

THE REVOLVING DOOR IN BANKING REGULATION: A FIRST LOOK AT THE EVIDENCE

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Abstract

This paper traces the career profiles of federal and state U.S. banking regulators from a large sample of publicly available curriculum vitae. Based on the newly collected data, we provide basic facts on the size and nature of the revolving door between jobs in the regulatory and private sector. We find strong countercyclical net worker flows into regulatory jobs, which are driven by higher gross outflows into the private sector in booms and higher gross inflows into regulation during recessions. The regulatory sector seems to experience some retention challenge with workers with higher human capital, as measured by their shorter regulatory spells. Evidence from cross-state enforcement actions of regulators shows more inflows in regulatory jobs at times of more intense enforcement, which is the opposite of what would be implied by a “quid pro quo” channel. Moreover, a matched sample of participants in rulemaking meetings related to the Dodd-Frank Act, reveals very few former regulators resurfacing as advocates for the private sector at these meetings.

Keywords: Banking Regulation, Revolving Door, Financial Institutions, Corruption.

JEL Classification Codes: G21, G28.

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1. Introduction

In the aftermath of the recent financial crisis, several narratives have emerged to explain why the crisis occurred and how it could be prevented in the future. According to one such prominent narrative, weakness in the financial regulatory system and, in particular, regulatory capture was a key contributing factor in the build-up of risk ahead of the crisis. In conjecturing this link, a much talked about source of regulatory capture is the so-called “revolving door” hypothesis. Based on this view, regulators’ job mobility in the private sector supposedly incentivizes regulators to soften their regulatory stance on behalf of the industry interests for whom they may eventually work. In other words, the revolving door acts as an implicit bribe through the prospect of future lucrative employment. The quid pro quo for the bribe is the promise to regulate lightly, or not at all. Despite the vociferous debate on this issue and numerous policy prescriptions, there is *no* study that systematically documents job transitions of banking regulators to and from the financial sector and assesses systematic drivers behind these flows.

In this paper we attempt to fill this gap with two modest goals. First, we provide basic facts on the size and nature of the revolving door by examining the job transitions of regulators into and out of the private sector. Second, we try to make sense of regulatory industry worker flows through the lens of standard economic principles used by labor economists in interpreting inter-industry worker flows (for example, Blanchard and Diamond 1990; Fallick and Fleischman 2004; Shimer 2005). In doing so, we also attempt to understand whether regulators’ job mobility into the financial sector may be consistent with a revolving door hypothesis.

The main obstacle in studying worker flows between the regulatory and private sectors is a lack of available data. Taking as an example the monthly Bureau of Labor Statistics’ Current Population Survey (CPS), which is a key data source of inter-industry job-to-job transitions in the labor literature, the survey includes only a handful of financial examiners in the public sector industry, ruling out the possibility of any systematic empirical analysis. We circumvent this challenge by constructing a unique dataset of career paths of more than 35,000 former and current regulators across all regulators of commercial banks and thrifts -- the Federal Reserve Banks (Fed), the Federal Depository Insurance Corporation (FDIC), the Office of Comptroller and Currency (OCC), the Office of Thrift Supervision (OTS), and the state banking regulators -- that have posted their

curriculum vitae (CVs) on a major professional networking website. Our sample spans the past twenty-five years and provides us a unique view into the process of selection and transition of personnel from these regulatory agencies to the private sector. While this dataset is unique, it is subject to some limitations. First, the data do not include all workers in regulation, only those that made their work information available online. Second, the panel is unbalanced with significant cohort effects, as the historical job spells are reconstructed from current CV information.¹ In our analysis we address these cohort effects by examining a matched sample of workers that have never worked in regulation, and by including either worker or cohort-specific fixed effects.

Our dataset reveals clear evidence of countercyclical net worker inflows into the regulatory sector. Net worker flows from private sector to regulatory sector fall significantly and are often negative in good times, which may be the result of higher gross inflows in bad times or lower gross outflows in good times. Looking at the data we find that higher gross outflows to the private sector in good times are a key driver of the countercyclical regulator net worker flows. We also find evidence of higher gross inflows in regulation in bad times as well as in the past few years, likely due to strong regulatory demand linked to enhanced banking supervision post-financial turmoil.

