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# **FRIEDRICH-ALEXANDER-UNIVERSITÄT ERLANGEN-NÜRNBERG**

Lehrstuhl für VWL, insbes. Arbeitsmarkt- und Regionalpolitik  
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## **Sector switching in Germany**

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# Sector switching in Germany<sup>\*</sup>

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**Abstract:** Changes in the employment sector over the course of a career, i.e., employees switching from the private to the public sector or vice versa, are a common phenomenon. These sector switches have hardly been studied so far. Using data from the German Socio-Economic Panel I give insights into sector switching in Germany. Further, I analyze whether individual characteristics or attitudes affect the probability of switching sectors. I show that women are more likely to switch to the public sector than men and that the probability of switching to the public sector is positively related to education. In contrast, attitudes rather than socio-demographic characteristics are relevant for the probability of switching to the private sector. I argue that deepening the knowledge of sector switching can enrich public sector human resource management.

**Zusammenfassung:** Wechsel des Beschäftigungssektors im Laufe des Berufslebens, d. h. der Wechsel vom privaten in den öffentlichen Sektor oder umgekehrt, sind häufig, wurden bisher jedoch kaum untersucht. Mit Daten des Sozio-oekonomischen Panels für Deutschland gebe ich Einblicke in diese Sektorwechsel. Außerdem analysiere ich, ob sozio-demografische Merkmale oder Einstellungen die Wahrscheinlichkeit, den Sektoren zu wechseln, beeinflussen. Ich zeige, dass Frauen mit höherer Wahrscheinlichkeit in den öffentlichen Sektor wechseln als Männer und dass die Wahrscheinlichkeit eines Wechsels in den öffentlichen Sektor positiv mit Bildung korreliert. Demgegenüber sind Einstellungen und nicht sozio-demografische Merkmale für die Wahrscheinlichkeit eines Wechsels in den privaten Sektor relevant. Ich folgere aus meiner Analyse, dass die Vertiefung des Wissen über Sektorwechsel das Personalmanagement im öffentlichen Sektor bereichern kann.

**Keywords:** Sector Switching, Public Sector, Germany

**JEL Codes:** J45, J69, M5

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# 1 Introduction

Demographic change and the skill shortage on the German labor market pose challenges for the state as an employer. Due to the age and qualification structure of public sector employees in Germany, it is estimated that there will be a shortage of more than 800,000 employees in the public sector as early as 2030 (Detemple et al., 2018). As a result, public employers face two key challenges in human resources management: Firstly, they must succeed in attracting employees for public sector employment, be it at the beginning of their careers or later. In addition, it is crucial that suitable employees stay in public sector employment and do not leave it in the course of their career. In order to secure a (skilled) public sector workforce through recruitment and retention, knowledge on selection into the public sector is needed, as well as knowledge on sector switching, i.e. the question of who joins and who leaves public sector employment in later stages of the career.

There is a large literature focusing primarily on the question of selection into the public sector (see Bellante and Link, 1981, for an early contribution). Some studies model this selection (Böhm and Riedel, 2013; Luechinger et al., 2007, 2010), while others use natural experiments (Böhm and Riedel, 2013; Danzer, 2019), laboratory experiments or survey data to investigate the characteristics and attitudes of individuals who select into public sector employment (Ayaita et al., 2018; Dur and Van Lent, 2018; Dur and Zoutenbier, 2015; Pfeifer, 2011; Tepe and Vanhuysse, 2017). The question of who switches sectors of employment, i.e. who initially selects into the public (private) sector but then revises this decision by switching to the private (public) sector, has received little attention in the economic literature to date.<sup>1</sup>

For Germany in particular, there exists only a sparse literature on sector switching. Dickson et al. (2014) briefly discuss mobility between the public and the private sector in Germany when examining the lifetime earnings premium in five European countries. They find that switching from the public to the private sector is more common in Germany than switching from the private to the public sector. Ayaita et al. (2018) look at sector switching only as a brief robustness check when analyzing the importance of civic virtue for selection into the public sector. In light of this scarce evidence on sector switching, a closer look is necessary. Evidence on sector switching supplements the one about selection into the public sector already existing in the literature. Combined,

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<sup>1</sup>In business administration, however, a few authors have dealt with sector switching Bozeman and Ponomariov (2009); Frederiksen and Hansen (2017); Georgellis et al. (2011); Hansen (2014); Piatak (2017); Su and Bozeman (2009).

both strands of the literature expand the knowledge on the public sector workforce, which in turn forms the basis for human resources management in the public sector.

Against this backdrop, I contribute to the literature as follows: By using representative data from the German Socio-Economic Panel (SOEP), I am the first to provide detailed descriptive evidence on sector switching in Germany including a first look at variation over time and regional variation. Further, I build on the Roy model (Roy, 1951) to derive hypotheses on the relation between sector switching and individuals' characteristics or attitudes and test them empirically. Thereby, I enhance the literature on selection into the public sector in Germany.

The remainder of the paper proceeds as follows: In section 2, I present the theoretical and empirical literature and derive my hypotheses. Section 3 briefly introduces the data as well as the measures used in the empirical analysis. Descriptive evidence on sector switching in Germany is presented in section 4. Subsequently, in section 5 I show the results of the empirical analysis separately for switching to the public sector and switching to the private sector. Section 6 comprises a discussion of the results. In section 7, I complement the analysis of sector switching in Germany by looking at variation over time and regional variation in sector switching. Section 8 concludes.

## **2 Theoretical considerations and empirical literature**

Sector switching, i.e. the revision of a selection into the public or private sector, respectively, has predominantly been discussed in business administration (Bozeman and Ponomariov, 2009; Frederiksen and Hansen, 2017; Hansen, 2014; Piatak, 2017; Su and Bozeman, 2009). From an economic perspective, the Roy model is adequate to look at sector switching (Roy, 1951) as it is a self-selection model. Sector switches result from individual utility considerations. Based on these considerations, individuals decide whether or not to switch sectors. In other words, they self-select into the group of sector switchers or the group of individuals staying in their respective sector of employment. The self-selection into sector switching depends on the evaluation of observable and unobservable characteristics of public and private sector employment, respectively. As a result, there are systematic differences between switchers and non-switchers.

Adapting the Roy model to the context of sector switching, individuals can choose between employment in the public sector or in the private sector. To evaluate their

sector choice individuals  $i$  look at the utility  $U_{ij}$  they derive from working in sector  $j$ :

$$\begin{aligned} U_{ij} &= F(W_{ij}, V_{ij}) + \epsilon_{ij} \\ &= X'_{ij} \cdot \beta_j + \nu_{ij} + Z'_{ij} \cdot \gamma_j + \epsilon_{ij} \end{aligned} \quad (1)$$

where  $W_{ij}$  is the monetary pay-off in sector  $j$  and  $V_{ij}$  are observable characteristics of jobs in sector  $j$ . The pay-offs  $W_{ij}$  can be explained by observables  $X_{ij}$  and an error term  $\nu_{ij}$ . This error term  $\nu_{ij}$  can be understood as a measurement error. The error term  $\epsilon_{ij}$ , on the other hand, can be interpreted as a preference shock. Thus, the preference shock captures attitudes of individuals that translate into a preference for employment in the public or private sector. In this setting, individuals switch from sector  $j$  to sector  $k$  if:

$$U_{ij} > U_{ik}, k \neq j \quad (2)$$

With perfect information and foresight, such sector switches would never occur, as individuals would assess their respective utility perfectly. Then, sector switching, i.e. the revision of sector selection, would be obsolete. However, individuals' plans and their appreciation of pay and other job characteristics may change. These changes then require an evaluation of sector choice at different points in the career. Equation 1 shows that differences in monetary pay offs  $W_{ij}$ , differences in sector characteristics  $V_{ij}$  and a preference shock  $\epsilon_{ij}$  may influence this evaluation of sector choice and – as a result – the eventual decision of sector switching.

Monetary pay offs  $W_{ij}$  that play a role in the decision on sector switching depicted in equation 1 are primarily wages.<sup>2</sup> There is empirical evidence on the differences in wages between the public and the private sector in Germany, i.e. the public-private sector wage gap (PPWG) (Bonaccolto-Töpfer et al., 2021; Dustmann and Van Soest, 1998; Jürges, 2002; Melly, 2005). Early research on the PPWG argues that the wage

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<sup>2</sup>Another component of monetary pay offs are (future) pension claims (Danzon and Dolton, 2012; Dickson et al., 2014). Differences in pension schemes between the public and the private sector are especially pronounced for civil servants while pension claims of contractual employees in the public sector are comparable to the ones of employees in the private sector (Börsch-Supan and Wilke, 2004). Civil servants should not have an incentive to leave their privileged position in the public sector and thus, switch to the private sector. At the same time, differences in pension claims between employees in the private sector and contractual employees in the public sector are negligible. Therefore, I refrain from considering pension claims in the context of sector switching. While civil servants are part of the main analysis, I account for their specific position within the public sector by excluding them from the analysis as part of a robustness test in section 6.

distribution is more compressed in the public sector and that wages are on average lower in the public sector for men and higher for women (Dustmann and Van Soest, 1998; Jürges, 2002; Melly, 2005). Recently, Bonaccolto-Töpfer et al. (2021) find that women benefit from working in the public sector while men are penalized for working in the public sector. Both insights can be observed at all points of the wage distribution. These differences in wages may lead to a high attraction of the public sector for women and to a low appeal for men and, in consequence, could influence the probability of sector switching by gender. Similarly, the compression of the wage structure in the public sector could result in an incentive to switch sectors. Individuals in the lower part of the wage distribution have comparative wage advantages in the public sector – especially women – while in the upper part the opposite is true, i.e. there are wage disadvantages for high-skilled individuals in the public sector.

