Worker Turnover in a Dual Labor Market

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Abstract

Worker turnover is about 40 percent higher in Spain compared to Germany. We show that this higher worker turnover is a within-sector phenomenon and results from higher job turnover. Job turnover is more than three-times higher for fixed-duration jobs compared to permanent jobs. However, a 2021 reform that reduced the share of fixed-duration jobs from 25 to 15 percent had almost no effect on aggregate worker and job turnover rates. Instead, it resulted in rising worker and job turnover rates of permanent jobs suggesting that different contracts are highly substitutable for firms.

Key Words: job and worker turnover, worker churn, fixed-duration contracts

JEL Classification: E20, E24, E32, J23, J63

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1 Introduction

Worker turnover is higher in Spain than in many other European countries. Using Social Security data for Spanish employees, we find a quarterly worker turnover rate, i.e., the sum of the hiring and separation rates of 27%. This amount of quarterly worker turnover is comparable to that found by Bauer (2015) using the Job Opening and Labor Turnover Survey (JOLTS) for the U.S. It is, however, about 40% higher than the quarterly worker turnover we measure for Germany.

To better understand the high worker turnover in Spain, we follow the idea of Davis, Faberman, and Haltiwanger (2012) and link worker flows to firms' labor demand, i.e., job flows. Higher worker turnover may be the result of higher job turnover. That is, when firms have more volatile labor demand, worker turnover will necessarily be higher. Alternatively, it may result from firms hiring workers and, at the same time, separating from workers, i.e., firms churning workers (see Burgess, Lane, and Stevens, 2000; Davis, Faberman, and Haltiwanger, 2012; Bachmann, Bayer, Merkl, Seth, Stüber, and Wellschmied, 2021). We find that the relatively high worker turnover in Spain is mostly driven by higher job turnover. The quarterly job turnover rate in Spain stands at around 14%, compared to just 7% in Germany. In contrast, the worker churn rate is more similar between the two countries. Thus, despite high worker turnover, Spain is not a country with particularly high churn rates.

High worker turnover in Spain is often linked to a high share of the employed working in fixed-duration jobs (see, for example, Bentolila, Cahuc, Dolado, and Le Barbanchon, 2012). Those contracts have an average duration of below one quarter and can be terminated at the end of the contract at almost zero costs. Hence, they provide firms with a way to cheaply alter the number of jobs or to turnover workers for, e.g., screening purposes. Indeed, we find that worker turnover for employees with fixed-duration jobs is about five-times higher than for workers with permanent jobs. We show that about 50% of this higher worker turnover results from higher job turnover. The remaining 50% result from higher worker churn. The high job and worker turnover rates of fixed-duration jobs may, hence, suggest that these type of contracts are the cause of the high turnover rates. We analyze this possibility using a 2021 reform in Spain that reduced the share of fixed-duration workers in the economy from 25% to 15%. Despite the large decline in the share of fixed-duration jobs, we find that the quarterly worker turnover rate is basically unchanged. The reason is that worker turnover of permanent jobs increases after the reform from 13 to 20 percent. We find that this increase is partially resulting from the quarterly job turnover rate of permanent jobs increasing from eight to 12.5 percent, which is consistent with the behavior of daily job flows analyzed by Conde-Ruiz, García, Puch, and Ruiz (2025). The remaining increase in the worker turnover rate of permanent jobs results from a rise in their churn rate.

The rest of the paper is structured as following. The next section describes the datasets. Next, we turn to aggregate worker and job flows in Spain before turning to worker and job flows conditional on the employment contract. Finally, we analyze the effects of the 2021 reform and conclude.

