid occupations are excluded (i.e. as manufacturing, mining, construction, and distribution managers) as well as some low-paid jobs (i.e. domestic, hotel and office cleaners and helpers or waiters and bartenders).

Figure 3: Over-representation of women in public employment by industry and occupation



Note: the 1st panel uses the French and the UK Labour Force Survey and the CPS (2003-2018). The 2nd panel shows CPS data, average between 1996 and 2017. 3-digit occupations that have an overall share of public sector employment between 0.05 and 0.95. The ratios were capped at 3 for readability.

variation in the over-representation of women in public employment, displayed in Figures A.2-A.4 in Appendix A. The ratio of public employment shares is larger than one in all US states, varying between 1.1 and 1.7. The picture is similar in the other three countries. The only exception are two regions in Spain – Ceuta and Melilla – characterized by a strong presence of the armed forces due to their location on the African continent. This data by region shows how the over-representation of women tends to decrease with the size of the public sector, see Figures A.5-A.7 in Appendix A.

In Appendix A we also display our indicators over time and by workers' age groups and levels of education. Both indicators are persistent over time, even though they fell around the time of the great recession, due to large changes in private employment. Regarding

workers' age groups, both ratios are close to 1 for very young workers, but they jump around age 20 and remain relatively constant over the life-cycle. Finally, the over-representation of women in public employment is present across all levels of education and particularly strong among primary and tertiary educated workers.

2.2 Stocks and flows by gender

To characterize gender differences in transition probabilities we calculate stocks and flows of men and women between states of employment in each sector, unemployment, and inactivity. These statistics displayed in Table 1 are crucial for identifying many parameters of our model. Figure B.1 in Appendix B provides a graphical representation of all transition rates.

In all four countries, women's inactivity rates are more than 10 percentage points higher than those of men. In the US and the UK the male unemployment rate is higher than the female rate, but the opposite is true for Spain and France. In France and the UK, 16.5 and 22.2 percent of all women work in the public sector compared to 10.8 and 11.8 percent of men. In Spain and the US, differences by gender are smaller. The Spanish and the US public sector hire 8 and 13.3 percent of all women compared to 6.9 and 10.2 percent of men. These numbers are different from the ones on the size of the public sector previously reported which only considered employed workers. Public sector workers have a much lower probability of becoming inactive or unemployed. While the probability of dropping out of the labor force is higher for women compared to men, it is lower for women working in the public sector. The probability of an employed woman to withdraw from the labor force is 40 to 65 percent higher if she works in the private compared to the public sector. We use these differences in hazard rates from public and private employment to inactivity, for men and women, to identify differences in work-life balance between sectors.

However, as the public sector hires more educated and older workers compared to the private sector, the lower probability of exiting the labor force from a public sector job could be due to composition effects. To take this into account, we estimate the probabilities of leaving employment conditional on observable characteristics using a multinomial logit model. Appendix B provides details on this estimation, and Figure B.2 visualizes the results. In all four countries, the probability of dropping out of the labor force is higher for women than for men. For women in all three European countries, this probability is lower if they work in the public compared to the private sector, but in the US this difference is almost insignificant. This conditional analysis also shows that in all four countries, the probability of becoming unemployed is lower for public compared to private sector workers. The difference in job security is highest in France, followed by the UK and Spain, and lowest in the US.

Table 1: Labor market stocks and hazard rates by gender

Targets	**US**		**UK**		**France**		**Spain**	
	Men	Women	Men	Women	Men	Women	Men	Women
Stocks								
Private emp.	0.672	0.574	0.667	0.454	0.585	0.441	0.498	0.334
Public emp.	0.102	0.133	0.118	0.222	0.108	0.165	0.069	0.080
Unemployed	0.057	0.044	0.054	0.040	0.069	0.064	0.105	0.097
Inactive	0.169	0.249	0.162	0.284	0.238	0.330	0.329	0.490
Rates								
Unemployment	0.067	0.059	0.064	0.056	0.090	0.096	0.156	0.190
Inactivity	0.169	0.249	0.162	0.284	0.238	0.330	0.329	0.490
Transition probabilities								
$P \to U$	0.0161	0.0121	0.0151	0.0132	0.0203	0.0217	0.0417	0.0437
$P \to I$	0.0189	0.0274	0.0159	0.0295	0.0187	0.0269	0.0245	0.0450
$G \to U$	0.0060	0.0076	0.0064	0.0045	0.0079	0.0083	0.0203	0.0227
$G \to I$	0.0148	0.0200	0.0144	0.0179	0.0142	0.0180	0.0191	0.0274

Note: French, Spanish, UK Labour Force Surveys and the CPS (2003-2018). The transition probabilities report the probability of an employed worker to be unemployed or inactive in the following quarter (month in the US).

2.3 Wage premium and working hours

To estimate public sector wage premia for men and women and to calculate the private sector gender wage gap, we run wage regressions using microdata for the longest possible time-series for each country. For the three European countries we use data from the 2002, 2006, 2010, and 2014 *Structure of Earnings Survey* and for the US, we obtain information on individuals' income and income components from the CPS March Supplement for the years 1996 to 2018. We estimate the following regression

$$log(y_i^a) = \beta_0 + \beta_1 f + \beta_2 X_i + \beta_3 m \times pub + \beta_4 f \times pub + \beta_5 C_i + d_r + d_y + \epsilon_i, \qquad (1)$$

where $log(y_i^a)$ is the log of individual i's gross yearly earnings, f is an indicator for female, X_i denotes other individual characteristics such as age and education, $m \times pub$ is an indicator for a man working in the public sector and $f \times pub$ an indicator for a woman holding a public sector job. We also control for other job characteristics (C_i) such as occupation, tenure, tenure squared, and an indicator for holding a part-time job, as well as for region and year fixed effects. We chose yearly instead of hourly earnings to be consistent with the model.

Panel A in Table 2 displays the results. Columns (2) display the most complete specification that also controls for individuals' occupation (2-digits). In all countries but France, for women, working in the public sector is associated with 6-7 percent higher gross yearly

earnings compared to working in the private sector. For men these premia are much smaller, ranging from 0-4 percent in Spain and the UK, to being negative in the US and France. While women also face lower earnings in the public compared to the private sector in France, they face a lower discount (-5 percent) compared to men (-11 percent). Higher public sector wage premia for women are equivalent to lower gender wage gaps in the public compared to the private sector. Regarding private sector wages, women face 16-31 percent lower wages compared to men. We estimate the largest private sector gender wage gap in the US, followed by Spain, the UK, and France.[6]

Our results are in line with literature that finds relatively higher public sector wages differentials for women compared to men; see e.g. Lucifora and Meurs [2006] for France, Italy and the UK, Bargain et al. [2018] for France, and Hospido and Moral-Bonito [2016] for Spain. While these papers estimate the public-private wage gap along the entire distribution, with the latter two also controlling for selection, their quantitative results are similar to ours.[7] Given that they focus on hourly earnings, none includes all countries in our sample, and the samples are not comparable, we prefer to present our own estimates and use these in the calibration of our model.

Using the same data, we estimate if and by how much, individuals in the public sector work fewer hours compared to those in the private sector.

$$log(hours_i) = \alpha_0 + \alpha_1 f + \alpha_2 X_i + \alpha_3 pub + \alpha_4 C_i + d_r + d_y + \epsilon_i \tag{2}$$

We regress the log of working hours on similar individual and job characteristics as before together with year and region fixed effects. Results are displayed in panel B of Table 2. Once more we focus on all columns (2) containing the most complete specification. Individuals holding full time jobs in the public sector work between 3-5 percent fewer hours compared to similar individuals in the private sector. Fewer working hours are just one aspect of a better work-life balance, alongside additional sick days, holidays, flexibility to work from home, employer provided child care etc. In our model we want to capture differences in work-life balance in an ample sense, and hence we do not use these estimates. Instead, we use differences in observed flows from employment to inactivity across the public and private

[6]Note that these estimates are based on yearly earnings, and even though we control for working part time, even conditionally women tend to work on average fewer hours and hence these numbers are larger than gender wage gaps estimated using hourly wages. We chose yearly instead of hourly earnings to be consistent with the model.

[7]Lucifora and Meurs [2006] estimate 8 (3) percent higher returns in the public sector for the median women (men) in the UK, Bargain et al. [2018] also find negative public sector wage premia for France (between 0 and -5 percent) which are slightly smaller for women, and for Spain Hospido and Moral-Bonito [2016] estimate an average 10 percent wage premia, somewhat higher for women, once controlling for selection.

Table 2: Public sector wage and hours premium and private sector gender wage gap

	US		UK		France		Spain	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Panel A: wage regressions								
Public sector wage premium								
Men	-0.017***	-0.053***	-0.006	0.038***	-0.155***	-0.117***	-0.001	0.002
	(-5.46)	(-16.38)	(-1.75)	(11.36)	(-60.83)	(-0.30)	(-0.44)	(0.62)
Women	-0.031***	0.059***	0.083***	0.059***	-0.066***	-0.054***	0.090***	0.069***
	(-10.80)	(19.88)	(29.71)	(21.97)	(-26.40)	(-22.55)	(36.88)	(28.65)
Gender wage gap								
Private	-0.360***	-0.314***	-0.199***	-0.177***	-0.193***	-0.163***	-0.235***	-0.214***
	(-206.20)	(-164.45)	(-86.52)	(-76.24)	(-105.59)	(-91.22)	(-182.29)	(-163.18)
Controls								
Demographic	X	X	X	X	X	X	X	X
Region and year	X	X	X	X	X	X	X	X
Part-time	X	X	X	X	X	X	X	X
Tenure (quadratic)			X	X	X	X	X	X
Occupation		X		X		X		X
Observations	1,117,845	1,117,845	625,869	625,869	593,950	593,950	876,274	876,274
R-squared	0.426	0.481	0.498	0.550	0.419	0.487	0.566	0.599
Panel B: hours regressions								
Public sector hours premium								
Public-sector	0.008***	-0.025***	-0.048***	-0.038***	-0.036***	-0.028***	0.013***	-0.046***
	(5.88)	(-25.01)	(-31.83)	(-34.61)	(-36.13)	(-37.03)	(11.10)	(-54.25)
Controls								
Demographic	X	X	X	X	X	X	X	X
Region and year	X	X	X	X	X	X	X	X
Tenure (quadratic)			X	X	X	X	X	X
Occupation	X	X	X	X	X	X	X	X
Part-time		X		X		X		X
Observations	1,021,443	1,021,443	620,000	625,869	593,950	593,950	876,274	876,274
R-squared	0.207	0.602	0.184	0.569	0.105	0.471	0.119	0.563

Note: Estimated by OLS regressions. Panel A regresses the log of yearly gross earnings on a female dummy, a female and male dummy interacted with a dummy for working in the public sector, controlling for region, year, occupation, education, age groups, part-time, tenure and tenure squared. Panel B (panel A) regresses log hours worked on a female dummy, a dummy for working in the public sector, controlling for region, year, occupation, education, age groups, part-time, tenure and tenure squared. In panel A, the public sector wage premium for men (women) corresponds to the coefficient β_3 (β_4). The private sector gender wage gap corresponds to the coefficient β_1 from Equation 1. In panel B, the public sector hours premium correspond to the coefficient α_3 from Equation 2. Data for UK, France, and Spain for 2002, 2006, 2010 and 2014; for US for 1996-2018.

sector to identify the related parameters. Still, our results on fewer working hours in the public sector support the claim of a better work-life balance.

Results from our analysis suggest that the over-representation of women in the public sector could potentially be due to lower gender wage gaps, higher job security, or better work-life balance. Alternatively, women could simply have a preference for public sector occupations, unrelated to job characteristics. To quantify the importance of each of these factors and to be able to conduct policy experiments, we set up a model economy.

3 Model

We consider a search and matching model with private sector firms and a public sector following Gomes [2015]. Workers – men and women – can be either employed, unemployed and searching for a job or be inactive. All variables are indexed by two subscripts: $i = [g, p]$, where g refers to the public (government) sector and p to the private sector, and $j = [m, f]$, where m refers to male and f to female. Each firm is endowed with one vacancy, either vacant or filled (job). At each instant, τ individuals are born (enter the labor market) and die (retire), such that the working population is constant and normalized to unity. Agents are risk-neutral and discount the future at rate $r > 0$. Time is continuous.

Figure 4 depicts the structure of the model. Prior to entering the labor market, individuals choose the public or the private sector. They draw a preference for the public sector ϵ, which reflects a taste for working in the public sector, preferences for public sector occupations, or individuals' costs for entering the private or public sector (e.g. due to requirements like taking an exam for accessing the civil service). We assume that for men and women this preference is distributed across individuals according to cumulative normal distribution functions, $\Xi_m(\cdot)$ and $\Xi_f(\cdot)$. In the spirit of a generalized Roy model, an endogenous proportion of the population (those whose preferences are sufficiently high) hence enters the public sector, while the other fraction joins the private sector.

In sector i, a worker of gender j is either employed ($e_{i,j}$), unemployed ($u_{i,j}$) or inactive ($i_{i,j}$). Following Garibaldi and Wasmer [2005], we define individuals' flow utilities in each state as:

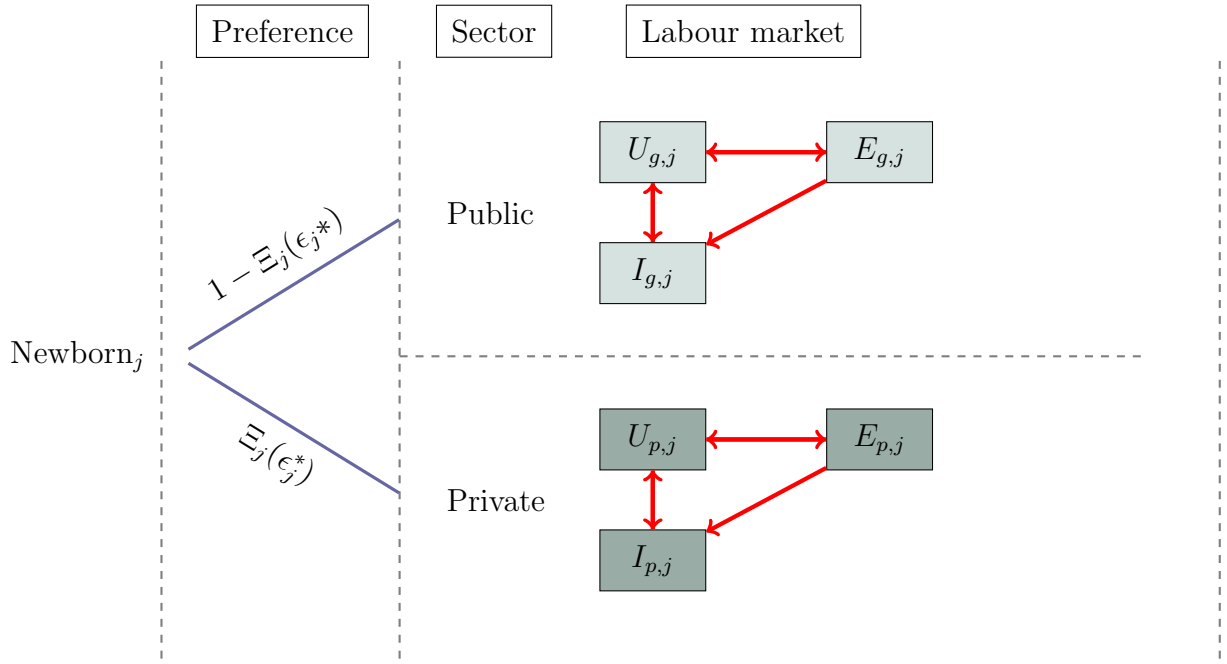
$$v_{i,j}^E = (1 - \xi_i)x + w_{i,j}, \tag{3}$$

$$v_{i,j}^U = (1 - s)x, \tag{4}$$

$$v_{i,j}^I = x, \tag{5}$$

where x denotes the stochastic value of home production or the opportunity cost of working. Inactive individuals enjoy the utility of home production. The unemployed have to spend a fraction s of their time searching, and only enjoy a fraction $1-s$ of x. Workers receive a wage payment $w_{i,j}$ and spend a fraction ξ_i of their time at work, different across the two sectors. At rate λ, independent of their labor market status, gender, or sector, individuals draw a value for x from cumulative log-normal distribution functions $F_m(\cdot)$ and $F_f(\cdot)$, different for men and women.