Sector switching is also related to differences in the *characteristics of public and private sector jobs* as these observable characteristics  $V_{ij}$  influence the utility  $U_{ij}$  of working in the public (private) sector in equation 1. One important characteristic of public sector jobs is a high (perceived) job security (Clark and Postel-Vinay, 2009; Ellguth and Kohaut, 2011; Prümer, 2020). This applies in principle to all employees, although older employees with a long job tenure benefit in particular from employment in the public sector: Employees who are at least 40 years old and have been with the same employer for at least 15 years can only be dismissed for massive misconduct. In effect, these employees are completely protected from dismissal (Riphahn, 2004). Besides job security, Prümer (2020) finds indication for more employee-friendly working time arrangements and less pressure of work in the public sector in Germany compared with the private sector. While these aspects suggest an employee-friendly environment in the public sector, there is also evidence of public sector job characteristics that lower job quality. For example, it seems that emotional stress and physical strains are more common in the public than in the private sector (Prümer, 2020). The evaluation of sector-specific job characteristics influences decisions of sector switching depending on how important these characteristics are to individuals when assessing their work. Furthermore, the public sector is keen on implementing anti-discrimination policies and being a social-minded employer with regard to participation, inclusion and training. Consequently, there is a high attraction of public sector employment for selected groups of employees, e.g. women or older employees (Ellguth and Kohaut, 2011; Keller, 2011; Su and Bozeman, 2009), that can potentially drive sector switching.

Finally, the preference shock  $\epsilon_{ij}$  influences the decision of sector switching in equa-

tion 1. This preference shock stems from *personal attitudes* and affects the utility of working in the private or public sector, respectively. There is an extensive literature on the influence of personal attitudes on selection into public sector employment. Accordingly, risk averse individuals are more likely to select into the public sector due to the higher job security (Bellante and Link, 1981; Buurman et al., 2012; Luechinger et al., 2007; Pfeifer, 2011). Additionally, there is the question of an “unobservable motivation for public service” (Gregory and Borland, 1999, p.3584). Perry and Wise (1990) introduce the concept of public service motivation and connect it with self-selection into the public sector. They argue that individuals with a pronounced public sector motivation derive a high utility from working in the public sector. In fact, there is evidence for Germany that altruism or civic virtue – which can both be understood as proxies for public service motivation – are positively correlated with the selection into public sector employment (Ayaita et al., 2018; Buurman et al., 2012; Dur and Van Lent, 2018; Dur and Zoutenbier, 2015; Tepe and Vanhuysse, 2017) and may also influence sector switching.

In view of the theory and the empirical literature I now derive nine hypotheses on sector switching. One starting point for these hypotheses is *gender*. Women value typical public sector job characteristics such as job security and flexible working time arrangements (Kjeldstad and Nymoen, 2012). As mentioned above, there is also a c.p. wage premium for women in the public sector and a high attraction of women to public sector employment. At the same time, men face a wage penalty in the public sector at all points of the wage distribution. Thus, I derive the following two hypotheses on sector switching based on gender:

H1a Women are more likely to switch from the private sector to the public sector due to a relatively higher utility of working in the public sector stemming from a wage premium and advantageous job characteristics such as job security.

H1b Men are more likely to switch from the public to the private sector as they face a wage penalty in the public sector.

The decision of sector switching could also be influenced by *age*. The evaluation of job characteristics changes over the life course (Kalleberg and Loscocco, 1983; Ng and Feldman, 2010). In particular, the importance of job security may rise with age due to a problematic position on the labor market of older employees (Heywood and Jirjahn, 2016). Beyond job security, the public sector offers training aimed at older employees and implements measures to ensure employment of older employees (Ellguth and Kohaut, 2011). This could lead to a positive correlation of age and switches to the public



sector. Age could also play a role in who switches to the private sector. As already mentioned, an age of at least 40 years in combination with job tenure of more than 15 years leads to the fact that employees in the public sector can effectively no longer be dismissed. This subgroup of employees should therefore have little incentive to give up this special employment protection by switching to the private sector. Thus, I derive the following two hypotheses on sector switching based on age:

H2a Older individuals are more likely to switch from the private sector to the public sector due to a relatively higher utility of working in the public sector.

H2b Individuals who are at least 40 years old and have a job tenure of more than 15 years are less likely to switch from the public to the private sector as they enjoy a particularly high employment protection in the public sector.

Next, I focus on the influence of *education* on sector switching. Low skilled individuals, particularly women, profit from public sector employment due to the compression of the wage structure in the public sector. Additionally, low skilled individuals value typical public sector job characteristics such as job security. On the other hand, high skilled individuals face a wage penalty in the public sector. Typical public sector job characteristics such as job security are of secondary importance for highly qualified individuals. In general, high skilled individuals face a favorable working environment in the private sector and self-select into the private sector (Asseburg and Homberg, 2020; Delfgaauw and Dur, 2010). This reasoning may also extend to sector switching. Thus, I derive the following two hypotheses on sector switching based on education:

H3a Low skilled individuals are more likely to switch from the private to the public sector due to a relatively higher utility of working in the public sector.

H3b High skilled individuals are more likely to switch from the public to the private sector as they face a wage penalty and a less favorable working environment in the public sector.

In a last step, I look at the relation of *personal attitudes* and sector switching. Remember that the role of attitudes in the selection into public sector employment is well documented in the literature. With the exception of Ayaita et al. (2018), who briefly look at sector switching as a robustness check, the literature has so far neglected the influence of attitudes on sector switching. Against the background that (life) plans change, the question remains whether personal attitudes, especially the ones already presented,

risk aversion, altruism and civic virtue, also influence sector switching. For instance, job security in the public sector might encourage risk-averse individuals to switch to the public sector. Also, altruistic individuals and individuals with pronounced civic virtue - two attitudes that can be used as proxies for public service motivation - are likely to derive a high utility from public sector employment. Hence, both attitudes should correlate positively with switching to the public sector and could play a similar role as in the selection into the public sector, which has been addressed in the literature. Thus, I derive the following three hypotheses on sector switching based on personal attitudes:

H4 Risk averse individuals are more likely to switch from the private to the public sector as they value the high job security in the public sector.

H5 Individuals with high civic virtue are more likely to switch from the private to the public sector due to a relatively higher utility of working in the public sector.

H6 Altruistic individuals are more likely to switch from the private to the public sector due to a relatively higher utility of working in the public sector.

The hypotheses presented are testable with SOEP data. Since little is known about sector switching in Germany, testing these nine hypotheses provides first insights into the phenomenon of sector switching.

### **3 Data and Operationalization**

To study sector switching in Germany, I use data from the *German Socio-Economic Panel* (SOEP) (SOEP, 2019). The SOEP is an annual panel data survey of private households in Germany with rich information on individual characteristics, personality, (un-) employment and other work-related characteristics (Wagner et al., 2007). I restrict the sample to the years 2004-2018 as questions on attitudes are included regularly from 2004 onwards. I consider German citizens aged 16–65, who participate on the labor market, i.e. who are either full- or part-time employed or are registered unemployed. I exclude all sorts of self-employment from the analysis as there are no self-employed in the public sector. Further, I exclude individuals at the start of their career, as I am not interested in the initial sector selection. In the end, the estimation sample consists of 22,892 individuals, 11,572 women and 11,320 men, whom I observe on average eight times (see table 1). The share of females in the public sector is 34.87% while men are less often employed in the public sector (23.62%).

[Table 1 about here]

In the empirical analysis, the main variables of interests are two indicators: *switch to the public sector* and *switch to the private sector*. To construct both indicators I use two pieces of information. Firstly, I use information on the sector of employment. Secondly, I take employer changes into account. This is important to make sure that the sector switches I observe are not due to privatizations or simple changes in the form of organization. I construct the dummy variables *switch to the public sector* (*switch to the private sector*) which take the value one if there is both a change in the sector affiliation, i.e. employment in the public (private) sector in year  $t$  and employment in the private (public) sector in year  $t-1$ , and an employer change between the years  $t$  and  $t-1$ .<sup>3</sup> As shown in table 1, I observe 8,607 switches from the private to the public sector and 4,600 switches from the public to the private sector in the sample. Interestingly, women switch sectors more often – regardless of the direction – as they account for 64.11% (60.74%) of the switches to the public (private) sector.

In line with section 2, the main explanatory variables in the empirical analysis are socio-demographics and personal attitudes. The explanatory variables *gender*, *age* and *education* are determined by individuals' responses about their sex, year of birth and the years spent in education or training, respectively. When looking at switching to the private sector, I further include the dummy *public sector employment protection*. The indicator takes the value one if a person is employed in the public sector, is at least 40 years old and has been employed by the same employer for 15 or more years. This way, the dummy covers the special protection against dismissal enjoyed by older employees in the public sector. The attitude *willingness to take risks* is captured by an item that asks individuals whether they generally take risks or avoid them. Answers range from '0=none' to '10=very much'. Additionally, I include *civic virtue* and *altruism* as explanatory variables in the analysis. *Civic virtue* captures the importance of being socially and/or politically involved while *altruism* captures the importance of being there for others. Both variables are scaled on a 4-point Likert-scale, ranging from '1= not at all important' to '4=very important'. In the years when the questions on civic virtue and altruism were not included in the questionnaire, I use the information of previous years as I assume that attitudes are relatively stable. When used in the empirical analysis in section 5, all three attitude variables are z-standardized so that the mean of each variable is 0 and the

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<sup>3</sup>For an overview of the operationalizations of the dependent as well as the main explanatory variables and the control variables see table A.1 in the appendix. Table A.1 also includes information on the mean and the standard deviation of all variables in the full sample.

standard deviation is 1. Finally, I control for several other influencing factors in the empirical analysis. These include further socio-demographics (marital status, migration background), information on employment (tenure, part-time employment, permanent contract, wages, unemployment, job satisfaction) as well as year and region dummies.

## 4 Descriptive evidence

In this section, I look at the descriptive evidence on sector switching in Germany. Firstly, I focus on individuals switching to the public sector. I contrast descriptive evidence on the explanatory variables and controls of these switchers with non-switchers, i.e. individuals who are always employed in the private sector ("sector of origin") and individuals who are always employed in the private sector ("sector of destination"). Subsequently, I repeat this procedure for individuals switching to the private sector analogously.