Next, we examine the selection of individuals into and out of the regulatory sector by assessing which individuals enter and exit banking regulation over the business cycle, as function of their human capital (i.e., their education levels) and skills/connections (i.e., their seniority in the regulatory organization). We find that the best talent, as proxied by higher human capital has shorter regulatory spells because of higher outflows to the private sector. We also find that more senior staff, not surprisingly, spend more time in regulation. Overall, the regulatory sector faces a retention challenge when it comes to individuals with higher human capital.

We turn next to an analysis of the revolving door hypothesis as a driver of regulator mobility in two separate exercises. We first study regulator mobility as a function of regulatory enforcement actions and then examine lobbying efforts as measured by participation in Dodd-Frank rulemaking meetings between regulators and the private sector.

¹ The most important contributors to these cohort effects are the fact that younger individuals that have a shorter work history are more likely to post online, and that career-inactive individuals are less likely to post their CVs online.

The revolving door hypothesis would suggest that future implicit employment in the private sector might, as a quid pro quo, dampen the strictness of actions of a regulator while the individual is employed in the regulatory sector. We find a positive association between the intensity of strict actions at the state level and the net movement into the regulatory sector, which, consistent with a revolving door channel, implies that a lower degree of enforcement is associated with more movement from regulatory sector into the private sector. However, looking more closely at gross flows, we find that this relationship is driven by more inflows into regulatory jobs in periods of high enforcement/more intense regulatory activity; gross outflows actually enter in the regressions with a wrong sign. While this evidence is of course not a ubiquitous test of the revolving door hypothesis, it does suggest that this hypothesis is not a key driver of industry-government worker flows at least at the macro level.

We finally evaluate a lobbying channel of private sector hiring of former regulators by studying a matched sample of participants at meetings between regulators and private sector representatives related to the 2010 Dodd-Frank Act rulemaking. We characterize our matched sample in terms of worker characteristics. We find that former regulators with high human capital and a high level of seniority when they were regulators are more likely to resurface as private sector lobbyists. This is consistent with the private sector attracting the best and brightest from government posts as useful lobbyists as well as with the more connected regulators being more effective lobbyists.² That said, we find a very small fraction of former regulators taking part at these meetings in our sample. Based on our estimates after accounting for our sample size, only about 4% of the total private sector participants may be former regulators -- a number that is small compared with the total annual outflows from regulators to the private sector. This evidence suggests that former supervisors are not being sent en masse to attend these rulemaking meetings, implying that the private sector, when hiring, may be looking for characteristics beyond their future lobbying potential at such meetings..

Overall, while our tests do not conclusively rule out that the presence of a revolving door distorts regulatory behavior, at the very least they point to more mundane and benign channels also

² The role of connections in lobbying has received substantial empirical support including Blanes I Vidal, Draca, and Fons-Rosen (2012) and Bertrand, Bombardini, and Trebbi (2013).

explaining worker flows from regulatory sector to private sector. The revolving door may well be distorting regulatory effectiveness, but our paper suggests that this channel is not blatantly pervasive. Uncovering whether this mechanism distorts regulatory effectiveness at a smaller scale and potentially within a few critical regulatory positions remains an open question requiring more research.

This paper is most directly related to scarce and often context-dependent studies on the revolving door phenomenon outside banking. For example, in one of the seminal articles in the literature Cohen (1986) shows that Federal Communications Commissioners who end up working in the industry after their tenure shift their voting pattern toward more support for the industry in their final year of service. This study, however, remains a notable exception in terms of transparency of the data and sharpness of the hypothesis tested. While the context of our analysis on government-to-private-sector job transitions is limited to regulation, such behavior has been modeled in the context of legislative behavior by Diermeier, Keane, and Merlo (2005) and has been linked to the revenue stream of U.S. federal lobbyists who were former Senate staffers by Blanes-I-Vidal, Draca, and Fons-Rosen (2012).