Figure 4: Newborn's decisions



3.1 Value functions

Given individuals' flow utilities described above and transition probabilities between the three states, the value functions for employment, unemployment, and inactivity for men and women in the two sectors are as follows:

$$(r+\tau+\lambda)E_{i,j} = v_{i,j}^{E} + \delta_{i,j}[\max(U_{i,j}, I_{i,j}) - E_{i,j}] + \lambda \int_0^\infty \max(E_{i,j}(x'), U_{i,j}(x'), I_{i,j}(x'))dF_j(x'), \quad (6)$$

$$(r+\tau+\lambda)U_{i,j} = v_{i,j}^{U} + m(\theta_i)[\max(E_{i,j}, U_{i,j}) - U_{i,j}] + \lambda \int_0^\infty \max(U_{i,j}(x'), I_{i,j}(x'))dF_j(x'), \quad (7)$$

$$(r+\tau+\lambda)I_{i,j} = v_{i,j}^{I} + \lambda \int_0^\infty \max(U_{i,j}(x'), I_{i,j}(x'))dF_j(x'), \quad j=[m,f], i=[p,g], \quad (8)$$

where $\delta_{i,j}$ is the separation rate in sector i, which differs by gender, and λ is the arrival rate of shocks to the opportunity costs of working. The conditional job-finding rate in sector i is $m(\theta_i)$, which is an endogenous object in the model, and is assumed to be the same for men and women. When firms or the government are matched with a worker, they hire him or her independently of their gender. We hence assume no discrimination in the actual hiring process in neither sector, even though wages paid to men and women might differ.

The value of employment sums the flow utility of being employed, the loss suffered when separated, and the change that occurs whenever individuals draw a new x. The loss suffered when separated differs if individuals move to unemployment or inactivity thereafter. Indi-

viduals who are so-called "attached" employed have a lower opportunity costs of working and hence prefer unemployment to inactivity. On the other hand, the so called "unattached" employed have a higher opportunity cost and prefer inactivity to unemployment upon separation. Whenever they draw a new x, employed individuals either remain employed, or become inactive.

The value of unemployment sums the flow utility of unemployment, the gains when finding a job, plus the change in value due to a potential new draw of x. Finally, the value of inactivity sums the flow utility of inactivity and the change in value upon a new draw of x. In our model, there is no direct transition between inactivity and employment. Individuals must go through unemployment and search for a job before becoming employed.

3.2 Thresholds

Individuals' values for home production or their opportunity costs of working x are a main determinant for their labor market state. We can implicitly define two thresholds:

$$U_{i,j}(\bar{x}^a_{i,j}) = I_{i,j}(\bar{x}^a_{i,j}), \tag{9}$$

$$E_{i,j}(\bar{x}^{na}_{i,j}) = I_{i,j}(\bar{x}^{na}_{i,j}). \tag{10}$$

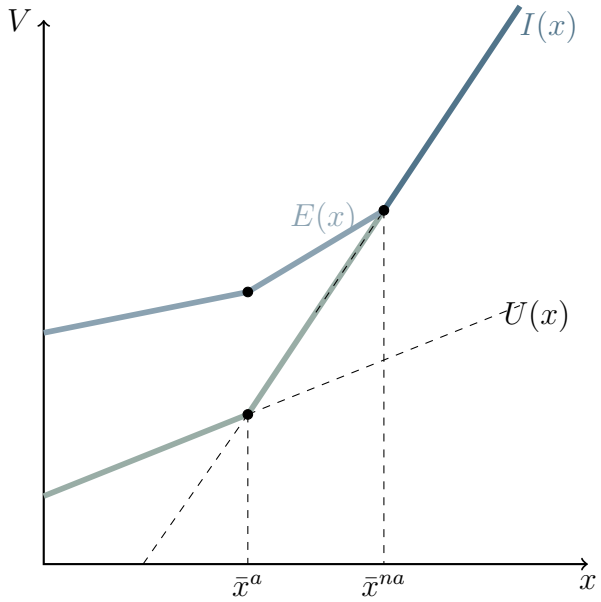
The first one indicates the marginal individual, indifferent between being inactive or searching for a job. Individuals with a lower x search while those with x above $\bar{x}^a_{i,j}$ prefer inactivity. The second threshold defines an employed worker, indifferent between working or being inactive. Those with values of x below $\bar{x}^{na}_{i,j}$ work while those with higher x quit their jobs for inactivity. Figure 5 displays how the value functions depend on x, together with these thresholds. We obtain the following expressions for the two thresholds:

$$\bar{x}^{na}_{i,j} = \frac{w_{i,j}}{\xi_i} + \frac{\lambda}{\xi_i}[A_{i,j} - B_{i,j}], \tag{11}$$

$$\bar{x}^a_{i,j} = \frac{m(\theta_i)\xi_i(\bar{x}^{na}_{i,j} - \bar{x}^a_{i,j})}{s(\delta_{i,j} + r + \lambda + \tau)}, \tag{12}$$

where $A_{i,j} = \int_0^\infty \max(E_{i,j}(x'), U_{i,j}(x'), I_{i,j}(x'))dF_j(x')$ and $B_{i,j} = \int_0^\infty \max(U_{i,j}(x'), I_{i,j}(x'))dF_j(x')$. Equation 11 shows that a higher wage moves the first threshold to the right, and fewer individuals quit their jobs for inactivity. This implies a direct link between a larger gender wage gap and higher inactivity rates of women compared to those of men. In Equation 12, higher search costs s move the second threshold to the left, leading to fewer individuals searching for jobs while a higher job finding rate $m(\theta_i)$ has the opposite effect.

Figure 5: Decision Thresholds



Note that in Figure 5, the slope of the value function for employment is discontinuous, due to the difference between "attached" and "unattached" workers. If $x > \bar{x}^a$, upon separation workers move into inactivity, while if $x \leq \bar{x}^a$ they become unemployed. Instead of one value function for workers we thus define two values functions, one for the "attached" and another one for the "unattached" employed:

$$(r+\tau+\lambda)E_{i,j} = (1-\xi_i)x + w_{i,j} + \delta_{i,j}[U_{i,j} - E_{i,j}] + \lambda[A^1_{i,j} + A^2_{i,j}], \quad if x < \bar{x}^a, \quad (13)$$

$$(r+\tau+\lambda)E_{i,j} = (1-\xi_i)x + w_{i,j} + \delta_{i,j}[I_{i,j} - E_{i,j}] + \lambda[A^1_{i,j} + A^2_{i,j}], \quad if x \geq \bar{x}^a, \quad (14)$$

$$(r+\tau+\lambda)U_{i,j} = (1-s)x + m(\theta_i)[E_{i,j} - U_{i,j}] + \lambda[B^1_{i,j} + B^2_{i,j}], \quad (15)$$

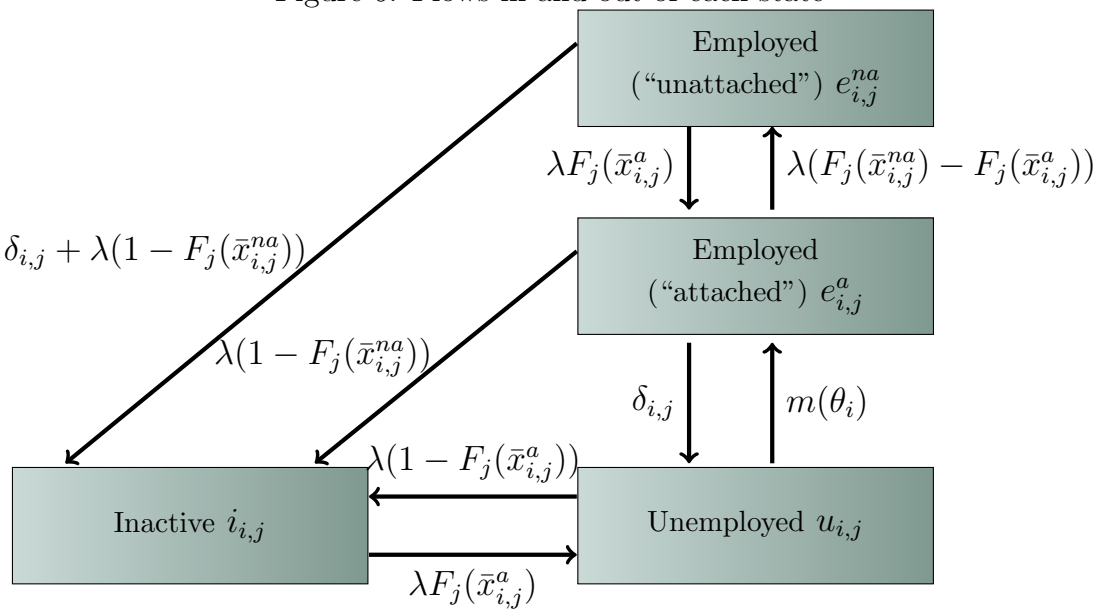
$$(r+\tau+\lambda)I_{i,j} = x + \lambda[B^1_{i,j} + B^2_{i,j}], \quad j = [m,f], i = [p,g], \quad (16)$$

where $A^1_{i,j} = \int_0^{\bar{x}^{na}} E_{i,j}(x')dF_j(x')$, $A^2_{i,j} = \int_{\bar{x}^{na}}^{\infty} I_{i,j}(x')dF_j(x')$, $A_{i,j} = A^1_{i,j} + A^2_{i,j}$, $B^1_{i,j} = \int_0^{\bar{x}^a} U_{i,j}(x')dF_j(x')$, $B^2_{i,j} = \int_{\bar{x}^a}^{\infty} I_{i,j}(x')dF_j(x')$ and $B_{i,j} = B^1_{i,j} + B^2_{i,j}$.

3.3 Flows in and out of each state

For men and women in each sector, there are four labor market states: unemployed ($u_{i,j}$), inactive ($i_{i,j}$), "attached" employed ($e^a_{i,j}$) and "unattached" employed ($e^{na}_{i,j}$); i.e. those who drop out of the labor force if they loose their job. Figure 6 shows the hazard rates between the states, abstracting from labor force entries or retirements. In steady state, the flows in

Figure 6: Flows in and out of each state



and out of each stock must be equal. Equations 17 to 20 equate the exits (left-hand side) and the entries (right-hand side) into the four states:

$$i_{i,j}(\lambda F_j(\bar{x}^a_{i,j})+\tau) = [\delta_{i,j}+\lambda(1-F_j(\bar{x}^{na}_{i,j}))]e^n_{i,j}+[\lambda(1-F_j(\bar{x}^{na}_{i,j}))]e^a_{i,j}+[\lambda(1-F_j(\bar{x}^a_{i,j}))]u_{i,j}+\tau(1-F_j(\bar{x}^a_{i,j})) \tag{17}$$

$$u(\lambda(1 - F_j(\bar{x}^a_{i,j})) + \tau + m(\theta_i)) = \delta_{i,j}e^{na}_{i,j} + \lambda F_j(\bar{x}^a_{i,j})i_{i,j} + \tau F_j(\bar{x}^a_{i,j}) \tag{18}$$

$$e^a_{i,j}(\lambda(1 - F_j(\bar{x}^a_{i,j})) + \tau + \delta_{i,j}) = m(\theta_i)u_{i,j} + \lambda F_j(\bar{x}^a_{i,j})e^n_{i,j} \tag{19}$$

$$e^{na}_{i,j}(\lambda(1-F_j(\bar{x}^{na}_{i,j})+F_j(\bar{x}^a_{i,j}))+\tau+\delta_{i,j}) = \lambda[F_j(\bar{x}^{na}_{i,j})-F_j(\bar{x}^a_{i,j})]e^a, \quad j=[m,f], i=[p,g]. \tag{20}$$

3.4 Private sector

To limit the complexity of the model, we abstain from explicitly modeling bargaining over the surplus of the match. Instead, we assume that male private sector wages are a constant fraction β of workers' productivity

$$w_{p,m} = \beta y. \tag{21}$$

Male private sector wages are hence completely isolated from policy changes which allows us to focus on the first-order effects of such policies on female labor market outcomes. However, this is not the case for female private sector wages which are determined differently. Given

male wages and free entry for firms, the value of a job filled by a man for a firm is

$$rJ_m = (1-\beta)y - (\delta_{p,m} + \tau + \lambda(1 - F_m(\bar{x}^{na}_{p,m})))J_m, \tag{22}$$

which solving for J_m gives

$$J_m = \frac{(1-\beta)y}{r + \delta_{p,m} + \tau + \lambda(1 - F_j(\bar{x}^{na}_{p,m}))}. \tag{23}$$

We follow Albanesi and Şahin [2018] and set the female private sector wage such that the value of a job for a firm is the same for male and female workers, $J_m = J_f$. While productivity does not vary by gender, women receive lower wages because they have higher quit rates into inactivity or face higher exogenous separation rates, which is anticipated by employers. The model thus incorporates a possible causality between higher inactivity rates for women and lower wages. Wages paid to women ($w^*_{p,f}$) are given by

$$w^*_{p,f} = y\left(1 - (1-\beta)\frac{r + \delta_{p,f} + \tau + \lambda(1 - F_j(\bar{x}^{na}_{p,f}))}{r + \delta_{p,m} + \tau + \lambda(1 - F_j(\bar{x}^{na}_{p,m}))}\right). \tag{24}$$

This wage setting mechanism encompasses just one particular theory to explain the private sector gender wage gap. Ex-ante however, it is unclear whether given the data this mechanism that is based on gender differences in inactivity rates alone would allow us to replicate the observed gender wage gap entirely. While it is not our objective to explain the private sector gender wage gap, it is important to match it precisely, given that one of our explanations for the over-representation of women relates to lower gender wage gaps in the public sector. To make sure that this hypothesis can be tested, we assume that the wage received by women is only a fraction of what is paid by firms. Similar to the literature on the misallocation of resources, we introduce an exogenous wedge $0 \leq \alpha \leq 1$, that acts as a tax on women's wages

$$w_{p,f} = (1-\alpha)w^*_{p,f}. \tag{25}$$

An alternative approach assuming that women are less productive than men, would be similar (see e.g Erosa et al [2017]). On the other hand, assuming that women have lower bargaining power than men, would result in firms preferring to hire women rather than men to take advantage of higher profits.

The value of a vacancy for a firm is given by

$$rV_p = -\kappa + q(\theta_p)[\psi^p J_m + (1-\psi^p)J_f], \tag{26}$$

where κ is the cost of creating a vacancy, $q(\theta_p)$ the probability of finding a worker, and ψ^p the fraction of men among the unemployed in the private sector. Given $J_m = J_f$, firms do not have any reason to discriminate between hiring a man or a woman. Hence, the free-entry condition that pins down tightness in the private sector is

$$\frac{\kappa}{q(\theta_p)} = \frac{y(1-\beta)}{r + \delta_{p,m} + \tau + \lambda(1 - F_j(\bar{x}^{na}_{p,m}))}. \tag{27}$$

We assume a Cobb-Douglas matching function for the private sector, $m(\theta_p) = \theta_p q(\theta_p) = \zeta \theta_p^{\eta}$.

3.5 Government

The government employs $\bar{e}_g$ workers and must hire enough individuals to compensate for those who retire, exogenously separate into unemployment or inactivity, or endogenously separate into inactivity. We assume the matching function $M_g = \min\{v_g, u_g\}$. The functional form is irrelevant because we set vacancies to match the observed employment level exogenously, rather than having a job-creation condition that depends on labor market tightness as in the private sector.

As the government employs men and women in different proportions, the number of quits from the public sector (which have to be re-hired) is given by

$$v_g = \bar{e}_g[\tau + \varphi_g(\delta_{g,m} + \lambda(1 - F_m(\bar{x}^{na}_{g,m}))) + (1 - \varphi_g)(\delta_{g,f} + \lambda(1 - F_f(\bar{x}^{na}_{g,f})))], \tag{28}$$

where φ_g is the fraction of men in public employment. Following our empirical findings we assume the government pays an exogenous premium, π_j over private sector wages, different for men and women

$$w_{g,m} = \pi_m w_{p,m}, \tag{29}$$

$$w_{g,f} = \pi_f w_{p,f}. \tag{30}$$

Exogenous public sector wage premia are a common modeling choice in the literature on public employment. An extensive literature from the 1970s documents how public sector wages are used to satisfy unions or other interest groups, or to perform redistribution or to win elections, all aspects exogenous to the labor market; see the discussion in Garibaldi et al. [2020]. Although the wage premium is exogenous, wages are an endogenous object.