Table 2 column 2 shows the descriptive statistics of individuals who switch to the public sector. The majority are women (64%). Further, the switchers to the public sector are on average 40 years old and were educated for 14 years. In this manner, switchers to the public sector are younger and better educated than both the average private sector employee and the average public sector employee.<sup>4</sup> Thus, the private sector loses parts of its young and well-educated workforce due to sector switching. Additionally, differences in the gender distribution between the private and the public sector seem to be strengthened by sector switching.

Looking at personal attitudes in table 2, one sees that switchers to the public sector tend to be average risk takers. They are a bit more risk averse than private sector employees and marginally more risk prone than public sector employees with the differences being statistically significant. When it comes to civic virtue and altruism differences between switchers to the public sector and non-switchers – in both the private and the public sector – are even smaller. Civic virtue is a bit less important for switchers than for private sector employees while it is a bit more important than for public sector employees. Switchers to the public sector value altruism slightly less than non-switchers (see table 2). Descriptively there are no pronounced differences concerning attitudes between switchers to the public sector and private sector employees, which is why there is no evidence at this point that attitudes play a role not only in sector

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<sup>4</sup>Tables 2 and 3 corroborate the well-established patterns that public sector employees are more often female, are older and better educated than their private sector counterparts (see, e.g., Blank, 1985; Prümer and Schnabel, 2019).

selection as documented in the literature but also in sector switching.

[Table 2 about here]

For the sake of completeness, I also mention the descriptive differences in the control variables between switchers to the public sector and non-switchers. As shown in table 2 switchers to the public sector are less often married than non-switchers. 11% of switchers to the public sector have a migration background, which is under-proportional compared with the private sector (14%) and over-proportional compared with the public sector (8%). Part-time employment in the year before the sector switch is more frequent with switchers to the public sector while permanent contracts prior to the sector switch are less common in comparison with non-switchers. Switchers to the public sector are also slightly more satisfied with their job on average (see table 2). Finally, there are no differences in the registration of unemployment between switchers to the public sector and non-switchers.

[Figure 1 about here]

Wages may be crucial when it comes to sector switching. Looking at the hourly wage at the mean there is no difference – and especially no wage surplus – for switchers to the public sector compared to non-switchers in the private sector (see table 2). At the same time, hourly wages of switchers to the public sector are lower at the mean than wages of non-switchers in the public sector. The comparison at the mean falls short as can be seen in figure 1, panel (a). Figure 1 shows the differences in gross hourly wages after a sector switch. The mean difference of gross hourly wages after a switch to the public sector is 1.17 € while the median is 76 cent. Not all individuals who switch to the public sector benefit financially, as 25% of switchers to the public sector earn at least 10 cent less per hour than before their sector switch. Additionally, compared with individuals switching to the private sector, a larger share of switchers to the public sector realize wages similar to those in their previous job (see figure 1). This zero sum in terms of wages when switching to the public sector could be an indication of compensating differentials. Even if no wage increase can be realized by switching to the public sector, switching may be compensated by other influencing factors such as job security or other amenities.

In a second step, I focus on the descriptive evidence on switching to the private sector. 61% of switchers to the private sector are women. Switchers to the private sector are on average 42.36 years old and received 14 years of education. (see table 3, column 2).

With these characteristics, the switchers to the private sector are a younger and better educated subgroup of public sector employees. The same is true in comparison with private sector employees, albeit these differences are more pronounced (see table 3, column 1 and 3, respectively). Thus, the public sector loses young and well-educated employees, especially women, due to sector switching.

[Table 3 about here]

In terms of personal attitudes, the switchers to the private sector stand between public and private sector employees although the differences are small. As shown in table 3 switchers to the private sector are on average less risk averse than public sector employees but more risk averse than private sector employees. At the same time, switchers to the private sector value civic virtue a bit less than public sector employees while there are no differences concerning altruism. The importance of both, civil virtue and altruism, is a bit smaller for switchers to the private sector compared to private sector employees. All these differences in terms of attitudes are small (but –with exception of altruism – statistically significant). These findings reinforce the impression already gained when looking at switching to the public sector that – based on the descriptives – attitudes do not play a substantial role when it comes to sector switching.

The stance of switchers to the private sector between public and private sector employees is evident also for most of the control variables (see table 3). Exceptions are the marital status and the existence of a permanent contract. The low percentage of married people among switchers is probably due to their relatively young age. Only 77% of switchers have a permanent contract before the sector switch. This is a lower proportion than in the public and private sector (88% each).

Looking at the mean depicted in table 3, hourly wages of switchers to the private sector are lower compared to the ones of non-switchers in the public sector. In figure 1, panel (b) it can be seen that only looking at the mean of hourly wages falls short. Even if not every switcher to the private sector benefits financially, figure 1, panel (b) depicts that a majority of switchers realizes an increase in hourly wages – similar to the results for switchers to the public sector.

To sum up, it is mainly women who are switching sectors – regardless of the direction of the sector switch. From a public sector perspective, the descriptive evidence implies two things that seem contradictory at first glance: On the one hand, the public sector gains a desirable subgroup of employees through sector switching – young and well-educated women. This may be an advantage in times of skill shortage and increasing

competition for (skilled) employees. On the other hand, it also loses a similar group due to sector switching as it seems that the public sector cannot retain young, well-educated women. Personal attitudes, on the other hand, do not seem to be at play when choosing the public sector or leaving it again in the course of one's career.

## 5 Empirical analysis

In this section, I analyze sector switching econometrically. I focus on the probability of switching to the public (private) sector relative to staying in the private (public) sector by running logit regressions.<sup>5</sup> These regressions include the main explanatory variables and control variables highlighted in section 3 as well as 14 year dummies and 15 dummies for the German federal states. All non-constant explanatory and control variables are taken from the year prior to the sector switch to offer a sensible interpretation. Hereby, I try to prevent the problems of bad controls and reverse causality (Angrist and Pischke, 2009). Marginal effects are estimated to show how the probability of switching to the public (private) sector is on average affected if a particular explanatory variable increases by one unit or one standard deviation.

[Table 4 about here]

Table 4 shows the logit regression results (average partial effects) of switching to the public sector relative to staying in the private sector. First, I look at the socio-demographics identified as potential influencing factors in section 2, i.e. gender, age and education. The probability of switching to the public sector is c.p. 5.5 percentage points higher for women compared to men. This finding is consistent with hypothesis 1a which states that switching to the public sector is more common among women. Besides, the probability of switching to the public sector is positively related to years of education, while there is a negative, albeit small, relation with age (see table 4 column (1)). Thus, the evidence on the influence of age on the probability of switching to the public sector is weak. Contrary to hypothesis 2a, the relation of age and the probability of switching to the public sector is negative. Further, the results suggest that – in contrast to hypothesis 3a – better educated individuals are more likely to switch to the public sector.

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<sup>5</sup>I want to interpret the probability of sector switching relative to staying in the respective sector. Therefore, I decided against running multinomial logit regressions as the references for switching to the public sector and switching to the private sector are not the same.

As discussed in section 3, personal attitudes may play a role in the decision of switching to the public sector. Table 4 column (1) shows that there is a negative relation between the willingness to take risks and the probability of switching to the public sector: If the willingness to take risks increases by one standard deviation the probability of switching to the public sector decreases by 0.6 percentage points. This finding is in line with hypothesis 4. Surprisingly, the average partial effect of civic virtue is positive. An increase of civic virtue by one standard deviation is associated with a higher probability of switching to the public sector by 1 percentage point. Put differently, less importance on political and social involvement increases the probability of switching to the public sector. This is in contradiction with hypothesis 5. Still, the average partial effects of both the willingness to take risks and civic virtue are rather small while the average partial effect of altruism is zero, casting doubt on the influence of attitudes on the probability of switching to the public sector.

Looking at the control variables, table 4 column (1) shows that married individuals are less likely to switch to the public sector, as are individuals with a migration background. Tenure is significantly negatively associated with the probability of switching to the public sector, even if the average partial effect is quite small. Having a permanent contract reduces the probability of switching to the public sector by 4.9 percentage points. At the same time, higher hourly wages are positively associated with the probability of switching to the public sector. Interestingly, neither part-time employment nor job satisfaction nor unemployment exhibit a statistically significant average partial effect (at least at the 5%-level).

As gender seems to be crucial when it comes to sector switching (as shown in section 4), I also run logit regressions separately for women and men (see table 4 columns (2) and (3), respectively). While there are no gender differences in the probability of switching to the public sector in terms of age and education there is a difference when it comes to the willingness to take risks: An increase in the willingness to take risks by one standard deviation increases the probability of switching to the public sector only for men by 1.1 percentage points. For women, there is no significant average partial effect visible. Concerning the control variables there are some differences in size and significance between men and women but the direction of the average partial effects is mostly the same. An exception is the log hourly wage: While an increase in hourly wages by one percent increases the probability of switching to the public sector for women by 5.5 percent there is a zero effect for men.

All in all, my findings suggest that socio-demographic factors are relevant in the ques-



tion of switching to the public sector. In particular, gender is important as women – in line with hypothesis 1a – are more likely to switch to the public sector than men. Education also plays a role, although not in the way postulated by hypothesis 3a. Age is not decisive in switching to the public sector, contrary to hypothesis 2a. Interestingly, another socio-demographic characteristic, namely migration background, comes into play in switching to the public sector. Having a migration background reduces the probability of switching to the public sector relative to staying in private sector employment by 2.4 percentage points. The importance of personal attitudes for the probability of switching to the public sector is limited. While attitudes are – according to the literature – relevant in (initial) selection into the public sector, I find no support for the hypotheses 5 and 6 and only slight evidence supporting hypothesis 4. Thus, the results suggest that attitudes, especially altruism, are negligible in the question of switching to the public sector. In contrast, job characteristics seem to be of greater importance, as a permanent contract lowers the probability of switching to the public sector by 5 percentage points, while wages are positively associated with the probability of switching to the public sector, especially for women.