2 Datasets and Variable Definitions

2.1 Spanish data

We use affiliation records from the Social Security agency which provide a rich administrative dataset covering 2013–2023. The administrative procedure requires employers and self-employed to report the starting and ending date of any employment relationship that is maintained. The files we access contain information on employment status and characteristics for more than 20 million affiliates every month.[1] Importantly, the microdata registers contain information on the type of contract (permanent open-ended, temporary fixed-term, or intermittent open-ended).[2] Each work location has a unique identification number (CCCP, Código de Cuenta de Cotización Principal), that is at the firm level. We aggregate all workers to their principal identification number and drop all self-employed.[3] We then aggregate the data to the quarterly frequency using an end-of-period concept. We adjust all data using the US CENSUS $X-13$ ARIMA filter.

2.2 German data

We use the Administrative Wage and Labor Market Flow Panel which, similar to Spain, relies on affiliation records from the Social Security agency. Different from the Spanish data, its unit of observation is the establishment[4]. The data offers two types of employee definitions: regular workers and all workers. The latter is the relevant comparator to the Spanish data, and we opt for that definition. The main difference to the Spanish data is that it does not cover civil servants (*Beamte*). The data covers the time period 1975-2014. To avoid a break in the series, we drop all establishments that are on the territory of former East-Germany and Berlin or for which we cannot determine the German state (*Bundesland*) in which an establishment is located.

2.3 Variable definitions

We define a worker as employed in a given firm when he works in the firm at the end of a quarter. From these definitions follow the number of jobs at a firm i as well as the number of job flows $JF_{it} = E_{it} - E_{it-1}$. When a plant decreases employment within a year ($JF_{it} < 0$), we count this as job destruction, JD_{it}. When employment increases ($JF_{it} > 0$), we count this as job creation, JC_{it}. Additionally, we compute the number of hires, H_{it} (a worker that was not working for that firm the previous year), as well as the number of separations, S_{it} (a worker that no longer works for a firm in a year). A firm may hire and separate from workers within the same period, that is, we have $H_{it} \geq JC_{it} \geq 0$ and $S_{it} \geq JD_{it} \geq 0$. To capture the extent of such worker reallocation in excess of job flows, Burgess et al. (2000)

[1]We thank the Ministry of Inclusion, Social Security and Migration for the access to the microdata.

[2]The data coverage of civil servants and military personal is incomplete, and occasionally there might be missing data on the type of contract or sector.

[3]We identify self-employed through their contribution regime (Régimen de Citización).

[4]See Stüber and Seth (2017) for a detailed description

introduce the concept of *worker churn*:

$$CH_{it} = (H_{it} - JC_{it}) + (S_{it} - JD_{it}). \tag{1}$$

To define flow rates, we follow Davis and Haltiwanger (1992) and use the average of contemporaneous and lagged employment as the denominator which assures that the resulting rates are bounded between -2 (exiting firms) and 2 (entering firms):[5]

$$D_{it} = [E_{it} + E_{it-1}]/2.$$

Hence, the churn rate is given by:

$$CHR_{it} = \frac{CH_{it}}{D_{it}}. \tag{2}$$

3 Aggregate flows

We begin by comparing the worker turnover rate in Spain to Germany. We measure worker turnover as what is known as net turnover:

$$WTR_t = HR_t + SR_t - |HR_t - SR_t|, \tag{3}$$

where the last term equals net employment growth. We opt to measure net turnover instead of gross turnover because the Spanish economy was growing over the sample period and, hence, part of its worker flows simply reflect its need to fill these new jobs. The top left panel of Figure 1 shows that the rate is about 40% higher in Spain compared to Germany.[6]

One possible explanation for a higher worker turnover in Spain is sectoral composition. The Spanish economy has, for example, a larger tourism industry, and worker turnover may be particularly high in that industry. The top right panel of Figure 1 shows, however, that worker turnover is also about 40% higher in Spain once we condition on a sector, here the manufacturing sector.