3.6 Initial choice of sector

Once born, at rate τ, men and women chose which sector to enter. They compare the expected values of entering the private or the public sector which include their relative preferences:

$$\max\left\{(1-F_j(\bar{x}^a_{p,j}))I_{p,j}+F_j(\bar{x}^a_{p,j})U_{p,j};(1-F_j(\bar{x}^a_{g,j}))I_{g,j}+F_j(\bar{x}^a_{g,j})U_{g,j}+\epsilon_j\right\}\, j=m,f. \quad (31)$$

The thresholds for the choice of sector, different for men and women, are given by

$$\epsilon^*_j=(1-F_j(\bar{x}^a_{p,j}))I_{p,j}+F_j(\bar{x}^a_{p,j})U_{p,j}-(1-F_j(\bar{x}^a_{g,j}))I_{g,j}-F_j(\bar{x}^a_{g,j})U_{g,j},\ j=m,f, \quad (32)$$

and the shares of men and women entering the public sector labor market are

$$1-\Xi_m(\epsilon^*_m), \quad (33)$$

$$1-\Xi_f(\epsilon^*_f). \quad (34)$$

Gender differences in preferences allow to test for their importance in explaining the over-representation of women in public employment. Also, without this additional heterogeneity, the selection of workers into the public or private sector would only be driven by aggregate variables and would therefore be equal for all workers. As a result, in a world of gender and sector symmetry, the share of women in the public sector would be undetermined. Furthermore, if the public sector increased wages for women slightly, more women would be attracted to the public sector, lowering the job-finding probability for all workers in the public sector. Hence, all men would then prefer the private sector. The only possible equilibrium would thus be one where only women would queue in the public sector. While in our model this mechanism is still present, heterogeneity in preferences allows us to generate equilibria where both men and women enter the public sector.

3.7 Definition of steady-state equilibrium

Definition 1. *A steady-state equilibrium in our economy is defined by a set of thresholds* $\{\bar{\epsilon}_f,\bar{\epsilon}_m,\bar{x}^a_{g,m},\bar{x}^a_{p,m},\bar{x}^a_{g,f},\bar{x}^a_{p,f},\bar{x}^{na}_{g,m},\bar{x}^{na}_{p,m},\bar{x}^{na}_{g,f},\bar{x}^{na}_{p,f}\}$*, job-finding probabilities* $\{p_p,p_g\}$*, stocks of inactive* $\{i_{p,m},i_{p,f},i_{g,m},i_{g,f}\}$*, unemployed* $\{u_{p,m},u_{p,f},u_{g,m},u_{g,f}\}$*, "attached" employed* $\{e^a_{p,m},e^a_{p,f},e^a_{g,m},e^a_{g,f}\}$*, "unattached" employed* $\{e^{na}_{p,m},e^{na}_{p,f},e^{na}_{g,m},e^{na}_{g,f}\}$*, and private sector wages* $\{w_{p,f},w_{p,m}\}$*, such that, given some exogenous government policy* $\{\pi_m,\pi_f,\bar{e}_g\}$ *and an exogenous "wedge" for female private sector wages* $\{\alpha\}$*:*

1. *Private sector firms satisfy the free-entry condition.*

2. *Male private sector wages are a constant fraction of workers' productivity.*

3. *Female private sector wages prior to applying a "wedge" are such that the value of a job for a firm is the same when hiring a man or a woman.*

4. *Newborn men and women decide optimally which sector to join.*

5. *Workers decide optimally the threshold values of x for quitting their job or to stop searching.*

6. *Worker flows in and out of the four stocks are constant.*

7. *The total population adds up to 1 (0.5 men, 0.5, women):*

   - $\frac{1}{2}(1 - \Xi_m(\bar{\epsilon}_m)) = i_{g,m} + u_{g,m} + e^a_{g,m} + e^{na}_{g,m}$
   - $\frac{1}{2}\Xi_m(\bar{\epsilon}_m)) = i_{p,m} + u_{p,m} + e^a_{p,m} + e^{na}_{p,m}$
   - $\frac{1}{2}(1 - \Xi_f(\bar{\epsilon}_f)) = i_{g,f} + u_{g,f} + e^a_{g,f} + e^{na}_{g,f}$
   - $\frac{1}{2}\Xi_f(\bar{\epsilon}_f)) = i_{p,f} + u_{p,f} + e^a_{p,f} + e^{na}_{p,f}$.

3.8 Mechanisms behind the over-representation of women

A lower gender wage gap in the public sector, reflected in a higher premium for women, $\pi_f > \pi_m$, contributes to their over-representation. Suppose π_f increases, women's wages and their flow utility from working in the public sector increase, raising the value of employment $E_{g,f}$, but also the option values of being unemployed $U_{g,f}$ or inactive $I_{g,f}$. Hence, when choosing which sector to enter, more women will lean towards the public sector, lowering the threshold ϵ^*_f. At the margin, women less keen on working in the public sector will join. Furthermore, a higher value of employment $E_{g,f}$, raises the threshold for women to become inactive in the public sector, $x^{\bar{n}a}_{g,f}$. More women in the public sector and fewer of them quitting voluntarily into inactivity, means that the government needs to open fewer vacancies to replace them. More women queuing for jobs and fewer open vacancies make it harder to find a job, which has two effects. First, it leads to a higher threshold for attached employment $x^{\bar{a}}_{g,f}$. Second, while it dampens the initial increase in the value of unemployment in the public sector for women, it reduces it for men. Suddenly, men find public sector jobs harder to find because too many women are queuing for them. This feeds back into a higher threshold ϵ^*_m. Only men with a passion for the public sector tolerate the lower job finding rate. Crowding out of men, in turn, shortens the queues for public sector jobs, further attracting

more women and amplifying the original effect. How many more women enter and how many men leave the public sector in equilibrium depends on the distribution of their preferences. A higher variance implies that changes in the values of employment, unemployment and inactivity will have low marginal impacts on the choice of sector. A lower variance on the other hand implies that many women join and many men are crowded out.

Better conciliation of work and family life. Consider a reduction in time at work in the public sector ξ_g, which benefits men and women alike. This increases the flow utility from working in the public sector and values of employment as well inactivity and unemployment, attracting more individuals to the public sector. Whether this will attract more men or women, depends on the distributions of outside options. Under perfect gender symmetry, there is no asymmetry in selection. However, if women have on average higher opportunity costs of working, the desirability of work-life balance will be stronger for them. Furthermore, as queues in the public sector increase, lowering the job-finding rate, the appeal of the public sector for men is reduced. If the crowding out is strong, even with better work-life balance, men might prefer the private sector, increasing the over-representation of women.

Higher job security. Safer public sector jobs, namely a lower separation rate, $\delta_{g,j}$ has two effects. First, it raises the value of employment, and indirectly the values of unemployment and inactivity in the public sector. It also raises the threshold to become inactive in the public sector, $x_{g,j}^{\bar{n}a}$. Second, fewer separations imply a lower turnover, with the government having to hire fewer replacements. More individuals in the public sector and fewer of them inactive, together with fewer vacancies, decrease the job finding rate in the public sector, partially offsetting the initial increase in the value of unemployment. Whether the effects are asymmetric across gender is a quantitative question that depends of how job-separation interacts with the values of employment, unemployment, and inactivity. If women have higher opportunity costs of working and lower wages than men, they might benefit less from safer jobs. In this case, higher job security would reduce the over-representation of women.

Differences in preferences Under equal preferences of men and women for working in the public sector, the over-representation of women would only be driven by different job characteristics across sectors. Different means of the preferences distribution for men and women, will mechanically affect the gender composition of the public sector. The variance, assumed equal across gender, will determine the strength of the crowding out effect of men.

4 Calibration

We calibrate our model to the data from Section 2. Some parameters are set exogenously based on outside information or as normalizations, while the remaining ones are calibrated to match data moments. We assume men and women draw values of home production or opportunity costs x from cumulative log-normal distribution functions $F_m(\mu_{x,m}, \sigma^x_m)$ and $F_f(\mu_{x,f}, \sigma^x_f)$ with different means and standard deviations. We assume normally distributed preferences for working in the public sector, $\Xi_m(\tilde{\epsilon}_m, \sigma^\epsilon)$ and $\Xi_f(\tilde{\epsilon}_f, \sigma^\epsilon)$, with different means by gender but a common standard deviation.

Table 3 displays all parameters for each country. We set the interest rate to match a 4 percent annual rate. For public sector wage premia, we use results from Table 2. We also obtain numbers for public sector employment from our empirical analysis. We normalize the matching efficiency and the time cost of working in the private sector to 1. Following Borowczyk-Martins et al. [2013], we set the elasticity of the matching function with respect to unemployment to 0.3. Regarding the time unemployed individuals spend searching, Krueger and Mueller [2012] report median times of around 110-120 minutes per day for the US, Spain, and France, and we hence set s to 0.25.

We calibrate the remaining sixteen parameters to match seventeen data moments. We search for parameters to minimize the sum of the squared percentage difference between data and model moments for the following targets: unemployment and inactivity rates for men and women, the ratio of public employment shares, the gender wage gap in the private sector, vacancy costs in terms of weekly wages, the ratio of the conditional job finding rates in the public compared to the private sector, the regional sensitivity of the ratio of public employment shares to changes in the size of the public sector, as well as eight flow rates between public and private employment, unemployment, and inactivity by gender. In particular, we target the following four flow rates for both men and women: private sector employment to unemployment, private sector employment to inactivity, public sector employment to unemployment, and public sector employment to inactivity. These flow rates are slightly different from those in Table 1 because we apply a time aggregation bias correction to calculate the continuous rates from the probabilities of changing state within a survey frequency. Appendix B describes the procedure.

Table C.1 in Appendix C links the model's parameters to the targets. Note that there are more targets than parameters, and that we only target flows to, but not from unemployment and inactivity. This allows us to independently target unemployment and inactivity rates.[8]

[8]While a more natural way of identification might simply use flow rates among all states by gender, thus

Table 3: Baseline calibration

	US (monthly)	UK (qt)	France (qt)	Spain (qt)
Parameters set exogenously				
Discounting				
Interest rate (r)	0.004	0.012	0.012	0.012
Death rate (τ)	0.002	0.006	0.006	0.006
Public sector policies				
Wage premium (men) (π_m)	0.955	1.037	0.878	0.998
Wage premium (women) (π_f)	1.050	1.057	0.950	1.069
Employment (e_g)	0.118	0.170	0.137	0.074
Labor market parameters				
Matching efficiency (ζ)	1	1	1	1
Matching elasticity (η)	0.3	0.3	0.3	0.3
Time cost of labor force				
Private sector (ξ_p)	1	1	1	1
Unemployed (s)	0.25	0.25	0.25	0.25
Calibrated parameters				
Labor market parameters				
Cost of posting vacancies (κ)	4.940	1.563	3.555	6.876
Bargaining power of men (β)	0.924	0.965	0.967	0.939
"Wedge" female-male wage prv. sector (α)	0.299	0.171	0.158	0.203
Time cost of labor force				
Public sector "discount"($\gamma = \xi_p - \xi_g$)	0.264	0.376	0.610	0.643
Arrival rate of shocks				
Outside option (λ)	0.057	0.057	0.046	0.043
Job separation - private, men ($\delta_{p,m}$)	0.022	0.020	0.022	0.052
Job separation - public, men ($\delta_{g,m}$)	0.007	0.008	0.008	0.024
Job separation - private, women ($\delta_{p,f}$)	0.016	0.017	0.022	0.058
Job separation - public, women ($\delta_{g,f}$)	0.010	0.006	0.008	0.032
Outside option distribution: Log normal				
Parameters men: $\mu_{x,m}$	-2.755	-1.206	-1.945	0.463
$\sigma^2_{x,m}$	5.518	2.379	5.831	2.027
Parameters women: $\mu_{x,f}$	-1.450	-0.423	0.303	1.104
$\sigma^2_{x,f}$	5.858	1.903	4.157	1.132
Preference distribution: Normal				
Mean - men ($\tilde{\epsilon}_m$)	-132.410	-66.815	-7.521	-17.258
Difference women-men ($\tilde{\epsilon}_f - \tilde{\epsilon}_m$)	26.736	38.030	0.865	1.904
Var. - men and women ($\sigma^2_{\epsilon,m}$)	134.413	63.853	8.746	10.938

In our model, all parameters affect all targets but some calibrated parameters are directly related to data moments, as is the case of gender and sector specific separation rates and flows to unemployment. For other parameters, for instance those related to the distribution of outside options, the link to targets is more strongly conditioned on other variables. Following Gomes [2015] we identify the cost of posting vacancies κ, by matching firms' expected vacancy costs equal to eight weekly wages. Together with the parameter β indicating men's bargaining

mechanically obtaining inactivity and unemployment rates for men and women, this approach cannot be used here because in our model individuals always have to be unemployed before finding a job.

power, the value of κ determines firms' costs of posting vacancies and higher values in both are closely linked to countries' average unemployment rates. Our calibrated values for κ are highest in Spain (and lowest in the UK) where high (low) unemployment rates imply that vacancies are filled faster (slower). The exogenous "wedge" on female private sector wages (α) is closely linked to the resulting gender wage gap and hence is calibrated to a lower (higher) value in France (the US) where the private sector gender wage gap is lowest (highest). The calibrated parameter values for α are close to the observed gender wage gaps, indicating that similar to Albanesi and Sahin [2018] the model's mechanism of endogenously generating these gaps can only explain 2.5 to 3.5 percent of the observed private sector gender wage gap.[9]

There are six parameters linked to inactivity rates and flows to inactivity: the parameter $\gamma = \xi_p - \xi_g$, indicating the difference in work-life balance in the private compared to the public sector, the arrival rate of a shock to the outside option, λ and two parameters each of men's and women's log-normal distributions of individuals' shocks to the opportunity costs of working. These six parameters pin down six variables, namely the inactivity rates and the flows from public and private employment to inactivity for men and women. A higher calibrated mean for women in all countries relates to the higher level of female compared to male inactivity as well as higher female flow rates from private and public employment to inactivity. Values for parameter γ are estimated to be larger in France and Spain and lower in the US and the UK. These numbers are in line with our empirical estimates in Table 2 regarding working hour discounts in the public sector being largest for Spain, smaller for the UK and lowest for the US. In all countries, the mean of the opportunity cost distribution is higher for women than for men. Figure C.1 in Appendix C shows the distributions of outside options together with the thresholds for men and women for each country. For the US, the two distributions are indistinguishable and the two thresholds are similar for men and women. In the UK and France we observe minor gender differences in the distributions and somewhat larger differences in the second threshold that determines who will abandon the labor force. In Spain, the country with the highest unemployment and inactivity rates, distributions for men and women look quite different.

Flow rates from private employment to unemployment and public employment to unemployment are determined by separation rates $\delta_{p,m}$, $\delta_{p,f}$, $\delta_{g,m}$ and $\delta_{g,f}$ respectively. As

[9] In Albanesi and Sahin [2018] the gender wage gap disappears in the 1996 calibration of the model. The authors point out that this "is due to the fact that the rise in women's labor force attachment causes their quit rates to get closer to men's. In the model, when quit rates are similar, the value associated to hiring male and female workers also converges, causing the gender wage gap to decrease. In the data, a substantial gender wage gap still remains, suggesting that the remaining gap is most likely due to factors absent in our model." (pg 61).