[Table 5 about here]

Now, I focus on switching to the private sector. Table 5 shows the results for the probability of switching to the private sector relative to staying in the public sector. Analogously to switching to the public sector, I start with looking at the average effect of age on the probability of switching to the private sector, while the average partial effect of age is statistically significant but small (see table 5, column (1)). A different picture emerges when looking at personal attitudes: While there is a zero effect of the willingness to take risks, an increase of civic virtue or altruism by one standard deviation is associated with a 1.7 percentage points decrease and a 0.8 percentage points decrease in the probability of switching to the private sector, respectively. Thus a lower value of both civic virtue and altruism, i.e. a higher importance of civic virtue and altruism, respectively, is related with a higher likelihood of staying in the public sector. These results are in line with findings in the literature on the influence of attitudes on selection into public sector employment.

Looking at the remaining control variables in table 5, column (1), marital status is not statistically significantly influencing the probability of switching to the private sector. The same holds for the contract type, hourly wages and employment status. Having a migration background decreases the probability of switching to the private sector by 3

percentage points. A higher tenure is associated with a lower probability of switching to the private sector – analogously to switching to the public sector, while the average partial effect of job satisfaction on the probability of switching to the private sector is small. Interestingly, part-time employment now is a significant influencing factor, which contrasts the results of the case of switching to the public sector. In particular, being part-time employed reduces the probability of switching to the private sector by 5 percentage points.

In section 2, I mentioned the special employment protection for older employees with a high job tenure in the public sector. To see, whether there is a relation between this special employment protection and the probability of switching to the private sector – as assumed in hypothesis 2b – I added an indicator in the estimation (see table 5, column (2)). As expected, having the generous employment protection in the public sector, i.e. being in effect un-dismissable, reduces the probability of switching to the private sector by 7.7 percentage points. Thus, employees who have achieved an extremely high level of job security due to employment protection regulations are less likely to leave that privileged position by switching to the private sector.<sup>6</sup> The average partial effects of the other variables, socio-demographics, attitudes as well as control variables, remain unaffected.

Next, I consider the influencing factors of switching to the private sector separately by gender (see table 5, columns (3) to (6)). It becomes clear that the contribution of personal attitudes to the probability of switching to the private sector varies for women and men. In particular, the relation of civic virtue and the probability of switching to the private sector is only relevant for men while altruism only comes into play for women in the context of switching to the private sector. A similar pattern can be observed for marital status and migration background. For women, hourly wages are significantly negatively associated with the likelihood of switching to the private sector, i.e. an increase in the hourly wage by one percent decreases the probability of switching to the private sector by 3.2 percent relative to staying in the public sector. Apart from that, differences in the average partial effects between women and men are negligible. In particular, this also applies to the average partial effect of the public sector employment protection dummy. The average partial effects of this indicator, displayed in columns (4) and (6)

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<sup>6</sup>Note, that a placebo test found that older private sector employees with a high tenure also have a lower probability of switching to the public sector. Thus, it appears that age in combination with tenure is generally associated with a lower propensity to switch sectors. However, there exists no institutional foundation for the reluctance of older private sector employees with high to switch to the public sector.

of table 5, are in the same ballpark for women and men.

To sum up, the hypotheses concerning switching to the private sector established in section 2 are not supported by the results with the notable exception of hypothesis 2b. Hypothesis 1b postulates a higher probability of switching to the private sector for men. As the coefficient of the gender dummy is zero and not statistically significant, this hypothesis cannot be supported. The same is true for hypothesis 3b that argues that high skilled individuals are more likely to switch to the private sector. Again, I only find a small effect of education on the probability of switching to the private sector. Thus, socio-demographic factors are – contrary to switching to the public sector – not significantly related to the probability of switching to the private sector. By contrast, attitudes, in particular civic virtue and altruism have the expected effects on the probability of switching to the private sector. The more important civic virtue or altruism are the lower the probability of switching to the private sector compared to staying in the public sector. Adding an indicator for the special employment protection of older employees with high tenure in the public sector reveals the pattern assumed in hypothesis 2b. The probability of switching to the private sector is c.p. lower for employees for whom this special employment protection applies. As when looking at switching to the public sector, job characteristics, especially tenure and part-time employment, seem to be relevant for switching to the private sector as well. Wages are also important again for women.

## **6 Discussion**

The results of the econometric analysis only partially support the hypotheses derived in section 2. Gender seems to play a role for the probability of switching to the public sector but not for the probability of switching to the private sector. Building on the theoretical considerations and the empirical literature, it could be concluded that the working conditions in the public sector become more attractive during a career and that women make this reassessment in particular. The decision of leaving the public sector, on the other hand, does not seem to have a gender-specific component. Education also plays a role, especially for switching to the public sector. Contrary to what is stated in hypothesis 3a, however, there is a positive correlation between education and the probability of switching to the public sector. Low-skilled employees apparently do not reverse their initial sector selection despite the supposed better working conditions in the public sector. In section 2 I also argue that there is a positive correlation of age and

the probability of switching to the public sector. This hypothesis is not supported by the results. Hence, working conditions that are favorable to older workers are not reflected in a probability of switching to the public sector that increases with age. Finally, the results also suggest that personal attitudes, although relevant for selection into public sector employment, play a minor role in the question of switching to the public sector.

The insights from the econometric analysis persist when performing several contentual and methodological robustness checks. First, I excluded 440 individuals from the analysis who switch sectors multiple times. Excluding them has no distinct effect on the results.<sup>7</sup> In a second robustness check, I exclude civil servants from the analysis. Civil servants are predominantly employed in the public sector.<sup>8</sup> They enjoy a privileged position within the public sector with enormous employment protection (Riphahn, 2004) and generous pension entitlements (Börsch-Supan and Wilke, 2004). Due to these privileges, there should be no incentives for civil servants to switch sectors. Excluding civil servants reduces the sample by 11,473 observations. Education then becomes a statistically significant influencing factor of the probability of switching to the private sector. This result may be due to the fact that civil servants are a particularly well-educated subgroup of public sector employees who – as mentioned – do not switch sectors. The exclusion of civil servants now reveals that for contractual employees there is indeed a significant relation between education and the probability of switching to the private sector: One additional year of schooling increases the probability of switching to the private sector by approximately one percentage point (see tables A.2 and A.3 in the appendix). So there seems to be a link between education and the probability of switching to the private sector as hypothesized in hypothesis 3b, at least for contractual employees. The remaining insights from the main analysis still hold.

Another important question is whether sector switching is possible in the first place. This is determined by the structure of industries in the public and private sector, respectively. Hence, I restricted the sample to industries that are present in both the public and private sector. I define this common support by all industries that employ at least 1% of all public sector employees and at the same time at least 1% of all private sector employees. The reduced sample contains 57,567 observations. Results shown in table A.4, columns (1) to (3) and table A.5 in the appendix are in line with the results of the main analysis presented in section 5. The same is true when restricting the sample even further to the industries of *education* and *health and social work*. Both industries

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<sup>7</sup>Results of the estimations excluding multiple sector switchers are available on request.

<sup>8</sup>An exception is a small and decreasing number of civil servants who are employed in the private sector in the aftermath of privatizations in the 1990s (Bieling, 2008).

are characterized by the fact that there are many establishments in the public and private sector, respectively. Thus, sector switching is relatively easy. Still, reducing the sample to the industries *education* and *health and social work* does again not alter the main insights (see tables A.4, columns (4) to (6) and A.6 in the appendix).

Finally, to check whether the results are robust to the method chosen I also run complementary log-log regressions. These complementary log-log regressions are appropriate for binary dependent variables when one outcome is rare relative to the other outcome as they assume a complementary log-log distribution of the error terms (Long and Freese, 2014, p. 225). Here, switching to the public (private) sector is relatively rare compared to staying in the private (public) sector as can be seen in tables 2 and 3, respectively. However, running complementary log-log regressions does not change the insights from the main analysis.<sup>9</sup>

## **7 Variation over time and regional variation in sector switching**

In a final step, I complement the analysis of sector switching in Germany by looking at time and regional variation in sector switching. For this purpose, I use SOEP data for the years 1994-2018. As I look at the variation descriptively I am not bound to the same restrictions described in section 3, i.e. I do not need information on the explanatory and control variables – especially not on attitudes. Thus, I can exploit data from 1994 onwards to detect long-term trends in sector switching.<sup>10</sup> That way German reunification and the immediate years of transition are not part of the data. Note, however, that especially the re-construction of the reunified public sector took many years (Keller, 2011). In addition, it should be kept in mind that by considering the years 1994-2018, privatizations in the 1990s at both the federal and municipal levels are included that lead to downsizing of public sector employment (Bieling, 2008).

[Figure 2 about here]

Figure 2 shows trends in sector switching over time. The share of sector switches in general – independently of the direction of the switch – among observations per year

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<sup>9</sup>Results of the log-log regressions are available on request.

<sup>10</sup>Note however, that I still use the definition of sector switch introduced in section 3. For this, I need information on employer changes that is only available from 1994 onwards. Apart from the different time span, I build the sample as presented in section 3, accordingly.

rose from 1.68% in 1994 to 10.43% in 2018. This increase of yearly sector switching may be because barriers between sectors have been removed (Briken et al., 2014; Keller, 2011). This development has facilitated sector switching. There are two exceptions in the otherwise incremental trend: in the years 2000 and 2010, the share of sector switches on observations per year dropped slightly. The latter may be explained by the aftermath of the 2008 financial crisis.