To better understand the high worker turnover rate in Spain, we rewrite it as

$$\begin{aligned} WTR_t &= HR_t + SR_t - |HR_t - SR_t| && (4)\\ &= \underbrace{JCR_t + JDR_t - |JCR_t - JDR_t|}_{JTR_t} + \underbrace{HR_t - JCR_t + SR_t - JDR_t}_{CHR_t}. && (5) \end{aligned}$$

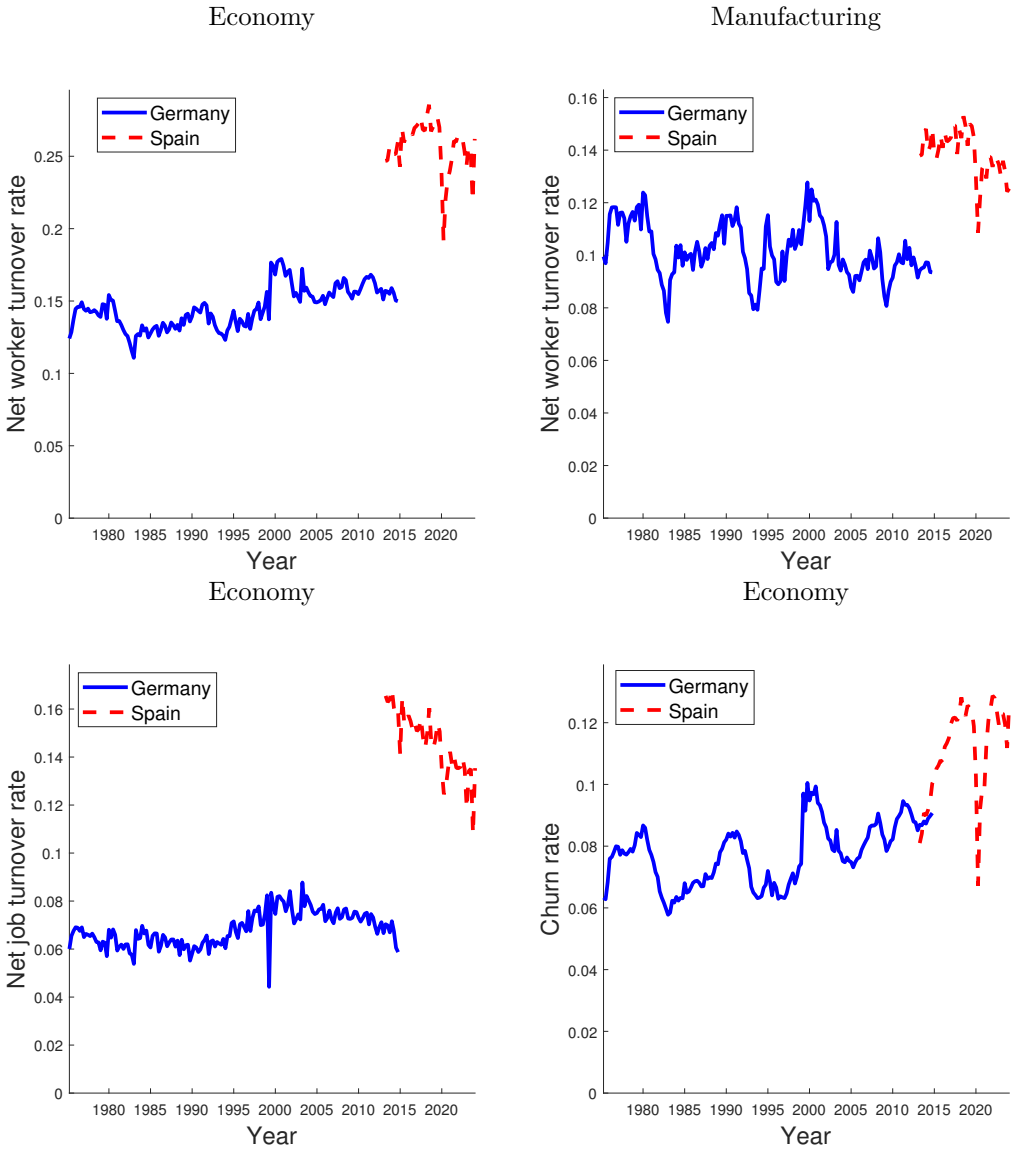
The first term is the (net) job turnover rate. When firms have more volatile labor demand, worker turnover will necessarily be higher. The second term is the churn rate and reflects the amount that firms turn over their workforce in excess of of gross job turnover.