Table 4: Targets: model vs. data

Targets	**US**		**UK**		**France**		**Spain**	
	Data	Model	Data	Model	Data	Model	Data	Model
Unemployment rates								
Male ($u_m/(1-i_m)$)	0.069	0.056	0.064	0.056	0.090	0.078	0.156	0.160
Female ($u_f/(1-i_f)$)	0.059	0.059	0.056	0.061	0.096	0.088	0.190	0.184
Inactivity rates								
Male (i_m)	0.169	0.178	0.162	0.168	0.238	0.210	0.329	0.325
Female (i_f)	0.250	0.259	0.284	0.271	0.330	0.335	0.490	0.482
Public sector employment shares ratio								
$(e_f^g/(e_f^p+e_f^g))/(e_m^g/(e_m^p+e_m^g))$	1.429	1.421	2.187	2.267	1.744	1.809	1.583	1.555
Private sector wage gap								
w_f^p/w_m^p-1	-0.314	-0.309	-0.177	-0.177	-0.163	-0.162	-0.214	-0.209
Nr. of weekly wages- exp. cost vacancy								
$\kappa\Theta^{1-\eta}/(W_{mp}/4)$	8.000	7.303	8.000	7.997	8.000	7.300	8.000	8.070
Ratio probability job finding private/public								
p_p/p_g	1.066	0.901	0.743	0.762	0.809	0.899	0.878	0.884
Slope of public sector jobs on public-sector employment shares ratio								
ϵ_{u_g/w_g}	0.017	0.018	0.046	0.046	0.065	0.063	0.060	0.063
Flows rates - male								
$P \to U$	0.020	0.022	0.019	0.020	0.020	0.022	0.053	0.052
$P \to I$	0.019	0.018	0.016	0.017	0.019	0.017	0.023	0.026
$G \to U$	0.007	0.007	0.008	0.008	0.008	0.008	0.025	0.024
$G \to I$	0.015	0.017	0.015	0.013	0.014	0.014	0.019	0.017
Flows rates - female								
$P \to U$	0.016	0.016	0.018	0.017	0.022	0.022	0.058	0.058
$P \to I$	0.028	0.024	0.029	0.026	0.027	0.025	0.043	0.039
$G \to U$	0.010	0.010	0.006	0.006	0.008	0.008	0.029	0.031
$G \to I$	0.020	0.023	0.018	0.020	0.018	0.021	0.026	0.027

expected, and given much higher flow rates from private than public employment to unemployment, for all countries we estimate 2-3 times higher values for job separation rates in the private compared to the public sector. In addition, calibrated values for Spain are higher given larger flow rates for men and women between private and public employment and unemployment.

Finally, there are three parameters related to the distribution of preferences for working in the public sector: the two means of the distribution for men and women, and the standard deviation which is assumed to be equal for both genders. These parameters are identified using three moments in the data. First, we use the length of the queue in the public relative to the private sector; i.e. the ratio of (conditional) job finding rates in the public compared to the private sector (equal to p_g/p_p). In the data, this ratio is equivalent to the ratio of unemployment duration of new hires in the private over that of new hires in the public sector, which we observe in our microdata. For the UK, France, and Spain this statistic is smaller than one, meaning that the unemployment duration is lower in the private sector,

or in other words, queues are longer in the public sector. In the US, the number is slightly above one. The mean preference for women is determined as a residual needed to match the ratio of public employment shares. Finally, the standard deviation of the two distributions, which we assume to be equal across genders, is a crucial parameter that governs the effect of a change in the payoff in the public sector on the number of individuals applying for public sector jobs. Ideally to assign a value to this parameter we would target some causal effects of policies. However, we do not have any suitable data to do so. Furthermore, the empirical literature is scarce and, as far as we are aware, there are no natural experiments that we can use to identify this parameter. Instead we consider regional variation and check how the over-representation of women changes with the size of the public sector.[10] We regress the ratio of public employment shares by region on each region's total size of the public sector (number of workers over the working-age population). We find statistically significant negative correlations in all four countries, with coefficients ranging from -0.017 in the US to -0.065 in France, see Figure A.6 in Appendix A. We use these coefficients to target the change in the over-representation of women caused by a 1 percent increase in public employment.

Table 4 displays our model statistics next to the targeted data moments. Most data moments are matched well with an average percentage deviation of less than 7 percent in all countries. The model generates higher unemployment rates for women than for men in all four countries, which is true in France and Spain but not for the UK and the US. The model cannot generate a smaller queue in the public compared to the private sector as observed in the US. Finally note that including also public sector wages leads to slightly lower aggregate gender wage gaps in all countries.

5 Examining public sector policies

5.1 Counterfactual Experiments

We run five counterfactual experiments shutting down some features of the model and comparing the resulting statistics on the over-representation of women in public employment to those in our benchmark economy. The first experiment shuts down gender differences in preferences for working in the public sector and eliminates any differences between the two

[10] While the political autonomy and thus the possibility to carry out independent public employment policies in these regions differs across the four countries, with US states being more independent than French regions, we are not interested in the size of the public sector by region per se. Instead we consider how the ratio of public employment shares (share of female workers holding public sector jobs over share of male workers holding public sector jobs) changes with the size of the public sector, linking this to differences in preferences.

sectors, setting wages in the public equal to wages in the private sector for men and women, eliminating differences in time costs and separation rates between the two sectors and imposing the same preferences for working in the public sector for men and women. Then to understand how each feature contributes, we shut down one by one: (i) gender differences in preferences for working in the public sector, (ii) public sector wage premia, (iii) sectoral differences in hours worked, and (iv) differences in job security between the public and private sector. Table C.2 in Appendix C shows the results from the opposite exercise: again starting from a model without sector differences and without gender differences in preferences but adding each feature in turn.

For each experiment, Table 5 displays the two indicators reflecting the gender composition in the public sector next to the ones from our benchmark economy. Eliminating gender differences in preferences as well as all sector differences leads to fewer women in the public sector in all countries. The only two impediments for a 50/50 representation of men and women in each sector (indicators taking on the value of 1) are the different distributions of outside options for men and women and the "wedge" on female private sector wages. Eliminating gender differences in preferences for working in the public sector comes close to generating the low representation of women in the public sector as under the first experiment. Especially in the UK, gender differences in preferences seem to almost entirely explain the female over-representation in the public sector. Note that percentages do not necessarily add up to 1 because of interaction effects. For the remaining countries, preferences explain 80 percent of the over-representation of women in public employment in the US, 45 percent in Spain, but only 20 to 25 percent in France.

In our empirical analysis we estimated positive public sector wage premia for women that were higher than those for men in most countries. The only exception was France where all individuals in the public sector earned on average lower wages. But even in France, the wage discount was lower for women. In the third experiment where we eliminate the premia in all countries, the representation of women in the public sector is lower than in our benchmark economy. The fact that women earn relatively higher wages in the public sector explains around 30 percent of the over-representation of women in public employment in the US and Spain, it explains around 50 percent in France, and is negligible in the UK.

Better work-life balance in the public sector in our model is captured by $\xi_g < \xi_p$. The fourth experiment considers a version of the model without differences in time costs between sectors. With respect to the gender composition in the benchmark economy we observe little differences in the US and the UK. This is different in France and Spain where better work-life balance in the public sector explains around 20 to 30 percent and 30 to 50 percent of the

Table 5: Gender composition of the public sector under different scenarios

	Benchmark	No sector differences & no preference differences $\pi_w = \pi_m = 1$ $\xi_g = \xi_p$ $\bar{\epsilon}_f = \bar{\epsilon}_m$ $\delta_{g,j} = \delta_{p,j}$	No preference differences $\bar{\epsilon}_f = \bar{\epsilon}_m$	No wage differences $\pi_w = \pi_m = 1$	No hours differences $\xi_g = \xi_p$	No job security differences $\delta_{g,j} = \delta_{p,j}$
Public sector employment shares ratio						
US	1.42	0.991	1.08 (79%)	1.28 (33%)	1.43 (-2%)	1.45 (-7%)
UK	2.19	0.997	1.07 (94%)	2.17 (2%)	2.17 (2%)	2.19 (0%)
France	1.83	0.925	1.60 (25%)	1.34 (54%)	1.63 (22%)	1.85 (-2%)
Spain	1.53	0.856	1.25 (42%)	1.35 (27%)	1.31 (33%)	1.58 (-7%)
Women's employment shares ratio						
US	1.25	0.994	1.05 (78%)	1.17 (31%)	1.26 (-4%)	1.27 (-8%)
UK	1.71	0.998	1.04 (94%)	1.70 (1%)	1.66 (7%)	1.71 (0%)
France	1.55	0.941	1.42 (21%)	1.25 (49%)	1.38 (28%)	1.56 (-2%)
Spain	1.64	0.871	1.29 (46%)	1.42 (29%)	1.26 (49%)	1.70 (-8%)

Note: Model simulations; in brackets the percentage difference between the first and second column that is explained when equating one characteristic of the sector at a time. Percentages do not necessarily add up to 1 because of interaction effects. For results on the direct measures for the over-representation of women see Table C.3 in Appendix C.

over-representation of women respectively. In our last experiment we impose the same job separation rates in the public and private sector. However, eliminating differences in job security increases the over-representation of women because more job security attracts more men to the public sector.

In each country different driving forces matter for the over-representation of women in the public sector. In the UK, gender differences in preferences explain almost all of it. This is in line with our empirical observation for the UK of an important reduction in the over-representation of women in the public sector when disregarding education and health care. In the US, both preferences and relatively higher wages seem to matter. For France and Spain we find that the relatively lower gender wage gap together with a better possibility of conciliation of work and family life can account for the over-representation of women in the public sector. The importance of work-life balance for explaining the over-representation of women in the Spanish public sector is not surprising. For instance, during the summer weekly working hours in the public sector are effectively reduced from 37 hours to 32.5 hours.[11]

[11]Between mid July and mid September, instead of working 8 hours from Monday to Thursday and 5 hours on Friday, many can opt to work 6.5 hours between 8.00-15.00 (see law BOE-A-2019-2861).

5.2 Quantifying the value of public sector characteristics

The fact that neither higher job security nor better work-life balance are the main drivers attracting women into the public sector in the US nor the UK does not imply that individuals do not value these features of public employment. It merely implies that individuals' valuation does not differ as much across genders as other aspects such as preferences or wages. We quantify the value of different public sector characteristics, asking how much of their wage would male and female private sector workers be willing to sacrifice to obtain: (i) the same work-life balance and (ii) the same job security as in the public sector.

Regarding (i), a private sector worker with opportunity costs x would be willing to sacrifice in terms of his wage the additional time gained, evaluated at his opportunity cost, $(\xi_p - \xi_g)x/w_{p,j}$. To obtain the aggregate compensating differentials for men and women, we then consider the average man and woman who prefers working to inactivity, by taking the expected value of x, conditional on being employed, in percentage of private sector wages

$$PremiumH_j^p = \frac{(\xi_p - \xi_g)\int_0^{\bar{x}_{p,j}^{na}} x f_j(x)dx}{F_j(\bar{x_{p,j}^{na}})}\frac{1}{w_{p,j}} \times 100, j = [m, f].$$

Different compensating benefits for men and women are thus driven by gender differences in (i) the distribution for the opportunity costs of working, f_j, (ii) the threshold in the private sector defining a worker who is indifferent between working or being inactive, $\bar{x}_{p,j}^{na}$, and (iii) private sector wages $w_{p,j}$.

When estimating (ii), the job security compensating differential, note that a private sector worker with wage w_1 would only accept a public sector job with wage larger than $w_2 = w_1 + \delta_p(U_{p,j}(x|\delta_p) - E_{p,j}(x|\delta_p)) - \delta_g(U_{p,j}(x|\delta_g) - E_{p,j}(x|\delta_g))$ in case his opportunity costs of working x is not very large; i.e he is an attached employed individual. For unattached employed workers in the private sector the wage they need to accept a public sector job is then given by $w_2 = w_1 + \delta_p(I_{p,j}(x|\delta_p) - E_{p,j}(x|\delta_p)) - \delta_g(I_{p,j}(x|\delta_g) - E_{p,j}(x|\delta_g))$. With some additional algebra we can again obtain the aggregate compensating differentials considering the average man and woman with opportunity costs of working low enough to prefer employment to inactivity. Integrating over x, we calculate the conditional expected value to obtain the

following expression:

$$PremiumS_j^p = \Bigg[\Bigg(F(x_{p,j}^{\bar{a}}) \xi_p x_{p,j}^{\bar{n}a} \left(\frac{\delta_p}{\tilde{r} + \delta_p + m(\theta_p)} - \frac{\delta_g}{\tilde{r} + \delta_g + m(\theta_p)} \right) + (s - \xi_p) \left(\frac{\delta_p}{\tilde{r} + \delta_p + m(\theta_p)} - \frac{\delta_g}{\tilde{r} + \delta_g + m(\theta_p)} \right) \int_0^{\bar{x}_{p,j}^a} x f_{p,j}(x) dx \Bigg) + \Bigg((F(x_{p,j}^{\bar{n}a}) - F(x_{p,j}^{\bar{a}})) \xi_p x_{p,j}^{\bar{n}a} \left(\frac{\delta_p}{\tilde{r} + \delta_p} - \frac{\delta_g}{\tilde{r} + \delta_g} \right) + (-\xi_p) \left(\frac{\delta_p}{\tilde{r} + \delta_p} - \frac{\delta_g}{\tilde{r} + \delta_g} \right) \int_{\bar{x}_{p,j}^a}^{\bar{x}_{p,j}^{na}} x f_{p,j}(x) dx \Bigg) \Bigg] \frac{1}{F(x_{p,j}^{\bar{n}a}) w_{p,j}} \times 100,$$

where $j = [m, f]$ and $\tilde{r} = r + \tau + \lambda$; see Appendix C for more details. In addition to the three aspects that determine gender differences in the work-life balance premium (f_j, $\bar{x}_{p,j}^{na}$, $w_{p,j}$,) for the job security differential also gender differences in the threshold $\bar{x}_{p,j.}^{a}$, defining a worker who is indifferent between being inactive or searching for a job matter.

Table 6 displays the results from this exercise. Overall private sector workers seem to value work-life balance more than higher job security. While they are willing to give up 3-41 percent of their private sector wages for fewer working hours, they would only sacrifice 1-4 percent of their wages for higher job security. The work-life balance premium is very high in Spain (25 to 41 percent), high in France and the UK (7 to 13 percent) and lower in the US (around 3 percent). Women are willing to pay more for work-life balance in all countries. We estimate lower job security premia – around one percent – in countries with low unemployment rates, like the US and the UK. For France and Spain, countries with higher unemployment, these numbers are twice as large, between 2 and 4 percent. In all countries except for France, men are willing to pay more for job security. This is due to the fact that on average men's outside options x are lower and their wages are higher, and hence job losses are more costly for men.

Table 6: Value of public sector job characteristics from

	Perspective of a private sector worker				**Perspective of a public sector worker**			
	Work-life balance $[\xi_p = \xi_g]$		**Job security** $[\delta_{p,j} = \delta_{g,j}]$		**Work-life balance** $[\xi_p = \xi_g]$		**Job security** $[\delta_{p,j} = \delta_{g,j}]$	
	Women	Men	Women	Men	Women	Men	Women	Men
US	3.24	2.73	0.689	1.92	4.2	3.56	0.611	1.69
UK	12.9	8.76	1.12	1.29	18.3	12.3	1.44	1.6
France	12.3	6.73	2.09	2.32	28.1	15.6	2.47	2.62
Spain	41	24.2	2.42	3.89	96.9	55.4	3.89	5.04

When alternatively evaluating these differentials through the lens of a public sector worker, in the three European countries job-security premia are more than twice as large, see Appendix C for detailed calculations. As the conditional job-finding rate in the public sector is lower than in the private sector, unemployment is more costly and thus public sector workers demand higher compensations for accepting a lower job security. Similarly, work-life balance premia estimated this way are also higher. Because of a better work-life balance in the public sector (low ξ_g), there are more public sector workers with higher opportunity costs of working (higher x) compared to workers in the private sector. These individuals hence demand a much larger compensation for accepting a loss in work-life balance (a higher ξ_p).

5.3 Effects of public sector wages and employment

The over-representation of women implies that public wage and employment policies have different effects for male and female labor market outcomes. We quantify these differences by considering an increase in public sector wages of 1 percent, and an increase in public sector employment of 1 percent. Table 7 displays the changes in male and female unemployment and inactivity rates and the aggregate gender wage gap compared to the benchmark case.