Looking at the direction of the direction of the sector switches, figure 2 shows that the overall trend is primarily driven by the share of switches to the public sector. The trend of the share of sector switches to the public sector proceeds parallel to the overall trend. In 2018, the share of public sector switches on all observations is 8.25%. Put differently, switches to the public sector account for around 80% of all sector switches per year. This ratio between switches to the public sector and switches to the private sector is approximately constant over time. This finding contrasts with the study by Dickson et al. (2014) who found a higher average annual rate of switching from the public to the private sector for the years 1994-2001. One reason for that is that Dickson et al. (2014) only included men in their analysis.<sup>11</sup>

[Figure 3 about here]

Lastly, I look at regional variation in sector switching. Figure 3 shows the share of sector switches on all observations per federal state, pooled over time.<sup>12</sup> The share of sector switches on all observations ranges from 5.60% in Bremen to 9.38% in Brandenburg. Thus, variation in sector switching between the federal states is not marked. There are no differences between the Eastern German federal states and the Western ones. Interestingly, there is also no increased share of sector switches detectable in the federal city-states of Bremen and Hamburg which is unexpected as it might be easier to switch sectors in cities with a condensed administrative infrastructure. This and the high density of state institutions may be behind the relatively high share of sector switches of 8.61% in Berlin. Still, regional variation does not seem to play a major role in sector switching.

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<sup>11</sup>Another reason could be the period Dickson et al. (2014) is looking at, in which the privatisations in Germany fall. It remains unclear how the authors account for these circumstances.

<sup>12</sup>Note, that due to the low number of cases per federal state in some cases, further differentiation by direction of sector switching at the level of the federal states is not possible.

## 8 Conclusions

Against the background of ongoing changes in public sector employment in Germany, this paper sheds light on the phenomenon of sector switching. Building theoretically on the Roy model and on the empirical literature, I derive hypotheses on the relation of sector switching and individuals' characteristics and personal attitudes. By doing so, I can give not only detailed descriptive insights in sector switching in Germany but I also provide a first empirical test of potential influencing factors. Thereby, I enlarge the literature and knowledge on selection into public sector employment.

Descriptively, I find that women more often switch sectors. Additionally, switchers are young and well-educated and do not distinctly differ in attitudes from non-switchers. These descriptive insights apply to both switches to the public sector and switches to the private sector. The finding that women are more likely to switch to the public sector can be replicated in the econometric analysis. Moreover, the multivariate results show a positive correlation of education and the probability of switching to the public sector whereas only a weak relation between age and the probability of switching to the public sector can be found. In terms of personal attitudes, no significant relationships with the probability of switching to the public sector become apparent. Thus, the results on education, age, and personal attitudes contradict the hypotheses on switching to the public sector derived from the literature and only evidence for the assumed relationship between gender and switching to the public sector is found. Considering switching to the private sector, no significant effects of gender and education on the probability of switching to the private sector can be identified. This is in contrast to the hypotheses. At the same time, however, the results show a negative correlation between the generous employment protection for older employees with high tenure in the public sector and the probability of switching to the private sector. This is in line with hypothesis 2b. Similarly, civic virtue and risk aversion have a negative impact on the probability of switching to the private sector, as expected. Looking at sector switching over time, we see an increase of sector switching that is driven by switching to the public sector. Furthermore, there are no signs of a distinct regional variation in sector switching in Germany.

In interpreting these results, it should be noted that I present correlations and not causal relations between the socio-demographic variables or personal attitudes and the probability of switching to the public or private sector, respectively. Moreover, I do not exploit the panel structure of the SOEP and, hence, do not control for unobserv-

able heterogeneity. Therefore, I cannot rule out the possibility that individuals differ in unobservable characteristics such as commitment or loyalty to their employer. These differences could manifest themselves in sector switches. In addition, it is not possible for me to identify whether the sector of employment is the crucial determinant in the sector switch or whether the sector switch is only a side effect of a job change.

Nevertheless, my analysis provides first insights into sector switching in Germany and opens up spaces for further research. From the perspective of the public sector, these insights may be helpful in developing and adapting strategies for recruiting and retaining employees - especially in view of demographic change and increasing skill shortage on the German labor market. The public sector seems to have a high attraction for women and especially for highly qualified women. This position could be further consolidated by ensuring the compatibility of family and work as well as flexible opportunities for (re-)entry after periods of family leave. Further, personal attitudes do not play the expected and rather a subordinate role in switching to the public sector. While attitudes are relevant in sector selection according to the literature, they seem to be less important in sector switches over the course of a career. In particular, altruistic individuals and individuals with high civic virtue are not more likely to switch into public sector employment. Finally, my analysis leaves unanswered questions about what influences the decision to leave the public sector, i.e. to switch to the private sector. Further research is needed here. In summary, if the public sector succeeds in exploiting the employment potentials that have been highlighted, while at the same time deepening its knowledge on who leaves public sector employment (switching to the private sector), the German public sector will be able to compete with the private sector for employees, even in times of demographic change and skill shortage.



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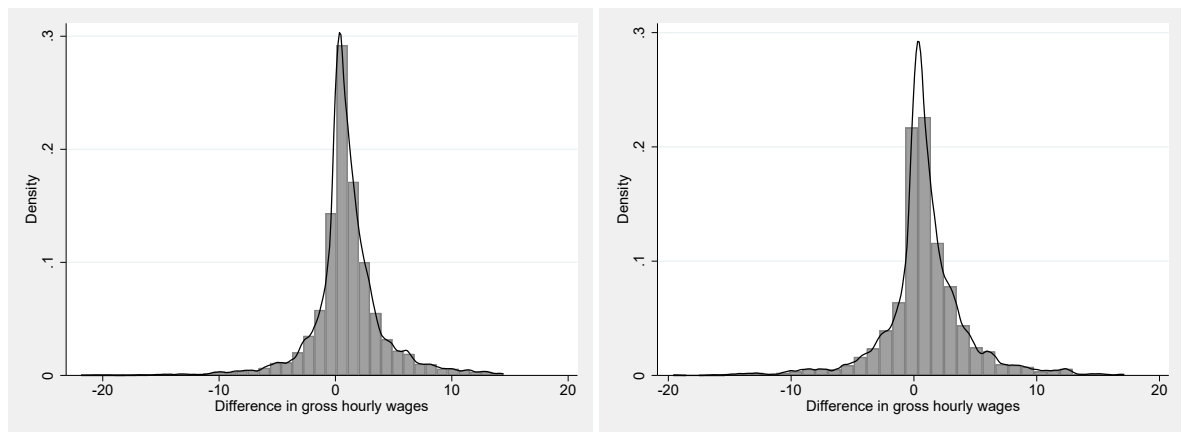
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Figure 1: Descriptive statistics of differences in wages after switching sectors

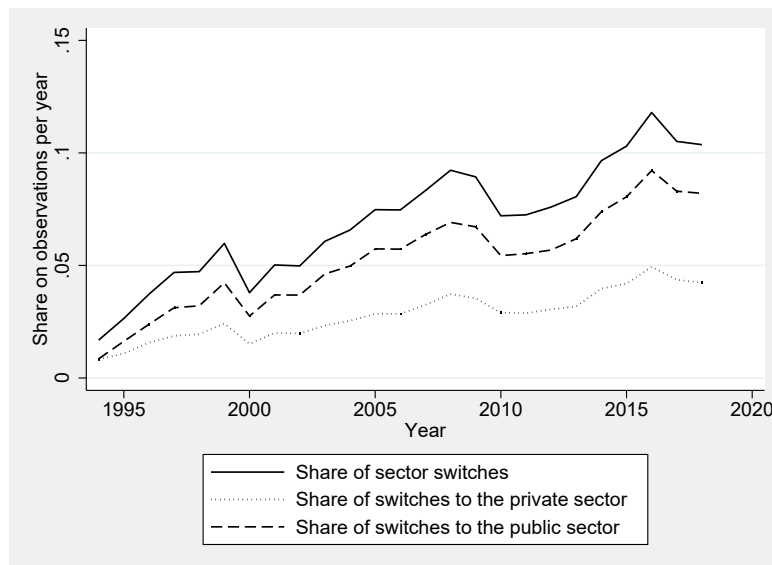


(a) Switching to the public sector

(b) Switching to the private sector

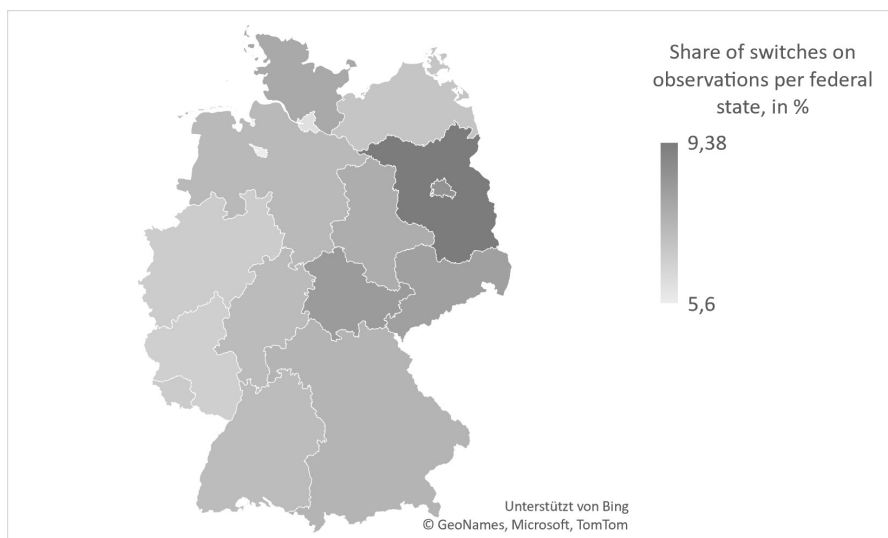
Notes: Figures show the difference in gross hourly wages in the year of the sector switch (Gross hourly wage in the year of the sector switch – gross hourly wage in the year before the sector switch). Gross hourly wages are deflated using the SOEP price index 2015. Source: SOEP data v35.

Figure 2: Share of sector switches on observations per year



Source: SOEP data v35.