Our paper is also connected to a vast literature in both political economy and banking on the role of regulation and its potential distortions (specific to banking: Kane 1989, Boot and Thakor 1993, Kroszner and Strahan 1999, Berger and Hannan 1998, Hellman, Murdock, and Stiglitz 2000, Barth et al. 2004; Agarwal et al. 2013, and more in general: Besley and Coate 2003). We contribute by drawing from a new source of information and by complementing the small set of stylized facts available around the bureaucratic revolving door.

The rest of the paper is organized as follows. Section 2 presents the data and the sampling methodology. Section 3 reports our main findings concerning job transitions in banking regulation as well as explores the interaction of worker mobility of regulators with economic cycles, human capital and seniority. Section 4 discusses the relation between worker mobility of regulators and corruption by examining formal enforcement actions of regulators and disclosed attendees in the rule making meetings of the Dodd-Frank Act of 2010. Section 5 concludes.

2. Data, Sample Construction and Descriptive Statistics

2.1 Data and Sample Construction

The empirical analysis in the paper relies on a sample that is constructed using career profiles from CVs in the database of a leading social networking website for professionals. In this section we provide an overview of the method used to construct a sample, which we will refer to as the “regulators” sample, of individuals who have worked in a banking regulatory institution at any point in their career starting in the 1980s. As we discuss in more detail below, we have also constructed a comparison sample of individuals who never worked in regulation (“never-regulators” sample).

Our main sample includes current and former employees of all U.S. banking regulatory institutions: the Federal Deposit Insurance Corporation (FDIC), the Office of the Comptroller of the Currency (OCC), the former Office of Thrift Supervision (OTS), and the Federal Reserve’s Board of Governors, Reserve Banks, and state banking departments. Figure 1 illustrates what constitutes the scope of this paper. To form the sample, we search the “Company Name” field for a set of company names, balancing between precision of the text and popularity.³

We parse through the downloaded profiles, focusing in particular on the career path of each individual, the position he or she has in a given job, and for each position, his or her title, company name, start date, and end date. We also determine the chronological order of the positions using their arrangement on the profile page, and assign to each worker a unique identifier, which is directly obtained from each worker webpage. Based on our search criterion, we obtained 21,396 profiles of individuals who have worked at some point for the Federal Reserve, 6,958 profiles of individuals who have worked at some point for the FDIC, 3,418 profiles of individuals who have worked for the

³ The federal regulatory agencies -- the Federal Deposit Insurance Corporation, Office of the Comptroller of the Currency, and the Office of Thrift Supervision -- have widely accepted and used names, and thus searching for “FDIC,” “Office of the Comptroller of the Currency,” and “Office of Thrift Supervision” was sufficient. For each branch of the Federal Reserve System, city names and common abbreviations were used in addition to a few widely used variations of the agency name. For example, the San Francisco regional branch of the Federal Reserve was searched with (“San Francisco” OR “SF”) AND (“Fed” OR “Federal Reserve” OR “FRB”). Similarly, for the Federal Reserve Board of Governors, we searched “Board of Governors” AND (“Federal Reserve” OR “Fed”). In the case of state regulating agencies, precise searches for the specific division or department responsible for banking regulation do not always yield meaningful results, since employees typically enter the overarching entity for Company Name. The Conference of State Banking Supervisors (CSBS) maintains a complete list of names and links to state banking regulatory agencies. Additionally, since many state agencies share the same name, we add the state name into the search to distinguish results by state.

OCC, 646 profiles of individuals who have worked for OTS, and 3,186 profiles for individuals who have worked for one of the state regulators, for a total of 35,604 profiles. We perform additional data cleaning to remove duplicate regulators who may have worked in more than one regulatory agency. We remove all duplicates using the unique ID mentioned earlier. In the end, we are left with 34,064 unique profiles of individuals who have worked at any point in time during their careers in the regulatory agencies we have mentioned above. This forms our “regulators” sample.