Higher wages in the public sector increase male and female unemployment as more individuals and in particular more women decide to search for public sector jobs. More people queuing in a sector where job creation does not respond to labor market conditions, and fewer people in the private sector raises the unemployment rate. The negative effect on the unemployment rate is twice as high for women than for men. As unemployment increases, inactivity rates particularly for women decrease. Higher public sector wages reduce the gender wage gap, and even more so in countries like the UK and France (around 0.20 percentage points) with larger public sectors in which over 60 percent of workers are women.

Increasing public sector employment on the other hand reduces unemployment for men and more so for women because the probability to find a job in the public sector increases. Similarly to public sector wage increases, increasing public employment reduces the size of the private sector. Unlike public sector wage increases, additional jobs have a direct job-creation effect which is larger than the crowding out effect on private employment, and hence unemployment falls. Again the magnitude of the effect is more than twice as large for women compared to men. Effects on inactivity and the aggregate gender wage gap are rather small. Inactivity rates increase slightly (by up to 0.04 percentage points), and we observe a fall in the aggregate gender wage gap by 0.01 percentage points. Overall, our findings are in line with evidence on the different effects on men's and women's labor market outcomes of US fiscal policies presented by Bonk and Simon [2020] using CPS data.

Table 7: Effects of public sector policies for different countries

Policy	**United States**	**United Kingdom**	**France**	**Spain**
Increase of wages by 1 percent				
Δ unemployment rate male	0.07 pp.	0.08 pp.	0.10 pp.	0.15 pp.
Δ unemployment rate female	0.13 pp.	0.21 pp.	0.23 pp.	0.31 pp.
Δ inactivity rate male	-0.00 pp.	-0.02 pp.	0.01 pp.	-0.01 pp.
Δ inactivity rate female	-0.01 pp.	-0.08 pp.	-0.01 pp.	-0.02 pp.
Δ aggregate wage gap	-0.06 pp.	-0.19 pp.	-0.15 pp.	-0.13 pp.
Increase of employment by 1 percent				
Δ unemployment rate male	-0.08 pp.	-0.10 pp.	-0.03 pp.	-0.06 pp.
Δ unemployment rate female	-0.15 pp.	-0.25 pp.	-0.07 pp.	-0.11 pp.
Δ inactivity rate male	0.02 pp.	0.02 pp.	0.03 pp.	0.01 pp.
Δ inactivity rate female	0.02 pp.	0.03 pp.	0.04 pp.	0.00 pp.
Δ aggregate wage gap	-0.01 pp.	-0.01 pp.	-0.01 pp.	-0.01 pp.

5.4 Discussion of alternative modeling assumptions

To keep the model tractable, we abstract from potentially important dimensions. We briefly discuss how these simplifying assumptions can be reconciled with data and how they condition our findings.

Risk aversion Our model considers agents with linear utility. We conjecture that introducing risk aversion into our model would most likely lead to larger estimates of how men and women value public sector job-security. Potential differences in risk aversion between men and women gender are currently captured by differences in preferences. Explicitly including gender differences in risk aversion could potentially reverse our result on the negative role of sector differences in job-separation rates for explaining the over-representation of women in public employment, and would reduce the role of preferences. However, while there exists some experimental evidence that women are more risk averse than men (see e.g. Eckel and Grossman [2008]), these findings are not conclusive (see e.g. Filippin and Crosetto [2016]).

Public and private sector labor markets In our model private and public sector labor markets are perfectly segmented. This rules out any transitions between public and private sectors, either directly (through job-to-job transitions) or indirectly (via unemployment or inactivity) and can be interpreted as an occupational choice given that certain public sector jobs, such as teacher or police officer, require a type of training specific to the public sector. Two facts support this simplifying assumption: (i) The majority of inflows into and outflows from public sector employment are from and to non-employment, and (ii) even after a spell of unemployment or inactivity, workers are more likely to find a job in their sector of previous

employment.[12] Allowing agents in our model to switch between sectors would enable us to match labor market flows between the two sectors. While hazard rates for switching from public to private employment are remarkably similar for men and women, women are more likely than men to switch from private to public employment. Though these last hazard rates are very small – see Figure B.1 in Appendix B – in combination with gender differences in the opportunity costs of working such a model might imply a larger role for work-life balance for explaining the over-representation of women.

Additional heterogeneity We abstract from having ex-ante worker heterogeneity, either observable (education) or unobservable (ability). Although such heterogeneity has been shown to be important for understanding the effects of public sector employment for aggregate labor market outcomes, for instance by Gomes [2018], we think that, for the question at hand, this is of second-order importance as women of all educational backgrounds are over-represented in public employment, see Figure A.16 in Appendix A. We also abstain from differentiating between mothers and childless women. While better work-life balance might be more relevant for mothers, mothers represent the vast majority of women, between 86 (UK) and 78 percent (Spain) (OECD [2020]). Introducing additional heterogeneity into our model would allow us to test how skill-biased public employment relates to the over-representation of women. It would also enable us to speak to different degrees of over-representation among women, but we conjecture that it would not change our aggregate findings considerably.

Wage earnings profiles We model unique wages for men and women in the public and private sector, rather than a wage-tenure profiles. While Postel-Vinay and Turon [2007] emphasize that lifetime earning in the public sector might be lower than static wage comparisons suggest, in a more recent paper, Bradley et al. [2017] find that differences in lifetime

[12]For the US, Fontaine et al. [2020] report (in their Appendix V) job-finding rates in the public and private sector, conditional on individuals' previous sector of employment. The unconditional job-finding rate in the public sector is only 1.8 percent, but conditional on having been employed in the public sector in the month preceding unemployment it is close to 30 percent. The public sector job-finding rate conditional on being previously employed in the private sector is 1.4 percent, roughly equal to the rates conditional on previously having been unemployed or inactive. For the private sector, the job-finding rate conditional on previous private sector employment is higher than 40 percent. Being previously employed in the public sector does not raise the job-finding rate in the private sector relative to having been unemployed or inactive (with job-finding rates of around 16 percent). These numbers suggest that individuals' choice of sector is relatively persistent, even after unemployment or inactivity spells. Regarding inflows and outflows from the public sector, in France and Spain - countries with entry exams into the public sector - where, workers employed in the private sector in the previous quarter represent only 10 to 15 percent of inflows into public employment. In the US and UK these numbers are slightly higher, with around 30 percent of inflows into public employment coming from the private sector. Similar magnitudes hold for outflows, as shown by Chassamboulli et al. [2020].

earnings and static wages across sectors are rather similar for both men and women. Given the relatively constant gap in public sector employment between men and women along the life cycle – see Figure A.12 in Appendix A – we conjecture that explicitly introducing wage-tenure profiles into our model would not significantly alter our findings regarding drivers behind the over-representation of women in the public sector.

6 Conclusion

The public sector hires dis-proportionally more women than men. To understand why, we build a model where men and women decide if to participate and if to enter private or public sector labor markets. We calibrate our model to the United States, the United Kingdom, France and Spain, to quantify how much different characteristics of public sector jobs explain why so many women want to work in the public sector. We find different results for each country. In the UK, preferences for public sector jobs play the most important role, while for the US, Spain, and France higher wages are important. Work-life balance also matters in Spain and France, and to a lower extent in the US. Maybe surprisingly, higher job security in the public sector plays a more important role for men than for women, something we confirm when calculating the sacrifice private sector workers are willing to make for obtaining public sector conditions in terms of work-life balance and job security.

Our estimations of the compensating differentials of public sector jobs and our findings on the different effects for men and women of public sector wage and employment policies are important for policy makers. First, governments should be aware that such policies have asymmetric impacts on male and female labor market outcomes. The effects of public sector wage or employment increases on unemployment rates are twice as large for women than for men. Also, to the extent that on average mothers' employment status affects children more than fathers', because upon divorce children tend to remain with their mothers and because some women are single mothers, public sector employment policies might also have important effects for children's outcomes and ultimately fertility decisions. Second, when discussing increases or cuts to public sector wages, it is commonly argued that job security and better work-life balance provide compensating differentials. While these two forms of compensation seem to be of extreme relevance for policy makers, to the best of our knowledge there are few attempts to calculate them.[13] For all four countries, we find that the work-life

[13]One exception is Danzer and Dolton [2012] who use UK survey data to estimate total reward differentials, including current earnings, pensions, hours of work, paid holidays, employer provided health care and probability of unemployment. Using structural models, Fontaine et al. [2020] calculate the value of job security in the public sector, and Gomes and Wellschmied [2020] estimate the value of pension premia over the life-cycle for public sector workers with different levels of education. Bradley et al. [2017] incorporate

balance premium is much larger than the job-security premium.

Our findings open up a variety of interesting questions for future research. For instance, in light of empirical findings on sector switches upon child birth, explicitly modeling women's participation and fertility decisions would allow for the study of public sector wage and employment policies on fertility. Another interesting question, from a micro rather than a macro perspective, would be to disentangle women's preferences for public service from their preferences to work in public sector occupations. Given that the latter is closely linked to individuals' specialization choices, incorporating this aspect into our model would require modeling education choices prior to entering private or public sector labor markets.

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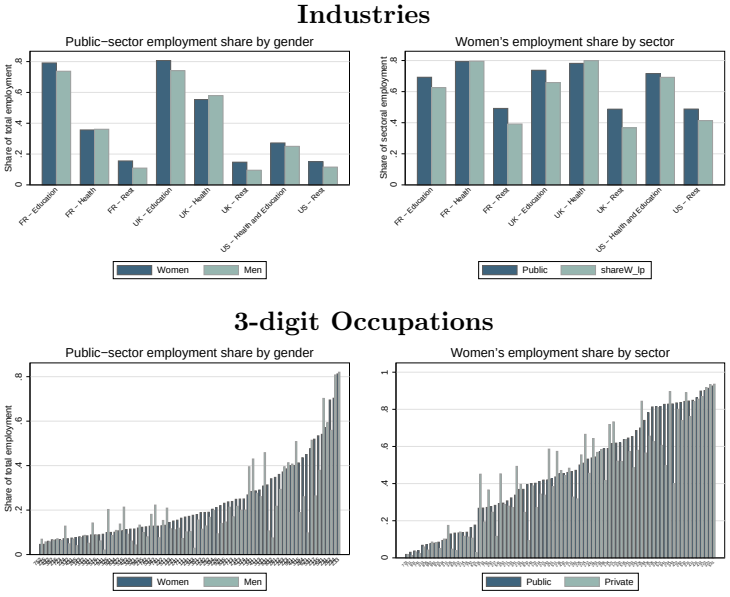
COMPANION APPENDIX

You're the one that I want! Understanding the Over-Representation of Women in the Public Sector by Pedro Gomes and Zoë Kuehn

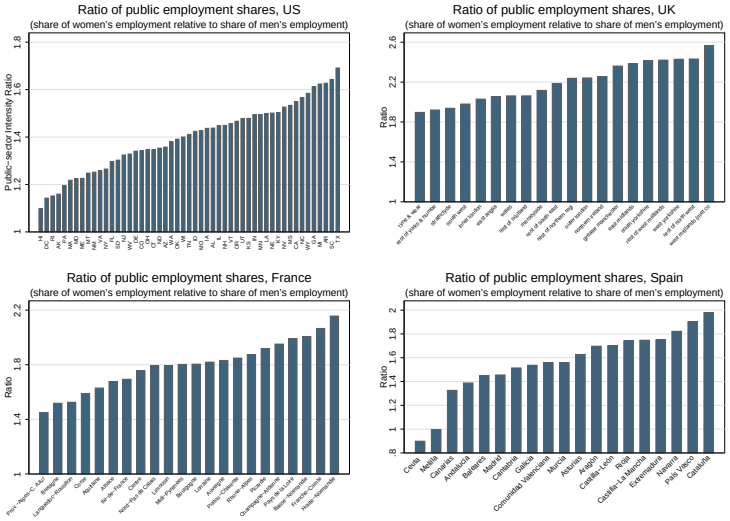
A Over-representation of women in public sector employment

Figure A.1: Different statistics across industries and occupations



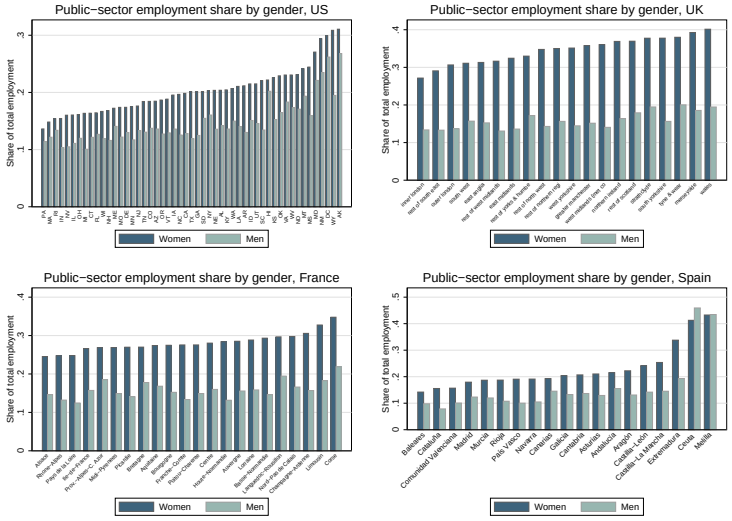
Note: 1st panel uses the French and the UK Labour Force Surveys and the CPS (2003-2018). 2nd panel: CPS data, averages between 1996 and 2017. 3-digit occupations that have an overall share of public-sector employment between 0.05 and 0.95.

Figure A.2: Public Employment Shares Ratio, Regional Variation



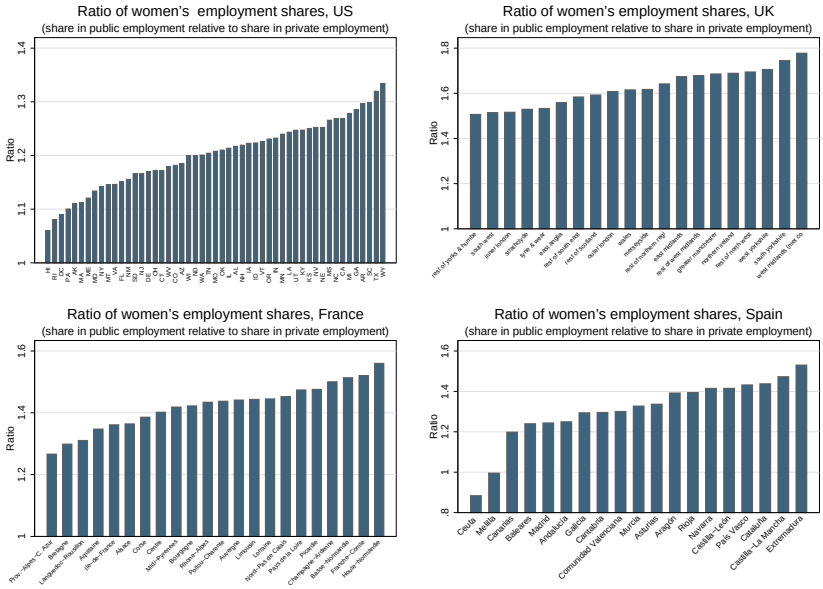
Note: French, Spanish, and UK Labour Force Surveys and CPS (2003-2018).

Figure A.3: Public sector employment shares, regional variation



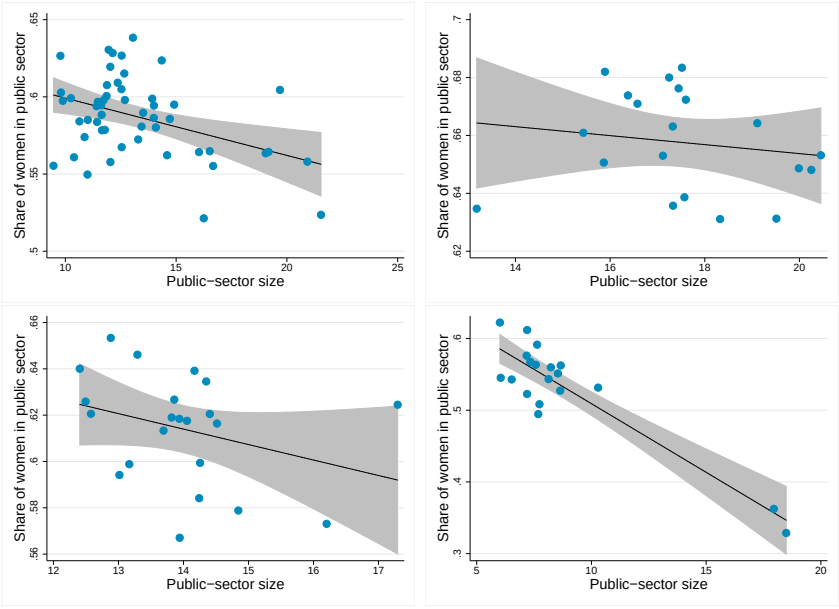
Note: French, Spanish, and UK Labour Force Surveys and CPS (2003-2018).