Figure 3: Share of sector switches on observations per federal state



Source: SOEP data v35.

Table 1: Sample and sector switching

	(1) Full Sample	(2) Women	(3) Men
Panel observations	122,231	59,454	62,777
Individuals	22,892	11,572	11,320
Average periods observed by individual	8.16	7.93	8.38
Share of public sector employees (in %)	29.09	34.87	23.62
Number of switches to the public sector	8,607	5,518	3,089
Number of switches to the private sector	4,600	2,794	1,806

*Notes:* A sector switch is defined as a change of sectors combined with a change of employer. *Source:* SOEP v35.

Table 2: Descriptives on switching to the public sector

	(1)		(2)		(3)	
	Always in the private sector		Switching to the public sector		Always in the public sector	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
Female (Dummy)	0.44	0.50	0.64	0.48	0.57	0.50
Age (Years)	44.21	9.71	40.17	9.59	47.55	9.14
Education (Years)	12.61	2.53	14.09	2.96	13.91	2.87
Willingness to take risks (0=non, 10=very)	4.87	2.22	4.71	2.14	4.51	2.13
Civic virtue (1=very important, 4 unimportant)	2.10	0.72	2.24	0.73	2.31	0.73
Altruism (1=very important, 4=unimportant)	3.24	0.56	3.31	0.56	3.27	0.55
Married (Dummy)	0.65	0.48	0.53	0.50	0.69	0.46
Migration background (Dummy)	0.14	0.34	0.11	0.31	0.08	0.28
Part-time employment (Dummy)	0.24	0.43	0.32	0.47	0.31	0.46
Permanent contract (Dummy)	0.88	0.33	0.74	0.45	0.88	0.32
Log hourly wages	2.69	0.56	2.69	0.48	2.89	0.41
Job satisfaction (Dummy) (0=very low, 10=very high)	7.03	1.97	7.27	1.86	7.16	1.87
Unemployed (Dummy)	0.01	0.08	0.01	0.08	0.003	0.05
Observations	81,594		8,607		29,406	

Notes: Reported figures refer to non-switchers in the private sector (Always in the private sector), individuals that switch from the private to the public sector (Switching to the public sector) and non-switchers in the public sector (Always in the public sector). Source: SOEP data v35.



Table 3: Descriptives on switching to the private sector

	(1)		(2)		(3)	
	Always in the public sector		Switching to the private sector		Always in the private sector	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
Female (Dummy)	0.57	0.50	0.61	0.49	0.44	0.50
Age (Years)	47.55	9.14	42.36	9.22	44.21	9.71
Education (Years)	13.91	2.87	14.04	3.01	12.61	2.54
Willingness to take risks (0= non, 10= very)	4.51	2.13	4.73	2.19	4.87	2.22
Civic virtue (1= very important, 4= unimportant)	2.31	0.73	2.19	0.73	2.10	0.72
Altruism (1=very important, 4= unimportant)	3.27	0.55	3.27	0.56	3.24	0.56
Married (Dummy)	0.69	0.46	0.56	0.50	0.65	0.48
Migration back-ground (Dummy)	0.08	0.28	0.09	0.29	0.14	0.34
Part-time employment (Dummy)	0.31	0.46	0.29	0.45	0.24	0.43
Permanent contract (Dummy)	0.88	0.32	0.77	0.42	0.88	0.33
Log hourly wages	2.89	0.41	2.72	0.56	2.69	0.56
Job satisfaction (0= very low, 10=very high)	7.16	1.87	7.06	2.02	7.03	1.97
Unemployed (Dummy)	0.003	0.05	0.01	0.09	0.01	0.08
Observations	29,406		4,600		81,594	

Notes: Reported figures refer non-switchers in the public sector (Always in the public sector), individuals that switch from the private to the public sector (Switching to the private sector) and non-switchers in the private sector (Always in the private sector). Source: SOEP data v35.

Table 4: Logit estimates of switching to the public sector relative to staying in the private sector, average partial effects

	(1) All	(2) Women	(3) Men
Female (Dummy)	0.055*** (0.007)		
Age in t-1 (Years)	-0.001*** (0.0003)	-0.002*** (0.001)	-0.001*** (0.0004)
Education (Years)	0.012*** (0.001)	0.013*** (0.002)	0.011*** (0.001)
Willingness to take risks in t-1 (z-standardized)	-0.006** (0.002)	-0.0004 (0.004)	-0.011*** (0.003)
Civic virtue in t-1 (z-standardized)	0.010*** (0.002)	0.012*** (0.004)	0.008*** (0.003)
Altruism in t-1 (z-standardized)	-0.001 (0.002)	-0.002 (0.004)	-0.0002 (0.003)
Married (Dummy)	-0.013** (0.006)	0.001 (0.009)	-0.018*** (0.007)
Migration background (Dummy)	-0.023** (0.009)	-0.011 (0.016)	-0.037*** (0.012)
Tenure in t-1 (Years)	-0.008*** (0.0004)	-0.012*** (0.001)	-0.005*** (0.001)
Part-time employment in t-1 (Dummy)	0.002 (0.006)	-0.009 (0.009)	0.029*** (0.009)
Permanent contract in t-1 (Dummy)	-0.049*** (0.004)	-0.058*** (0.007)	-0.039*** (0.005)
Job satisfaction in t-1 (z-standardized)	0.0003 (0.001)	-0.001 (0.002)	0.001 (0.001)
Log hourly wage in t-1	0.014*** (0.005)	0.055*** (0.010)	-0.010* (0.006)
Unemployed in t-1 (Dummy)	-0.035* (0.021)	-0.032 (0.034)	-0.050* (0.027)
Years (14 dummies)	Yes***	Yes***	Yes***
Regions (15 dummies)	Yes	Yes	Yes***
Observations	66,365	29,349	36,779
Pseudo R <sup>2</sup>	0.1591	0.1389	0.1656

Notes: Dependent variable is a dummy that indicates whether an individual switches to the public sector. \*/\*\*/\*\* denote statistical significance at the 10%-, 5%-, 1%-level, respectively. Robust standard errors (clustered at the individual level) in parentheses. Source: SOEP data v35.

Table 5: Logit estimates of switching to the private sector relative to staying in the public sector, average partial effects by gender

	(1)	(2)	(3)	(4)	(5)	(6)
	All		Women		Men	
Female (Dummy)	-0.001 (0.010)	-0.001 (0.010)				
Age in t-1 (Years)	-0.001*** (0.0005)	-0.001*** (0.0005)	0.001* (0.001)	0.001* (0.001)	0.001* (0.001)	0.001* (0.001)
Education (Years)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	0.001 (0.003)	0.001 (0.003)
Willingness to take risks in t-1 (z-standardized)	0.006 (0.004)	0.005 (0.004)	0.002 (0.005)	0.002 (0.005)	0.010 (0.006)	0.010 (0.006)
Civic virtue in t-1 (z-standardized)	-0.017*** (0.004)	-0.017*** (0.004)	-0.009* (0.005)	-0.009* (0.005)	-0.025*** (0.006)	-0.025*** (0.006)
Altruism in t-1 (z-standardized)	-0.008* (0.004)	-0.008** (0.004)	-0.015*** (0.005)	-0.015*** (0.005)	0.002 (0.006)	0.001 (0.006)
Public sector employment protection in t-1 (Dummy)		-0.077*** (0.022)		-0.069** (0.031)		-0.081*** (0.029)
Married (Dummy)	-0.014 (0.009)	-0.014* (0.009)	-0.027** (0.012)	-0.027** (0.012)	0.002 (0.013)	0.002 (0.013)
Migration back- ground (Dummy)	-0.030** (0.015)	-0.031** (0.015)	-0.013 (0.020)	-0.013 (0.020)	-0.056*** (0.021)	-0.056*** (0.021)
Tenure in t-1 (Years)	-0.020*** (0.001)	-0.019*** (0.001)	-0.021*** (0.001)	-0.019*** (0.001)	-0.020*** (0.001)	-0.018*** (0.001)
Part-time employ- ment in t-1 (Dummy)	-0.050*** (0.009)	-0.050*** (0.009)	-0.049*** (0.011)	-0.049*** (0.011)	-0.053*** (0.019)	-0.052*** (0.019)
Permanent contract in t-1 (Dummy)	0.001 (0.007)	-0.002 (0.007)	-0.006 (0.010)	-0.008 (0.010)	0.007 (0.012)	0.004 (0.012)
Job satisfaction in t-1 (z-standardized)	-0.008*** (0.002)	-0.008*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.011*** (0.002)	-0.011*** (0.002)
Log hourly wage in t-1	-0.009 (0.012)	-0.010 (0.012)	-0.032** (0.015)	-0.033** (0.015)	0.021 (0.019)	0.020 (0.018)
Unemployed in t-1 (Dummy)	-0.008 (0.036)	-0.008 (0.036)	-0.032 (0.042)	-0.032 (0.042)	0.033 (0.062)	0.032 (0.063)
Years (14 dummies)	Yes***	Yes***	Yes***	Yes***	Yes***	Yes***
Regions (15 dum- mies)	Yes**	Yes**	Yes	Yes	Yes*	Yes*
Observations	26,349	26,349	14,948	14,948	11,327	11,327
Pseudo R <sup>2</sup>	0.3672	0.3690	0.3493	0.3506	0.4103	0.4128

Notes: Dependent variable is a dummy that indicates whether an individual switches to the private sector. \*/\*\*/\*\* denote statistical significance at the 10%-, 5%-, 1%-level, respectively. Robust standard errors (clustered at the individual level) in parentheses. Source: SOEP data v35.