The bottom right panel of Figure 1 shows that worker churn is not substantially different between Spain and Germany. Though the sample mean is higher in Spain, the difference may

[5] See Davis et al. (1996) for a thorough discussion of these rates.

[6] The comparison is complicated by us having only one full year of overlapping data, however, neither country shows a clear time trend suggesting that those rates are relatively stable over time.

Figure 1: Job and worker turnover

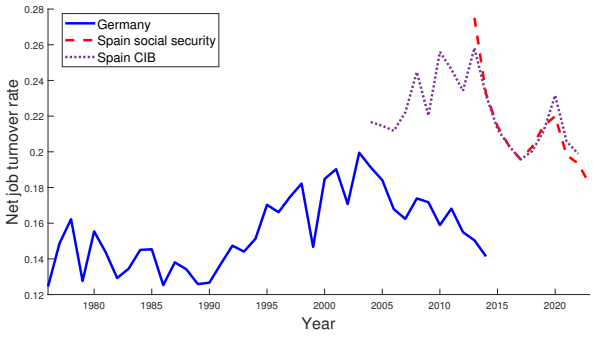


Notes: The figure displays quarterly job and worker flows in Germany and Spain. The top panels display the net worker turnover rate. The left panel displays it for the entire economy, and the right panel displays it for the manufacturing sector. The bottom-left panel displays the net job turnover rate, and the bottom-right panel the churn rate for the entire economy. Sources: Social Security records for Spain and AWFP for Germany.

well be due to different sample periods. In fact, the German churn rate shows an upward trend over time, and in the quarters where the two samples overlap, the churn rates are very similar in the two countries. Instead, the bottom left panel shows that the net job turnover rate is about twice as high in Spain compared to Germany.

To further collaborate this fact, we construct a time series for Spain that reaches further back in time. To that end, we employ firm-level employment data from the Spanish Central Bank called the Central de Balances Integrada (CBI) that goes back to 2004. The data is only available at a yearly frequency. Moreover, it under samples small firms and asks about year-average employment using a survey (see Almunia, Lopez Rodriguez, and Moral-Benito,

Figure 2: Yearly job turnover



Notes: Notes: The figure displays the yearly net job turnover rate in Spain and Germany. Sources: Social Security records and CBI for Spain and AWFP for Germany.

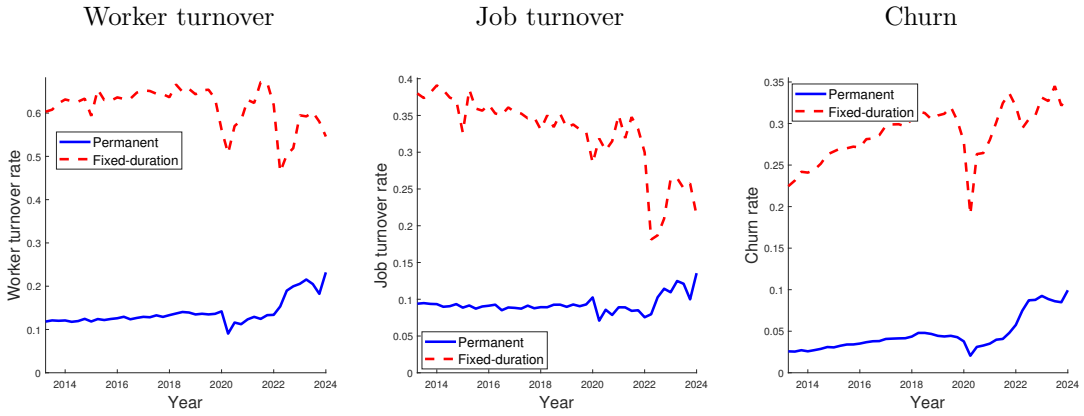
2018, for a more detailed description of the data). Those features make it little surprising that we find a lower net job turnover rate than in the (yearly) Social Security data for those years where the data overlap (9.1% vs 21.5%). However, Figure 2 shows that the two data sets suggest a very similar behavior of the net job turnover rate during the years we observe both, once we correct for this mean difference. This gives us some confidence to expand the CBI data pre-2013 by adjusting it by this mean difference. The figure shows that the resulting (yearly) net job turnover rate was systematically higher in Spain compared to Germany between 2004 and 2014.