Figure A.4: Ratio of women's employment shares, regional variation



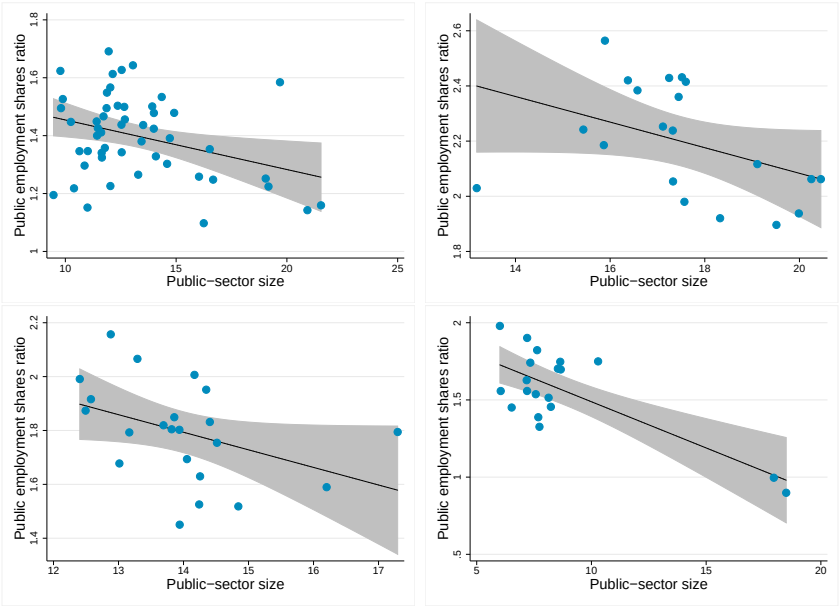
Note: French, Spanish, and UK Labour Force Surveys and CPS (2003-2018).

Figure A.5: Share of women in public sector and the size of government



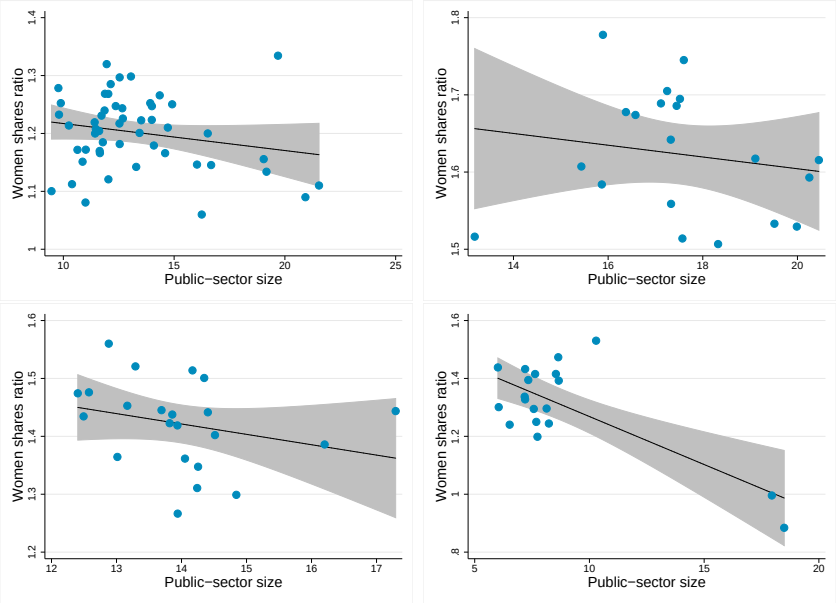
Note: French, Spanish, and UK Labour Force Surveys and CPS (2003-2018); clockwise from top left to bottom left: US, UK, Spain and France.

Figure A.6: Public employment shares ratio and the size of government



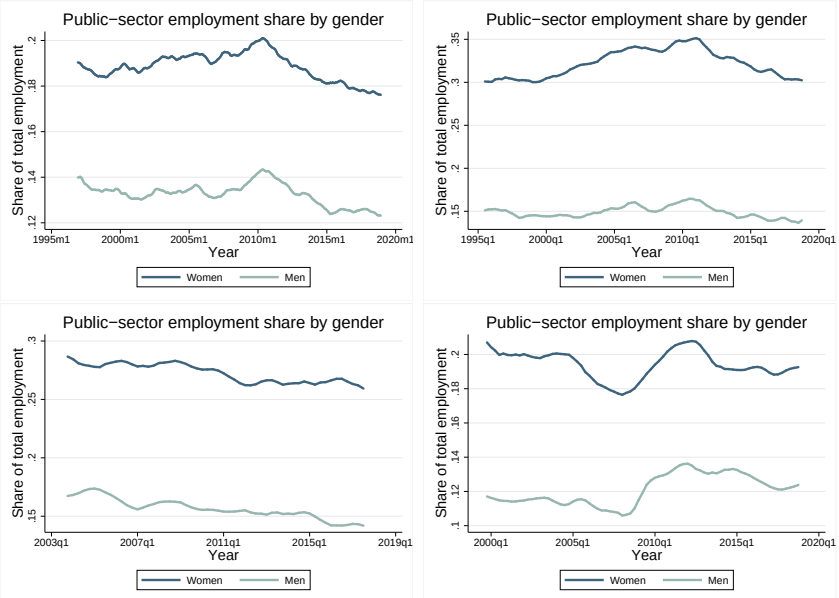
Note: French, Spanish, and UK Labour Force Surveys and CPS (2003-2018); clockwise from top left to bottom left: US, UK, Spain and France.

Figure A.7: Women's employment shares ratio and the size of government



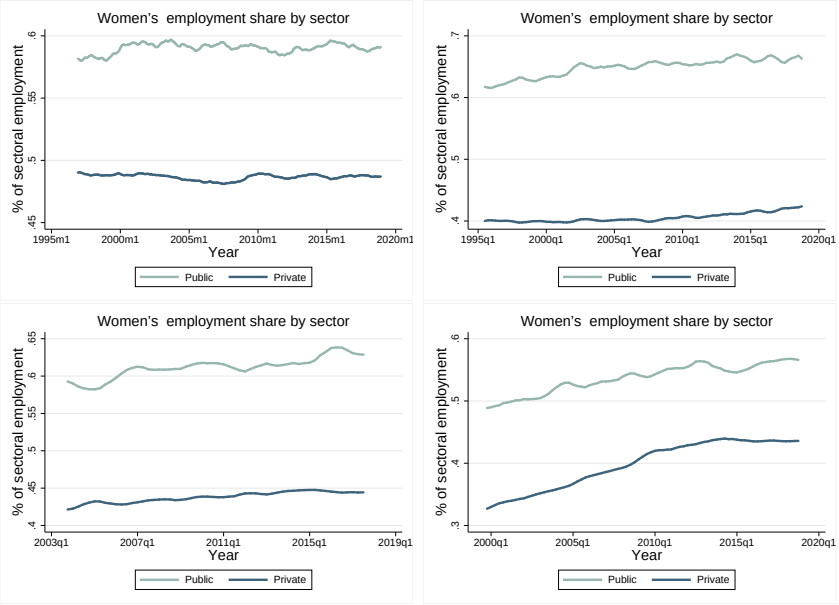
Note: French, Spanish, and UK Labour Force Surveys and CPS (2003-2018); ; clockwise from top left to bottom left: US, UK, Spain and France.

Figure A.8: Public employment shares by gender, time variation



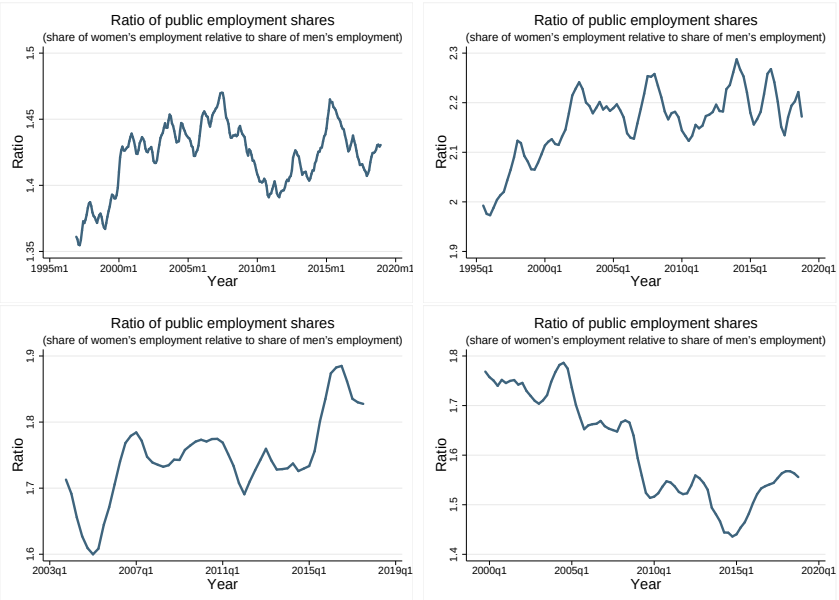
Note: French, Spanish, and UK Labour Force Surveys and CPS (2003-2018) ; clockwise from top left to bottom left: US, UK, Spain and France.

Figure A.9: Women employment shares by sector, time variation



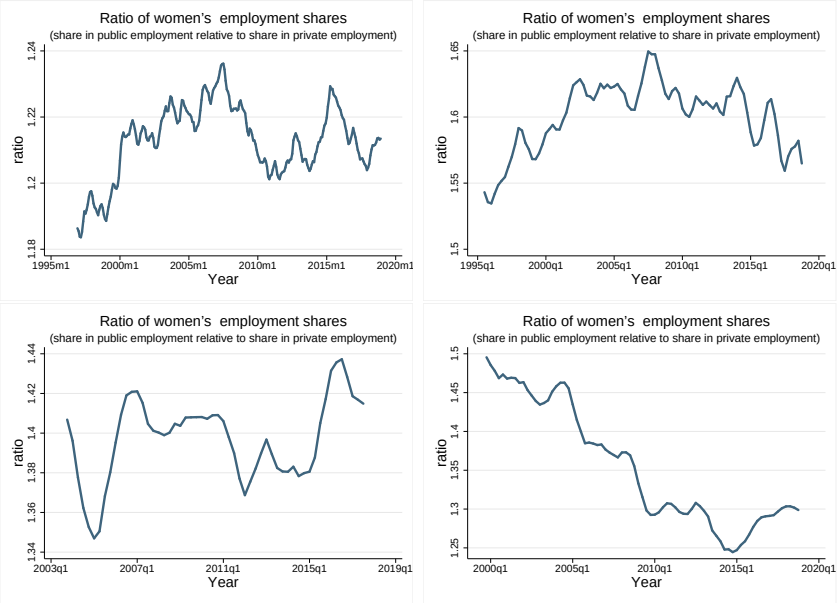
Note: French, Spanish, and UK Labour Force Surveys and CPS (2003-2018); clockwise from top left to bottom left: US, UK, Spain and France.

Figure A.10: Public employment shares ratio, time variation



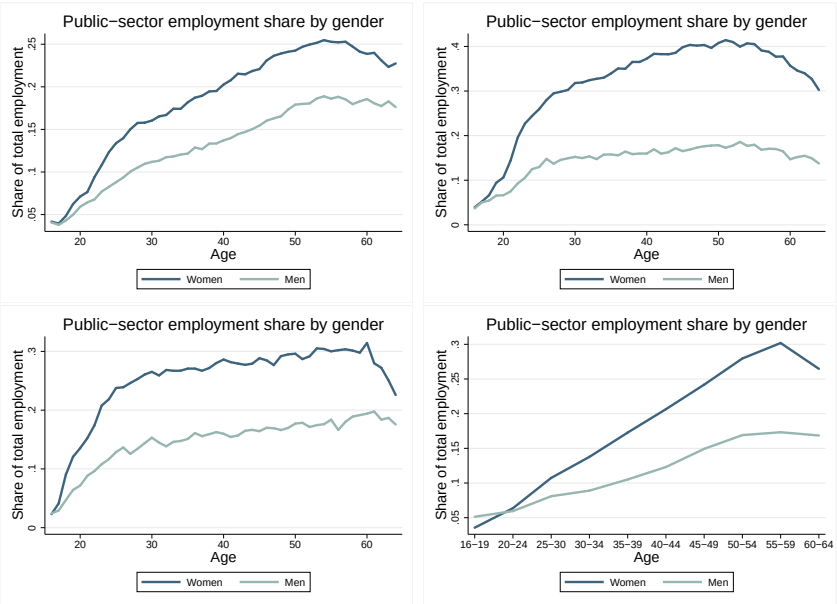
Note: French, Spanish, and UK Labour Force Surveys and CPS (2003-2018); clockwise from top left to bottom left: US, UK, Spain and France.

Figure A.11: Ratio of women's employment shares, time variation



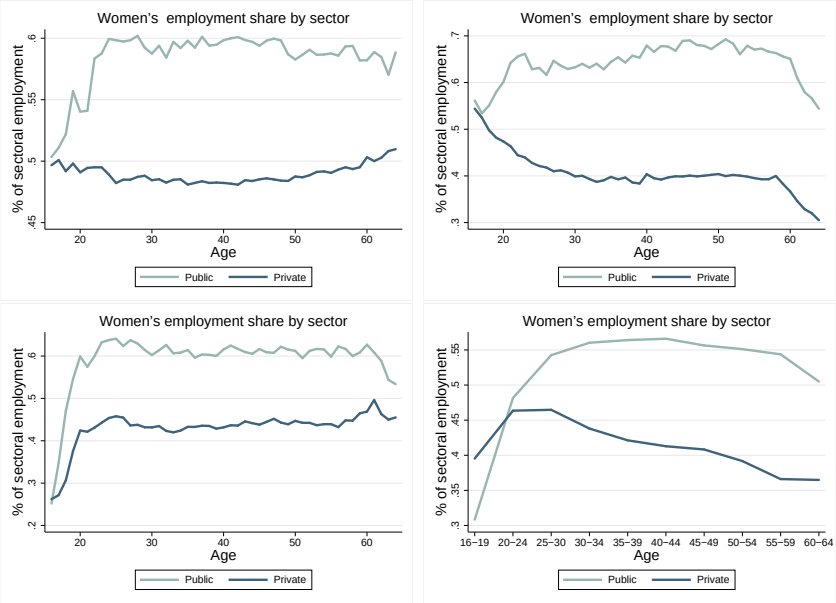
Note: French, Spanish, and UK Labour Force Surveys and CPS (2003-2018); clockwise from top left to bottom left: US, UK, Spain and France.

Figure A.12: Public employment shares by gender, variation over age groups



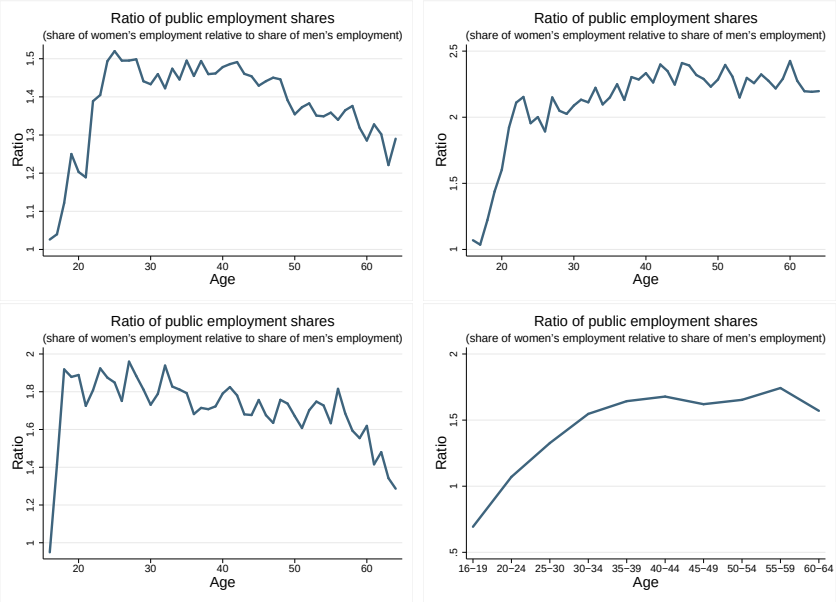
Note: French, Spanish, and UK Labour Force Surveys and CPS (2003-2018); clockwise from top left to bottom left: US, UK, Spain and France.