Table A.1: Operationalization of variables

Variable	Items	Scale	M	SD
Dependent Variables				
Switch to the public sector	Do you work for a public sector employer? – “Yes” in year $t$ and “No” in year $t-1$ What type of occupational change was that? – “I started a new position with a different employer”	Dummy	0.07	0.26
Switch to the private sector	Do you work for a public sector employer? – “No” in year $t$ and “Yes” in year $t-1$ What type of occupational change was that? – “I started a new position with a different employer”	Dummy	0.04	0.19
Main explanatory variables				
Female	Respondent’s sex	Dummy	0.49	0.50
Age	Respondent’s birth year	Years	44.71	9.74
Public sector employment protection	Public Sector Employment Respondent’s age $\geq 40$ years Respondent’s tenure $\geq 15$ years	Dummy 0.33	0.13	
Education	Respondent’s amount of education or training	Years	13.05	2.73
Willingness to take risks	How do you rate yourself personally? In general, are you someone who takes risks or do you try to avoid risks?	Ordinal (0–10)	4.77	2.20
Civic Virtue	Different things are important to different people, How important are the following things to you? – Being politically, socially involved	Ordinal (1–4)	2.17	0.73
Altruism	Different things are important to different people, How important are the following things to you? – Being there for others	Ordinal (1–4)	3.25	0.55
Control variables				
Married	What is your marital status? – “Married, living together with my spouse”	Dummy	0.65	0.48
Migration background	Assesment of respondents’ migration background based on information on parents and country of birth	Dummy	0.12	0.33
Tenure	Respondent’s length of time with firm (for all employed persons)	Years	12.27	10.26
Part-time employment	Are you currently employed? – “Employed part-time”	Dummy	0.27	0.44
Permanent contract	Do you have a fixed-term or permanent employment contract? – “Permanent contract”	Dummy	0.87	0.34
Hourly wages	What were your gross earnings, including overtime paid, in the past month? How many hours per week are stipulated in your contract (excluding overtime)?	€, discounted	17.69	10.37
Job satisfaction	How satisfied are you today with the following areas of your life? – With your job?	Ordinal (0–10)	7.08	1.95
Unemployed	Are you officially registered unemployed at the Employment Office?	Dummy	0.01	0.07

Note: M (SD) refers to the mean (standard deviation) of the respective variable in the full sample (N=122,231). Sources: SOEP questionnaire, SOEP v35.

Table A.2: Logit estimates of switching to the public sector excluding civil servants, average partial effects

	(1) All	(2) Women	(3) Men
Female (Dummy)	0.050*** (0.007)		
Age in t-1 (Years)	-0.001** (0.0003)	-0.001 (0.001)	-0.001 (0.0003)
Education (Years)	0.008*** (0.001)	0.006*** (0.002)	0.008*** (0.001)
Willingness to take risks in t-1 (z-standardized)	-0.006* (0.002)	0.0005 (0.004)	-0.011*** (0.003)
Civic virtue in t-1 (z-standardized)	0.008*** (0.002)	0.011*** (0.004)	0.006** (0.002)
Altruism in t-1 (z-standardized)	-0.002 (0.002)	-0.003 (0.004)	-0.0003 (0.003)
Married (Dummy)	-0.021** (0.005)	0.002 (0.009)	-0.017*** (0.006)
Migration background (Dummy)	-0.020** (0.009)	-0.011 (0.015)	-0.031*** (0.011)
Tenure in t-1 (Years)	-0.009*** (0.0004)	-0.013*** (0.001)	-0.006*** (0.0005)
Part-time employment in t-1 (Dummy)	0.007 (0.006)	-0.004 (0.009)	0.032*** (0.008)
Permanent contract in t-1 (Dummy)	-0.040*** (0.004)	-0.052*** (0.006)	-0.028** (0.005)
Job satisfaction in t-1 (z-standardized)	0.0003 (0.001)	-0.0001 (0.002)	0.0005 (0.001)
Log hourly wage in t-1	0.018*** (0.005)	0.053*** (0.010)	-0.003 (0.006)
Unemployed in t-1 (Dummy)	-0.030 (0.019)	-0.034 (0.031)	-0.039 (0.024)
Years (14 dummies)	Yes***	Yes***	Yes***
Regions (15 dummies)	Yes	Yes	Yes***
Observations	65,220	28,717	36,266
Pseudo R <sup>2</sup>	0.1514	0.1310	0.1602

Notes: In the estimations civil servants are excluded. Dependent variable is a dummy that indicates whether an individual switches to the public sector. \*/\*\*/\*\* denote statistical significance at the 10%-, 5%-, 1%-level, respectively. Robust standard errors (clustered at the individual level) in parentheses. Source: SOEP data v35.

Table A.3: Logit estimates of switching to the private sector excluding civil servants, average partial effects

	(1) All	(2)	(3) Women	(4)	(5) Men	(6)
Female (Dummy)	-0.007 (0.013)	-0.007 (0.013)				
Age in t-1 (Years)	0.001** (0.001)	0.001** (0.001)	0.001 (0.001)	0.001 (0.001)	0.002* (0.001)	0.002* (0.001)
Education (Years)	0.009*** (0.002)	0.009*** (0.002)	0.010*** (0.003)	0.010*** (0.003)	0.007* (0.004)	0.007* (0.004)
Willingness to take risks in t-1 (z-standardized)	0.007 (0.005)	0.006 (0.005)	0.001 (0.006)	0.001 (0.006)	0.014* (0.008)	0.013 (0.008)
Civic virtue in t-1 (z-standardized)	-0.023*** (0.005)	-0.023*** (0.005)	-0.011 (0.007)	-0.011 (0.007)	-0.040*** (0.008)	-0.039*** (0.008)
Altruism in t-1 (z-standardized)	-0.009* (0.005)	-0.010* (0.005)	-0.016*** (0.006)	-0.016*** (0.006)	0.002 (0.009)	0.001 (0.009)
Public sector employment protection in t-1 (Dummy)		-0.118*** (0.029)		-0.098** (0.038)		-0.139*** (0.045)
Married (Dummy)	-0.011 (0.011)	-0.011 (0.011)	-0.022 (0.014)	-0.023 (0.014)	0.004 (0.019)	0.003 (0.019)
Migration background (Dummy)	-0.047** (0.019)	-0.047** (0.019)	-0.023 (0.024)	-0.023 (0.024)	-0.090*** (0.029)	-0.090*** (0.029)
Tenure in t-1 (Years)	-0.025*** (0.001)	-0.023*** (0.001)	-0.024*** (0.001)	-0.022*** (0.001)	-0.026*** (0.001)	-0.024*** (0.001)
Part-time employment in t-1 (Dummy)	-0.068*** (0.012)	-0.068*** (0.012)	-0.061*** (0.013)	-0.061*** (0.013)	-0.096*** (0.026)	-0.094*** (0.026)
Permanent contract in t-1 (Dummy)	0.003 (0.011)	0.001 (0.011)	-0.001 (0.012)	-0.005 (0.012)	0.002 (0.019)	-0.002 (0.019)
Job satisfaction in t-1 (z-standardized)	-0.010*** (0.001)	-0.010*** (0.002)	-0.008*** (0.002)	-0.008*** (0.002)	-0.014*** (0.004)	-0.014*** (0.004)
Log hourly wage in t-1	-0.006 (0.015)	-0.008 (0.015)	-0.037** (0.018)	-0.038** (0.018)	0.039 (0.026)	0.036 (0.025)
Unemployed in t-1 (Dummy)	0.008 (0.045)	0.007 (0.045)	-0.029 (0.046)	-0.028 (0.047)	0.090 (0.092)	0.087 (0.092)
Years (14 dummies)	Yes***	Yes***	Yes***	Yes***	Yes***	Yes***
Regions (15 dummies)	Yes	Yes*	Yes	Yes	Yes**	Yes**
Observations	18,484	18,484	11,603	11,603	6,851	6,851
Pseudo R <sup>2</sup>	0.3613	0.3615	0.3451	0.3469	0.4101	0.4142

Notes: In the estimations civil servants are excluded. Dependent variable is a dummy that indicates whether an individual switches to the private sector. \*/\*\*/\*\* denote statistical significance at the 10%-, 5%-, 1%-level, respectively. Robust standard errors (clustered at the individual level) in parentheses. Source: SOEP data v35.

Table A.4: Logit estimates for switching to the public sector, common support of industries and education or health/social work, average partial effects

	Common support of industries			Education or health and social work		
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Women	Men	All	Women	Men
Female (Dummy)	0.055*** (0.013)			0.006 (0.016)		
Age in t-1 (Years)	-0.001** (0.001)	-0.001 (0.001)	-0.002* (0.001)	-0.003** (0.001)	-0.002 (0.001)	-0.004 (0.001)
Education (Years)	0.011*** (0.002)	0.010*** (0.003)	0.010*** (0.003)	0.014*** (0.004)	0.013*** (0.005)	0.023*** (0.008)
Willingness to take risks in t-1 (z-standardized)	-0.011** (0.005)	-0.003 (0.006)	-0.021*** (0.007)	-0.009 (0.008)	-0.009 (0.009)	-0.010 (0.020)
Civic virtue in t-1 (z-standardized)	0.011*** (0.005)	0.010 (0.006)	0.012* (0.006)	-0.002 (0.009)	-0.002 (0.010)	-0.011 (0.018)
Altruism in t-1 (z-standardized)	0.002 (0.005)	0.005 (0.007)	0.001 (0.007)	0.002 (0.009)	0.0005 (0.010)	0.003 (0.018)
Married (Dummy)	-0.010 (0.011)	0.014 (0.014)	-0.036** (0.016)	-0.024 (0.019)	-0.006 (0.021)	-0.078* (0.042)
Migration background (Dummy)	-0.048*** (0.017)	-0.017 (0.022)	-0.105*** (0.030)	-0.056* (0.033)	-0.011 (0.034)	-0.245** (0.097)
Tenure in t-1 (Years)	-0.015*** (0.001)	-0.019*** (0.001)	-0.012*** (0.001)	-0.025*** (0.002)	-0.026*** (0.002)	-0.025*** (0.003)
Part-time employment in t-1 (Dummy)	-0.011 (0.011)	-0.029** (0.014)	0.043** (0.020)	-0.042** (0.019)	-0.057*** (0.020)	0.062 (0.048)
Permanent contract in t-1 (Dummy)	-0.054*** (0.008)	-0.060*** (0.010)	-0.042*** (0.011)	-0.037** (0.015)	-0.033** (0.016)	-0.022 (0.031)
Job satisfaction in t-1 (z-standardized)	-0.0001 (0.002)	-0.002 (0.003)	0.002 (0.003)	-0.008** (0.004)	-0.007* (0.004)	-0.012 (0.009)
Log hourly wage in t-1	0.023* (0.010)	0.069*** (0.015)	-0.013 (0.014)	0.128*** (0.024)	0.178*** (0.027)	0.020 (0.046)
Unemployed in t-1 (Dummy)	-0.052 (0.040)	-0.041 (0.052)	-0.081 (0.056)	0.033 (0.071)	0.054 (0.078)	-0.113 (0.167)
Years (14 dummies)	Yes***	Yes***	Yes***	Yes***	Yes***	Yes***
Regions (15 dummies)	Yes**	Yes**	Yes**	Yes	Yes***	Yes**
Observations	27,067	15,452	11,545	10,108	7,962	2,136
Pseudo R <sup>2</sup>	0.1364	0.1482	0.1469	0.1617	0.1706	0.2157