4 Flows by contract type

In Spain, just below 25% of Spanish workers are employed under fixed-duration contracts. These worker can be terminated at the end of the contract with zero costs. As the average length of these contracts is less than a quarter, these contracts provide firms with jobs with close to zero firing costs. In contrast, Spanish workers with permanent contracts benefit from strong employment protection stemming from severance payments and legal uncertainty in case the worker challenges the dismissal in labor court (see Bentolila et al., 2012, for a thorough discussion). As a result, Spain is often described as a dual labor market, where the majority of workers has relatively stable jobs, however, a significant fraction suffers from high job instability.

The left-panel of Figure 3 highlights this phenomenon by means of the (net) worker turnover rate. That rate is about five-times higher for workers with a fixed-duration contract compared to workers with a permanent contract. Since 2021, the factor has shrunk to about four, a point we will come back to below. The center panel shows that the higher worker turnover rate of fixed-duration jobs is partially driven by job turnover of those jobs being substantially higher. Until 2021, job turnover was about 3.5 times higher for jobs with a fixed-duration compared to jobs with a permanent duration. A high job-turnover of fixed-duration jobs suggest that firms use these jobs to satisfy short-term fluctuations in labor demand. Such demand may arise from the implementation of specific projects, such as installing a new EDV

Figure 3: Job and worker turnover conditional on contract type



Notes: Notes: The figure displays quarterly job and worker flows in Spain for jobs with permanent and jobs with fixed-duration contracts. The left panels display the net worker turnover rate. The center panel displays the net job turnover rate. The right panel displays the churn rate. Sources: Social Security records.

system, or short-term fluctuations in firms' product demand by customers.

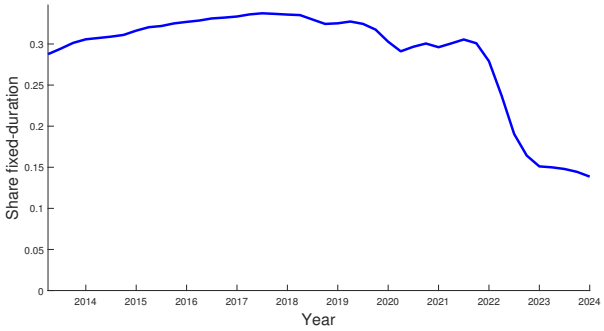
However, higher job turnover alone cannot explain the higher worker turnover of fixed-duration jobs as the right panel of Figure 3 shows. Instead, worker churn of fixed-duration jobs is also substantially higher. While the churn rate of permanent jobs was below five percent until 2022, the churn rate of fixed-duration jobs was around 25% during that same time period, or more than five-times higher than that of permanent contracts. Put differently, firms are using to a substantial degree fixed-duration jobs even when those jobs are not temporary. As a consequence, they replace one worker with another worker while maintaining the same number of jobs. Using the decomposition from Equation (5), about 50% of the higher worker turnover rate of fixed-duration jobs (0.25 out of 0.5) results from higher job turnover while the other half results from higher worker churn.