Figure A.13: Women's employment shares by sector, variation over age groups



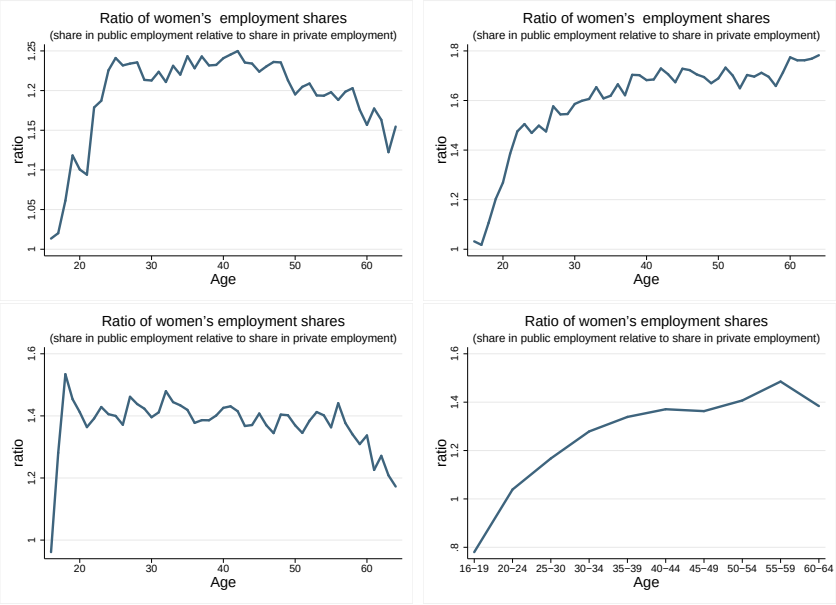
Note: French, Spanish, and UK Labour Force Surveys and CPS (2003-2018); clockwise from top left to bottom left: US, UK, Spain and France.

Figure A.14: Ratio of public employment shares, variation over age groups



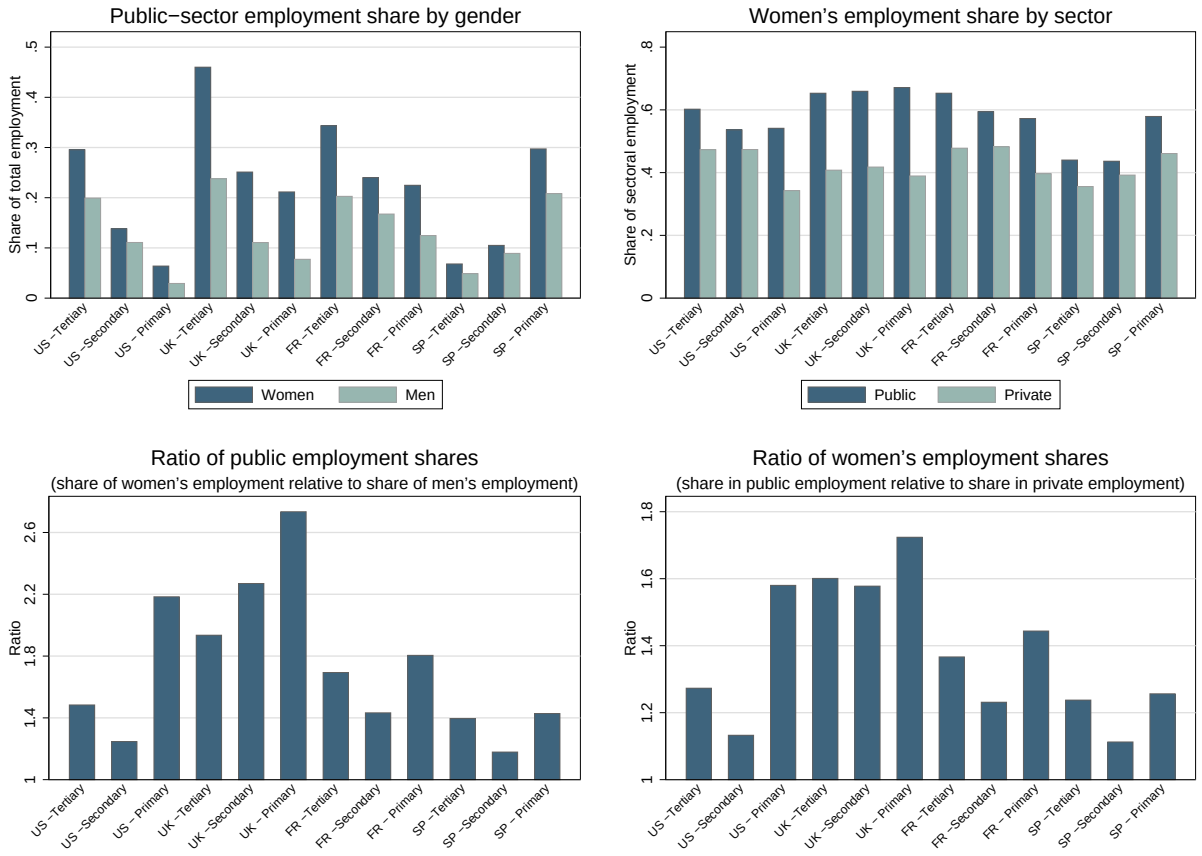
Note: French, Spanish, and UK Labour Force Surveys and CPS (2003-2018); clockwise from top left to bottom left: US, UK, Spain and France.

Figure A.15: Ratio of women's employment shares, variation over age groups



Note: French, Spanish, and UK Labour Force Surveys and CPS (2003-2018); clockwise from top left to bottom left: US, UK, Spain and France.

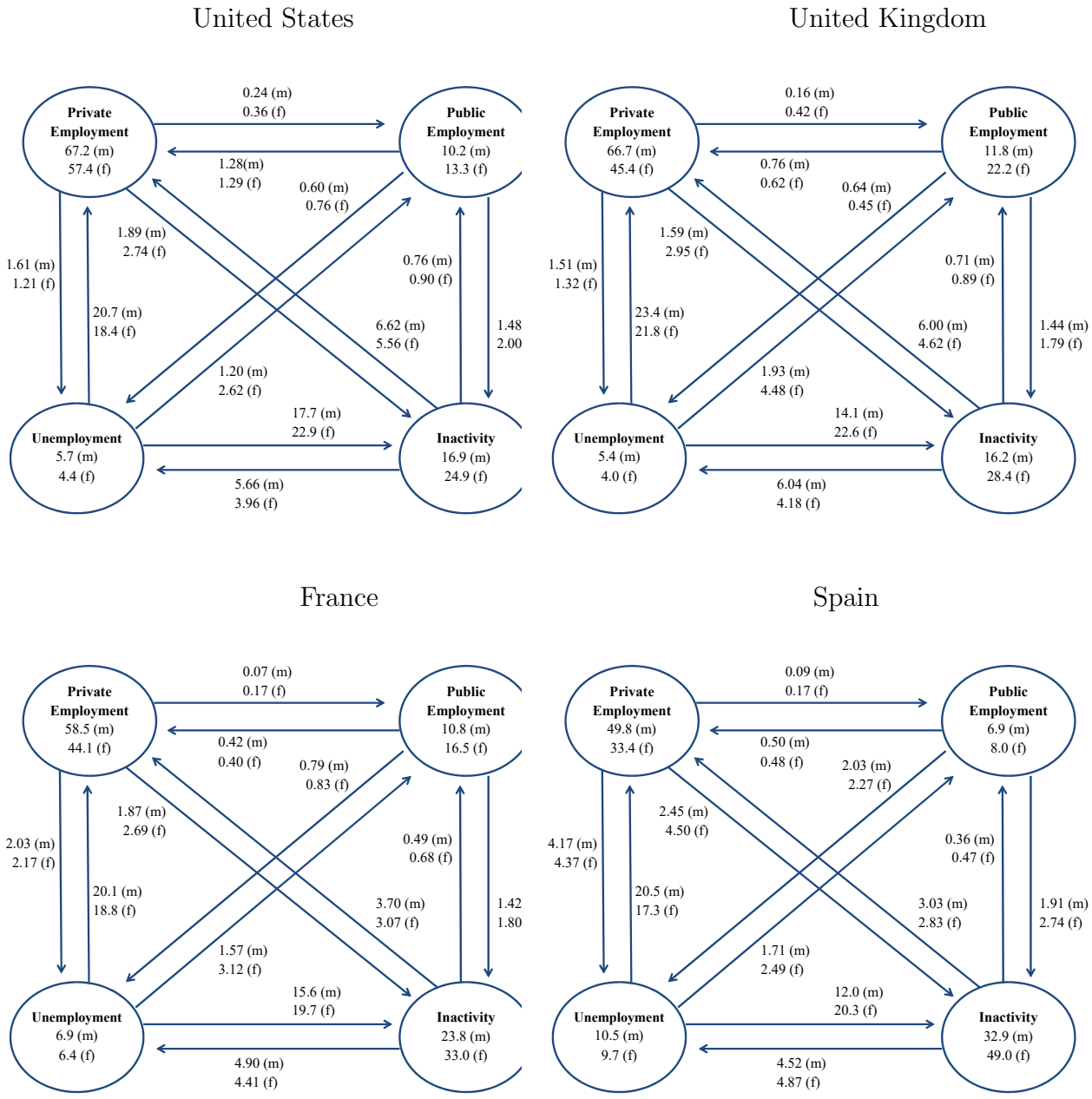
Figure A.16: Different statistics for the over-representation of women in public employment, by education



Note: At the top, the graph on the left shows the public sector employment shares by gender and the graph on the right the share of women in sectoral employment. At the bottom, the graph on the left shows the ratio of public employment shares rg and the graph on the right shows the ratio of women's employment shares rf. For the United States the data is taken from the CPS (2003-2018), for the United Kingdom from the UK Labour Force Survey (2003-2018), for France from the French Labour Force Survey (2003-2017) and for Spain from the Spanish Labour Force Survey (2003-2018).

B Stocks and flows by gender

Figure B.1: Average worker flows, 2003-2018



Note: worker stocks are expressed as a fraction of the total working-age population and flows are expressed as hazard rates. Data are extracted from the French, UK, and Spanish Labour Force Survey, and the CPS; see Fontaine et. al (2018) for details on the extraction of stocks and flows.

Estimation of conditional transition probabilities

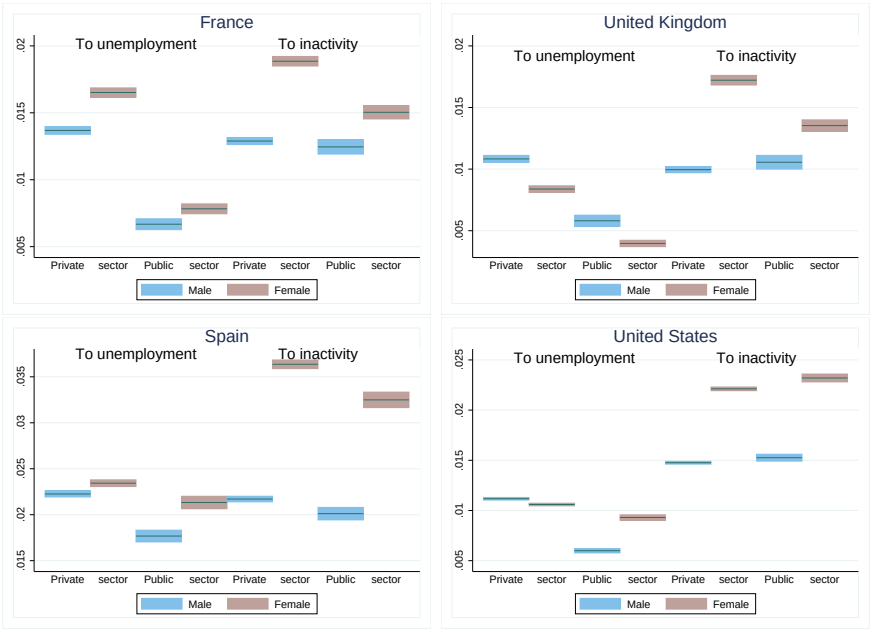
Conditional on being employed, a worker can keep his job, become unemployed or become inactive. We consider staying employed as the base outcome and compute the probabilities of becoming unemployed or inactive as:

$$\lambda_i^U = \frac{\exp(x_i\beta_U)}{1 + \exp(x_i\beta_U) + \exp(x_i\beta_I)} \tag{B.1}$$

$$\lambda_i^I = \frac{\exp(x_i\beta_I)}{1 + \exp(x_i\beta_U) + \exp(x_i\beta_I)}, \tag{B.2}$$

where x_i denotes the control variables age and age squared, as well as indicator variables for education, region, year, occupation, and age between 60 and 64 to capture increasing flows into retirement. The estimation also includes a female dummy, a public sector dummy, and an interaction term between the two. These estimates then allow us to predict transition probabilities for the average female and male employee in both public and private sector.

Figure B.2: Conditional transition probabilities out of employment



Note: Based on the estimation of equations B.1 and B.2 using a multinomial logit regression. For France the number of observations is 1,634,340 and the pseudo R-squared is 0.092. For the UK the number of observations is 1,417,683 and the pseudo R-squared is 0.077. For Spain the number of observations is 1,989,672 and the pseudo R-squared is 0.090. For the US the number of observations is 7,593,719 and the pseudo R-squared is 0.068. For France, the UK, and Spain, transition rates are quarterly, while they are monthly for the US. Included as controls are regional and year fixed effects, education and occupation dummies as well as age and age squared and a dummy for age 60-64. The predicted probability is calculated based on an individual with the average characteristics of the employed population. Data is for 2003-2016 (2005-2016 for Spain). The boxes report the 95 percent confidence interval on the prediction.

Calculation of continuous rates

Consider a labor market with four states: private employment (P), public employment (G), unemployment (U) and inactivity (I). Each period $t \in \{0, 1, 2, 3, ..\}$ corresponds to a quarter (a month for the US). A survey observes the transitions between t and $t+1$ recorded in a 4×4 discrete time Markov transition matrix n, with columns summing to 1. Suppose that the transitions occur in a continuous time environment. It is possible to estimate (and correct for the time-aggregation bias) the discrete transition matrix. Let μ denote a diagonal matrix of eigenvalues and p the matrix with corresponding eigenvectors of the discrete transition matrix.