Notes: Dependent variable in columns (1) and (3) is a dummy that indicates whether an individual switches to the public sector. In columns (1) to (3), common support of the public (private sector) is defined as all industries in which at least 1% of public (private) sector employees work. Thus, the common support consists of 7 industries, namely *Electricity, Gas and Water Supply* (NACE 15), *Transport, Storage and Communication* (NACE 19), *Financial Intermediation* (NACE 20), *Real Estate, Renting and Business Activities* (NACE 21), *Education* (NACE 23) or *Health and Social Work* (NACE 24) and *Other Community, Social and Personal Service Activities* (NACE 25). The sample in columns (4) to (6) only includes individuals that work in either *Education* (NACE 23) or *Health and Social Work* (NACE 24). \*/\*\*/\*\* denote statistical significance at the 10%-, 5%-, 1%-level, respectively. Robust standard errors (clustered at the individual level) in parentheses. Source: SOEP data v35.

Table A.5: Logit estimates for switching to the private sector, common support of industries, average partial effects

	(1)	(2)	(3)	(4)	(5)	(6)
	All		Women		Men	
Female (Dummy)	-0.0005 (0.013)	-0.0003 (0.013)				
Age in t-1 (Years)	0.001** (0.001)	0.001** (0.001)	0.001 (0.001)	0.001 (0.001)	0.002 (0.001)	0.002 (0.001)
Education (Years)	0.002 (0.002)	0.002 (0.002)	0.003 (0.003)	0.003 (0.003)	0.001 (0.003)	0.0004 (0.003)
Willingness to take risks in t-1 (z-standardized)	0.009* (0.005)	0.008* (0.005)	0.003 (0.006)	0.004 (0.006)	0.017** (0.008)	0.016** (0.008)
Civic virtue in t-1 (z-standardized)	-0.013*** (0.005)	-0.013** (0.005)	-0.006 (0.007)	-0.006 (0.007)	-0.023*** (0.008)	-0.023*** (0.008)
Altruism in t-1 (z-standardized)	-0.009* (0.005)	-0.009* (0.005)	-0.017*** (0.006)	-0.017*** (0.006)	0.004 (0.007)	0.004 (0.007)
Public sector employment protection in t-1 (Dummy)		-0.056** (0.026)		-0.053 (0.034)		-0.052 (0.039)
Married (Dummy)	-0.018* (0.011)	-0.018* (0.011)	-0.031** (0.013)	-0.031** (0.013)	0.002 (0.018)	0.002 (0.018)
Migration background (Dummy)	-0.045** (0.019)	-0.045** (0.019)	-0.024 (0.023)	-0.024 (0.023)	-0.097*** (0.028)	-0.097*** (0.028)
Tenure in t-1 (Years)	-0.021*** (0.001)	-0.020*** (0.001)	-0.021*** (0.001)	-0.020*** (0.001)	-0.021*** (0.001)	-0.020*** (0.001)
Part-time employment in t-1 (Dummy)	-0.047*** (0.011)	-0.046*** (0.011)	-0.040*** (0.013)	-0.040*** (0.013)	-0.059** (0.023)	-0.058** (0.023)
Permanent contract in t-1 (Dummy)	-0.006 (0.010)	-0.008 (0.010)	-0.007 (0.012)	-0.009 (0.012)	-0.006 (0.017)	-0.008 (0.017)
Job satisfaction in t-1 (z-standardized)	-0.009*** (0.002)	-0.009*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.015*** (0.003)	-0.015*** (0.003)
Log hourly wage in t-1	0.001 (0.013)	0.0004 (0.013)	-0.008 (0.017)	-0.009 (0.016)	0.014 (0.022)	0.013 (0.022)
Unemployed in t-1 (Dummy)	-0.024 (0.041)	-0.024 (0.041)	-0.027 (0.050)	-0.027 (0.050)	-0.029 (0.084)	-0.029 (0.084)
Years (14 dummies)	Yes***	Yes***	Yes***	Yes***	Yes***	Yes***
Regions (15 dummies)	Yes**	Yes**	Yes**	Yes**	Yes*	Yes*
Observations	16,827	16,827	10,521	10,521	6,260	6,260
Pseudo R <sup>2</sup>	0.3578	0.3586	0.3470	0.3477	0.4104	0.4112

Notes: Dependent variable is a dummy that indicates whether an individual switches to the private sector. Common support of the public (private sector) is defined as all industries in which at least 1% of public (private) sector employees work. Thus, the common support consists of 7 industries, namely *Electricity, Gas and Water Supply* (NACE 15), *Transport, Storage and Communication* (NACE 19), *Financial Intermediation* (NACE 20), *Real Estate, Renting and Business Activities* (NACE 21), *Education* (NACE 23) or *Health and Social Work* (NACE 24) and *Other Community, Social and Personal Service Activities* (NACE 25). Dependent variable in columns (1) and (3) is a dummy that indicates whether an individual switches to the public sector. \*/\*\*/\*\* denote statistical significance at the 10%, 5%, 1%-level, respectively. Robust standard errors (clustered at the individual level) in parentheses. Source: SOEP data v35.



Table A.6: Logit estimates for switching to the private sector, education or health and social work, average partial effects

	(1) All	(2)	(3) Women	(4)	(5) Men	(6)
Female (Dummy)	0.006 (0.016)	0.006 (0.016)				
Age in t-1 (Years)	0.002*** (0.001)	0.002*** (0.001)	0.002** (0.001)	0.002** (0.001)	0.003* (0.001)	0.003* (0.001)
Education (Years)	-0.0003 (0.002)	-0.0003 (0.002)	0.001 (0.003)	0.001 (0.003)	-0.003 (0.004)	-0.003 (0.004)
Willingness to take risks in t-1 (z-standardized)	0.006 (0.006)	0.006 (0.006)	0.002 (0.006)	0.002 (0.006)	0.020* (0.011)	0.019* (0.011)
Civic virtue in t-1 (z-standardized)	-0.012** (0.006)	-0.012** (0.006)	-0.006 (0.007)	-0.006 (0.007)	-0.029*** (0.010)	-0.029*** (0.010)
Altruism in t-1 (z-standardized)	-0.007 (0.006)	-0.007 (0.006)	-0.014** (0.007)	-0.014** (0.007)	0.011 (0.009)	0.011 (0.009)
Public sector employment protection in t-1 (Dummy)		-0.056 (0.036)		-0.039 (0.041)		-0.125 (0.076)
Married (Dummy)	-0.008 (0.012)	-0.008 (0.012)	-0.023 (0.014)	-0.023 (0.014)	0.026 (0.020)	0.027 (0.020)
Migration background (Dummy)	-0.036 (0.022)	-0.037* (0.022)	-0.017 (0.024)	-0.017 (0.024)	-0.106** (0.045)	-0.106** (0.045)
Tenure in t-1 (Years)	-0.021*** (0.001)	-0.020*** (0.001)	-0.021*** (0.001)	-0.021*** (0.001)	-0.021*** (0.002)	-0.019*** (0.002)
Part-time employment in t-1 (Dummy)	-0.036*** (0.012)	-0.036*** (0.012)	-0.033** (0.013)	-0.033** (0.013)	-0.037 (0.024)	-0.035 (0.024)
Permanent contract in t-1 (Dummy)	-0.012 (0.011)	-0.014 (0.011)	-0.007 (0.013)	-0.008 (0.013)	-0.028 (0.017)	-0.030* (0.017)
Job satisfaction in t-1 (z-standardized)	-0.010*** (0.002)	-0.010*** (0.002)	-0.008*** (0.003)	-0.008*** (0.003)	-0.016*** (0.004)	-0.016*** (0.004)
Log hourly wage in t-1	-0.008 (0.015)	-0.009 (0.015)	-0.009 (0.017)	-0.010 (0.017)	-0.015 (0.026)	-0.015 (0.026)
Unemployed in t-1 (Dummy)	-0.058 (0.045)	-0.058 (0.045)	-0.030 (0.053)	-0.030 (0.054)	-0.172 (0.129)	-0.171 (0.128)
Years (14 dummies)	Yes***	Yes***	Yes***	Yes***	Yes***	Yes***
Regions (15 dummies)	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,744	11,744	8,361	8,361	3,346	3,346
Pseudo R <sup>2</sup>	0.3502	0.3509	0.3430	0.3434	0.4402	0.4426

Notes: Dependent variable is a dummy that indicates whether an individual switches to the private sector. The sample only includes individuals that work in either *Education* (NACE 23) or *Health and Social Work* (NACE 24). \*/\*\*/\*\* denote statistical significance at the 10%-, 5%-, 1%-level, respectively. Robust standard errors (clustered at the individual level) in parentheses. Source: SOEP data v35.

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