4.1 The 2021 reform

The high share of temporary contracts in Spain and the associated high employment instability led policy makers to a reform in those contracts in December of 2021, which came into full effect 3months later. The reform banned fixed-duration project-based contracts. That is, firms could no longer hire workers with a fixed-duration by arguing that a specific project, such as the aforementioned installment of an EDV system, would last only some months. Instead, the only reasons for which firms may hire workers using fixed-duration contracts is maternity/sick replacement, and temporary demand spikes. Figure 4 shows that the reform significantly reduced the share of employees working with a fixed-duration contract in Spain. The share decreased from about 25% before the reform to around 15% just one year after the reform.

Given the facts just discussed about worker and job flows of fixed-duration and permanent jobs, one may expect that the reform resulted in a large decline in those rates. However, the left panels of Figure 3 show that this did not materialize. We observe some decline in job turnover, however, this looks more like a general time trend than an effect starting in 2022.

Figure 4: Share temporary employees



Notes: Notes: The figure displays the the share of fixed-duration employees in Spain over time. Sources: Social Security records.

These results are consistent with Conde-Ruiz et al. (2025) who already show that the reform had almost no effect on daily job flows in Spain.

The time-series behavior displayed in Figure 3 provides a rationalization for this seemingly puzzling fact. The left panel shows that, starting in 2022, the worker turnover rate of workers with permanent jobs shows a substantial increase, rising from about 13 percent to more than 20 percent. Put differently, the average permanent job has become more like the average fixed-duration job after the reform (see also Banco de España, 2023). This increase is partially explained by a rising job turnover rate, increasing from around eight percent to 12.5 percent.[7] In addition, the churn rate of permanent workers increased from about 5.8 percent to 9.3 percent. As worker turnover of workers with permanent jobs increases, the overall worker turnover rate remains constant despite fewer workers with fixed-duration jobs.

5 Discussion

We show that worker turnover is about 40% higher in Spain compared to Germany, and that this difference is driven by higher job turnover. Moreover, we show that worker turnover is five-times higher among workers with fixed-duration contracts compared to permanent contracts and that higher job turnover explains about half of this difference. Finally, we show that a large decline in the share of fixed-duration jobs brought by a change in labor laws has almost no effect on aggregate worker turnover. The reason is that worker turnover of permanent jobs increased after the reform which, in part, is again driven by higher job turnover. To establish these facts, we use a novel data set for quarterly job and worker flows in Spain based on the universe of Social Security records.

One plausible explanation for the higher job turnover rate in Spain compared to Germany, and the resulting higher worker turnover rate, is that Spain creates relatively many low-value-added jobs. This interpretation is consistent with a relatively small average firm size in Spain as well as findings from Banco de España (2023) about a high number of low-productivity

[7]The job turnover rate of fixed-duration contracts falls after the reform which is consistent with project-based contracts no longer being part of that category.

firms in Spain. To better understand the role of firm quality in driving job flows, we will expand our analysis by studying job and worker flows by firm characteristics.

A related issue is the ineffectiveness in reducing worker turnover through limiting the number of fixed-duration jobs in Spain. The rise in job turnover rates and churn at permanent jobs after the reform suggests that permanent contracts and fixed-duration contracts are to a substantial degree highly substitutable for firms to achieve high job turnover and high worker churn. Possible explanations are probation periods that make it relatively easy for firms to separate from workers during early months of their contracts.

Finally, our results speak to the debate about sclerosis labor markets in Europe. Recently, Schoefer (2025) links sclerosis labor markets in Europe compared to the U.S., partially reflected in lower churn rates, to the lower productivity growth in Europe. One view of the aggregate Spanish data is that, based on the high worker and job turnover rates, Spain is a labor market just as dynamic as the U.S. market. However, we think the data tells a more nuanced picture. Worker and job turnover, as well as worker churn rates, are highest among jobs with very low durations, i.e., fixed-duration jobs. Compared to Germany, we think the more likely interpretation of the data is that Spanish firms create a relatively high share of low-surplus jobs that often cease to exist quickly (high job turnover) and where they do not invest into the match with their workers (high worker churn).

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