Let λ be the 4×4 continuous time Markov transition matrix that records on the off-diagonal the Poisson continuous arrival rate, λ^{AB} from state $A \in \{P, G, U, I\}$ to state $B \neq A$. We can retrieve the continuous time transition matrix from the limit of the discrete transition matrix[14]:

$$\hat{\lambda} = \lim_{\Delta \to 0} \frac{p\mu^{\Delta}p^{-1} - I}{\Delta} \tag{B.3}$$

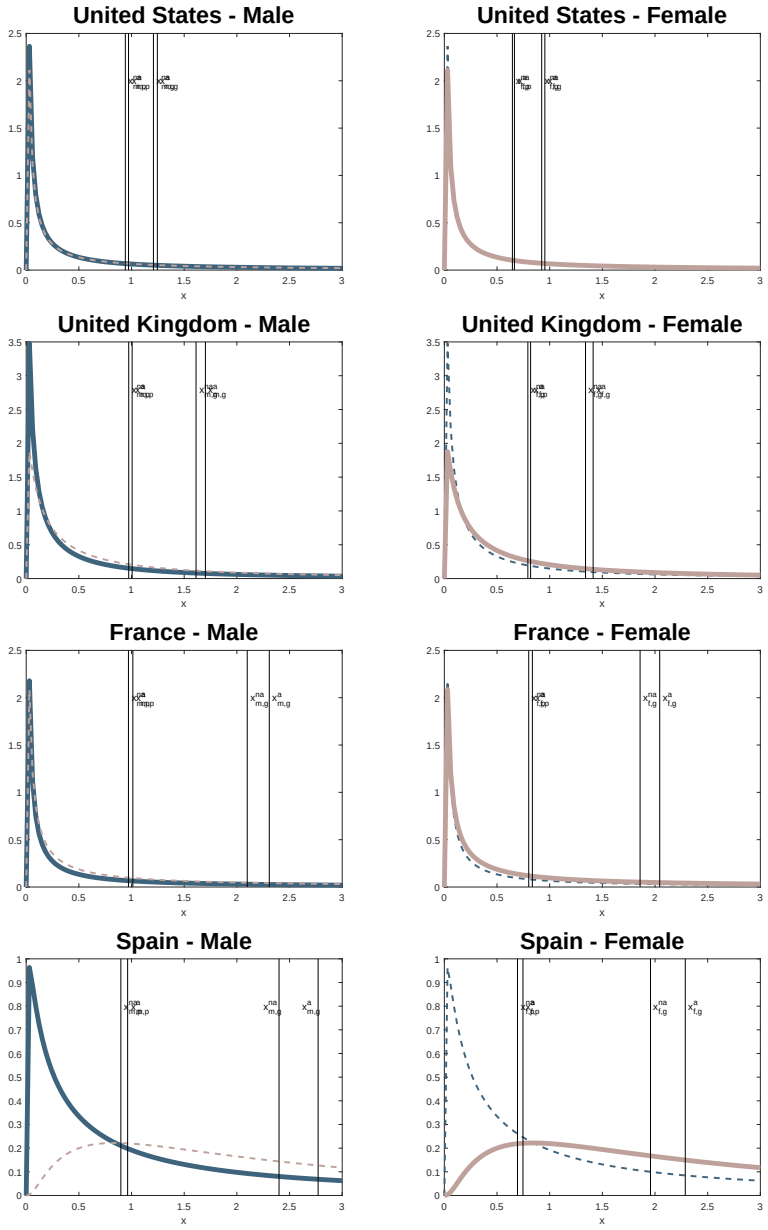
Table B.1: Continuous transition rates

Transitions	**US**		**UK**		**France**		**Spain**	
	Men	Women	Men	Women	Men	Women	Men	Women
$P \to G$	0.0023	0.0034	0.0014	0.0038	0.0005	0.0012	0.0005	0.0009
$P \to U$	0.0203	0.0156	0.0189	0.0177	0.0255	0.0281	0.0525	0.0576
$P \to I$	0.0185	0.0275	0.0157	0.0294	0.0177	0.0256	0.0230	0.0426
$G \to P$	0.0120	0.0118	0.0064	0.0053	0.0030	0.0028	0.0022	0.0019
$G \to U$	0.0070	0.0096	0.0076	0.0057	0.0095	0.0104	0.0249	0.0290
$G \to I$	0.0153	0.0201	0.0150	0.0183	0.0142	0.0178	0.0187	0.0260
$U \to P$	0.2621	0.2387	0.2987	0.3013	0.2542	0.2470	0.2592	0.2302
$U \to G$	0.0143	0.0334	0.0240	0.0607	0.0193	0.0402	0.0211	0.0323
$U \to I$	0.2422	0.3185	0.1907	0.3259	0.2036	0.2652	0.1503	0.2672
$I \to P$	0.0636	0.0546	0.0546	0.0423	0.0325	0.0266	0.0261	0.0246
$I \to G$	0.0078	0.0089	0.0068	0.0079	0.0046	0.0061	0.0033	0.0041
$I \to U$	0.0775	0.0552	0.0825	0.0608	0.0644	0.0597	0.0573	0.0648

[14] All these transformations can be done provided that the eigenvalues are distinct, real and non-negative which is always the case in our dataset; for more details see Gomes [2015].

C Further results from the model

Figure C.1: Calibrated distributions for individuals' outside options, $F_j(\tilde{x}_j, \sigma_j^x)$ $j = [m, f]$



Note: The left-hand graphs show the distributions of individuals' outside options together with the different thresholds for men (for comparison the distributions for women are plotted as dashed lines). The right-hand graphs show the distributions of individuals' outside options together with the different thresholds for women (for comparison the distributions for men are plotted as dashed lines). Means (standard deviations) of these distributions for men and women respectively in each country are 1.004 (15.816) and 4.389 (81.988) for the US, 0.984 (3.078) and 1.696 (4.052) for the UK, 2.639 (48.644) and 10.821(85.808) for France and 4.378 (11.239) and 5.312 (7.702) for Spain.

Table C.1: Identification: Linking parameters to targets

Parameter	**Main target**
Labor market parameters	
Bargaining power of men (β)	Unemployment rate, men $u_m/(1-i_m)$ Unemployment rate,women $u_f/(1-i_f)$
Cost of posting vacancies (κ)	Nr. of weekly wages- exp. cost vacancy $\kappa\Theta^{1-\eta}/(W_{mp}/4)$
"Wedge" female-male wage private sector (α)	Private sector wage gap $w_f^p/w_m^p - 1$
Outside option distribution and related parameters	
Mean - men ($\tilde{x}_m$)	Inactivity rate, men i_m
Difference women-men ($\tilde{x}_f - \tilde{x}_m$)	Inactivity rate, women i_f
Std. men - ($\sigma_{x,m}$)	Flow rate: Public employment to inactivity, men $G \to I$
Std. women - ($\sigma_{x,f}$)	Flow rate: Private employment to inactivity, women $P \to I$
Arrival rate outside option (λ)	Flow rate: Private employment to inactivity, men $P \to I$
Public sector "time discount"($\mu = \xi_p - \xi_g$)	Flow rate: Public employment to inactivity, women $G \to I$
Arrival rate of separation shocks	
Job separation - private, men ($\delta_{p,m}$)	Flow rate: Private employment to unemployment, men $P \to U$
Job separation - public, men ($\delta_{g,m}$)	Flow rate: Public employment to unemployment, men $G \to U$
Job separation - private, women ($\delta_{p,f}$)	Flow rate. Private employment to unemployment, women $(P \to U)$
Job separation - public, women ($\delta_{g,f}$)	Flow rate: Public employment to unemployment, women $G \to U$
Preference distribution: Normal	
Mean - men ($\tilde{\epsilon}_m$)	Ratio probability job finding rate private/public p_p/p_g
Difference women-men ($\tilde{\epsilon}_f - \tilde{\epsilon}_m$)	Public sector employment shares ratio $(e_f^g/(e_f^p + e_f^g))/(e_m^g/(e_m^p + e_m^g)$
Std. - men and women ($\sigma_{\epsilon,m}$)	Slope public sector jobs on public-sector employment shares ratio ϵ_{u_g/w_g}

Alternative decomposition

Table C.2: Gender composition of the public sector under different scenarios, alternative decomposition

Country	Benchmark	No sector differences & no preference differences $\pi_w = \pi_m = 1$ $e_g = e_p$ $\bar{\epsilon}_f = \bar{\epsilon}_m$ $\delta_g = \delta_p$	Only preference differences $\pi_w = \pi_m = 1$ $e_g = e_p$ $\delta_g = \delta_p$	Only wage differences $e_g = e_p$ $\bar{\epsilon}_f = \bar{\epsilon}_m$ $\delta_g = \delta_p$	Only hours differences $\pi_w = \pi_m = 1$ $\bar{\epsilon}_f = \bar{\epsilon}_m$ $\delta_g = \delta_p$	Only job security differences $\pi_w = \pi_m = 1$ $e_g = e_p$ $\bar{\epsilon}_f = \bar{\epsilon}_m$
Share of public sector in women's employment						
US	0.241	0.167	0.222	0.174	0.176	0.168
UK	0.403	0.15	0.332	0.157	0.189	0.152
France	0.359	0.234	0.266	0.192	0.299	0.245
Spain	0.444	0.071	0.0977	0.0816	0.358	0.073
Share of women in public sector employment						
US	0.541	0.45	0.521	0.478	0.449	0.445
UK	0.642	0.437	0.63	0.44	0.455	0.436
France	0.574	0.395	0.426	0.512	0.464	0.389
Spain	0.329	0.171	0.225	0.193	0.242	0.165
Public sector employment shares ratio						
US	1.42	0.991	1.31	1.11	0.986	0.97
UK	2.19	0.997	2.19	1.01	1.06	0.994
France	1.83	0.925	1.05	1.49	1.2	0.901
Spain	1.53	0.856	1.2	0.983	1.11	0.821
Women's employment shares ratio						
US	1.25	0.994	1.19	1.07	0.99	0.98
UK	1.71	0.998	1.66	1.01	1.04	0.996
France	1.55	0.941	1.04	1.29	1.15	0.92
Spain	1.64	0.871	1.17	0.985	1.13	0.839

Table C.3: Gender composition of the public sector under different scenarios, raw measures for the over-representation of women

Country	Benchmark	No sector differences & no preference differences $\pi_w = \pi_m = 1$ $\xi_g = \xi_p$ $\bar{\epsilon}_f = \bar{\epsilon}_m$ $\delta_g = \delta_p$	No preference differences $\bar{\epsilon}_f = \bar{\epsilon}_m$	No wage differences $\pi_w = \pi_m = 1$	No hours differences $\xi_g = \xi_p$	No job security differences $\delta_g = \delta_p$
Share of public sector in women's employment						
US	0.261	0.161	0.208	0.247	0.222	0.264
UK	0.392	0.122	0.17	0.387	0.333	0.392
France	0.354	0.228	0.334	0.306	0.236	0.359
Spain	0.401	0.0606	0.31	0.369	0.125	0.404
Share of women in public sector employment						
US	0.523	0.428	0.458	0.492	0.521	0.53
UK	0.66	0.456	0.439	0.659	0.685	0.658
France	0.557	0.394	0.524	0.466	0.531	0.564
Spain	0.402	0.244	0.291	0.359	0.401	0.406

Calculation of the work-life balance and job-security premium

Consider the flow utility for employment, $v^E_{i,j} = (1 - \xi_i)x + w_{i,j}$. Hence, a private sector worker with an opportunity cost x is willing to sacrifice $(\xi_p - \xi_g)x$ in terms of wages to obtain the same job characteristics as a worker in the public sector. To calculate this compensating differential, we then take the expected value of x, conditional on being employed. In percentage of private sector wages we thus obtain the following expression:

$$PremiumH^p_j = \frac{(\xi_p - \xi_g)\int_0^{\bar{x}^{na}_{p,j}} xf(x)dx}{F(\bar{x^{na}_{p,j}})}\frac{1}{w_{p,j}} \times 100, j = [m, f]. \tag{C.1}$$

Alternatively, we can measure this compensating differential as the additional wage needed for a public sector worker to accept the same job characteristics as workers in the private sector:

$$PremiumH^g_j = \frac{(\xi_p - \xi_g)\int_0^{\bar{x}^{na}_{g,j}} xf(x)dx}{F(\bar{x^{na}_{g,j}})}\frac{1}{w_{g,j}} \times 100, j = [m, f]. \tag{C.2}$$

The calculation of the job-security premium uses the same approach but requires a bit more algebra. Consider a private sector worker with wage $w_1 = w_{p,j}$, job-separation rate δ_p and opportunity cost of working $x < \bar{x}^a_{p,j}$. If offered a public sector job with separation rate δ_g, Equation 13 indicates that to maintain the value of employment, the worker would only be willing to accept if paid a wage larger that w_2, where $w_2 = w_1 + \delta_p(U_{p,j}(x|\delta_p) - E_{p,j}(x|\delta_p)) -$

$\delta_g(U_{p,j}(x|\delta_g) - E_{p,j}(x|\delta_g))$. Subtracting Equation 15 from 13, and using Equation 11 one obtains $E_{p,j}(x|\delta_i) - U_{p,j}(x|\delta_i) = \frac{(s-\xi_p)x+\xi_p x^{na}_{p,j}}{r+\tau+\lambda+\delta_i+m(\theta_i)}$.

If, on the other hand, the worker has larger opportunity costs of working, $\bar{x}^a_{p,j} > x > \bar{x}^{na}_{p,j}$, and hence if separated moves to inactivity, then combing Equations 16, 14 and 11 gives $w_2 = w_1 + \delta_p(I_{p,j}(x|\delta_p) - E_{p,j}(x|\delta_p)) - \delta_g(I_{p,j}(x|\delta_g) - E_{p,j}(x|\delta_g))$, and $E_{p,j}(x|\delta_i) - I_{p,j}(x|\delta_i) = \frac{-\xi_p x+\xi_p x^{na}_{p,j}}{r+\tau+\lambda+\delta_i)}$. Integrating over x we calculate the conditional expected value to obtain the following expression:

$$\begin{aligned} PremiumS^p_j = \Bigg[& \Bigg(F(x^{\bar{a}}_{p,j})\xi_p x^{\bar{n}a}_{p,j}\left(\frac{\delta_p}{\tilde{r}+\delta_p+m(\theta_p)} - \frac{\delta_g}{\tilde{r}+\delta_g+m(\theta_p)}\right) \\ & + (s-\xi_p)\left(\frac{\delta_p}{\tilde{r}+\delta_p+m(\theta_p)} - \frac{\delta_g}{\tilde{r}+\delta_g+m(\theta_p)}\right)\int_0^{\bar{x}^a_{p,j}} x f_{p,j}(x)dx \Bigg) \\ & + \Bigg((F(x^{\bar{n}a}_{p,j}) - F(x^{\bar{a}}_{p,j}))\xi_p x^{\bar{n}a}_{p,j}\left(\frac{\delta_p}{\tilde{r}+\delta_p} - \frac{\delta_g}{\tilde{r}+\delta_g}\right) \\ & + (-\xi_p)\left(\frac{\delta_p}{\tilde{r}+\delta_p} - \frac{\delta_g}{\tilde{r}+\delta_g}\right)\int_{\bar{x}^a_{p,j}}^{\bar{x}^{na}_{p,j}} x f_{p,j}(x)dx \Bigg) \Bigg] \frac{1}{F(x^{\bar{n}a}_{p,j})w_{p,j}} \times 100, j \\ = & [m, f], \end{aligned} \tag{C.3}$$

where $\tilde{r} = r + \tau + \lambda$. Again we can calculate a similar expression measuring the wage compensation (in % terms) required for a public sector worker to accept a lower job-security in the private sector:

$$\begin{aligned} PremiumS^g_j = \Bigg[& \Bigg(F(x^{\bar{a}}_{g,j})\xi_g x^{\bar{n}a}_{g,j}\left(\frac{\delta_g}{\tilde{r}+\delta_g+m(\theta_g)} - \frac{\delta_p}{\tilde{r}+\delta_p+m(\theta_g)}\right) \\ & + (s-\xi_g)\left(\frac{\delta_g}{\tilde{r}+\delta_g+m(\theta_g)} - \frac{\delta_p}{\tilde{r}+\delta_p+m(\theta_g)}\right)\int_0^{\bar{x}^a_{g,j}} x f_{g,j}(x)dx \Bigg) \\ & + \Bigg((F(x^{\bar{n}a}_{p,j}) - F(x^{\bar{a}}_{p,j}))\xi_g x^{\bar{n}a}_{g,j}\left(\frac{\delta_g}{\tilde{r}+\delta_g} - \frac{\delta_p}{\tilde{r}+\delta_p}\right) \\ & + (-\xi_g)\left(\frac{\delta_g}{\tilde{r}+\delta_g} - \frac{\delta_p}{\tilde{r}+\delta_p}\right)\int_{\bar{x}^a_{g,j}}^{\bar{x}^{na}_{g,j}} x f_{g,j}(x)dx \Bigg) \Bigg] \frac{1}{F(x^{\bar{n}a}_{g,j})w_{g,j}} \times 100, j \\ = & [m, f]. \end{aligned} \tag{C.4}$$