To form a reasonable benchmark of career movements outside the regulatory sector, we also consider job-to-job flows for a sample of individuals who are never employed in the regulatory sector. We construct this “never-regulators” sample as follows. We start with the list of firms that each individual in the treatment sample has ever worked in. This gives us a list of 113,548 instances. We sample from this list, which includes repeat firms, since we are interested in the empirical distribution of firms that individuals in the regulators sample are employed by. We randomly pick 34,064 instances from this list and download a profile from each selected firm. This procedure ensures that we match the empirical frequency of firms that individuals in the regulators sample have worked for at some point in their career. For example, it is reasonable to expect that more individuals in the regulators sample would work for large banks. Our procedure ensures that we sample more individuals in the never-regulators sample from such banks.⁴

Once the CVs are acquired, we reshape the data from spell-level information, which is typical of how CVs are organized, to a panel that lists an individual’s name and work information in each period. We keep our analysis at yearly frequency for both simplicity and because it is often the case that start- and end-month information is missing.

One major obstacle in reorganizing the information in this manner is the possibility that individuals might have overlapping job spells; that is, some individuals may list several occupations over the

⁴ In particular, if we find that there are 500 instances of individuals in the regulator sample who have worked in “Bank of America” at some point in their career, we download 500 additional profiles of individuals who worked in “Bank of America” but were never employed in the regulatory sector. In total, we sampled 5,221 distinct firm names to construct the control sample and obtain 33,808 profiles. This is slightly less than the 34,064 profiles in the treatment group because in some cases, there were not enough profiles from a sampled firm on the website to satisfy our empirical frequency. For instance, in the example above, it might be the case that “Bank of America” does not have 500 profiles available. Regardless, we believe that our sample is fairly balanced across the “regulators” and the “never-regulators” group.

same period. While we have made sure to track all occupations for all the individuals in our sample, we need to make some assumptions when performing the analysis on career transitions. In particular, we limit our analysis to individuals that list a maximum of three simultaneous occupations in a year. Such individuals account for more than 90% of our raw sample. To establish the time of transition from one job to another we track worker information in the year prior and the year following in order to resolve any timing uncertainty in the case of multiple listings. In order to deal with missing spells/holes in CVs we use a simple rule of thumb: we classify an individual as unemployed if there are one or two years of missing information between spells; we treat the information as “unusable” if the missing information between spells is longer than two years.

While of course a sample without any missing information is always preferable, as noted before, standard labor surveys such as the CPS that are used to study worker and job flows are not detailed enough for a study of regulator to private sector flows. Even so, measurement issues ranging from spurious transitions to time aggregation plague these surveys well and beyond our sample of study (see for example Blanchard and Diamond 1990 and Shimer 2005). We turn next to a description of our sample.

2.2 Descriptive Statistics

We now present basic summary statistics of our sample. Figure 2 plots the total number of active individuals in our sample as well as the number split by regulator over time.

The black line in the panel on the left (Figure 2A) shows that there are about 30,000 active individuals at the end of our sample in 2013, which is when we collected the CV information. Also evident from the chart is a thinning in the number of individuals as we go further back in time. The reason is twofold: first, younger individuals that have a shorter work history are more likely to post online, and second, career-inactive individuals are less likely to post (that is, we cannot collect CVs for inactive workers). Therefore, our sample is unbalanced due to these cohort effects.

As shown by the thin grey line in the left panel of Figure 2A, similar cohort effects are also present in the benchmark never-regulators sample. Notably, the similarity of the pattern between the two groups suggests that this cohort effect is the same for regulators and never-regulators, lending

credence to the sampling procedure we discussed in Section 2.1. In either case, as will become apparent in the empirical section, we will explicitly control for these effects with individual-specific or cohort fixed effects, ensuring that our empirical results are not driven by such mechanical changes in composition of postings.

In Figure 2B, we plot the number of individuals by regulator, as measured by having at least one employment spell with a specific regulator. In particular, we trace the number of career active individuals that have worked for a given regulator at a point in time in their career. Notably, there are a few cases where individuals work for multiple regulatory agencies. However, for the vast majority in our sample, workers have a single regulatory-institution stint. The figure shows that, similar to Figure 1A, there is thinning as we go back in time in the number of individuals who report having worked for any of the regulatory agencies, except the OTS. In addition, it is clear that the regulators sample consists primarily of individuals who have worked for the Fed and the FDIC (almost two-thirds of the total).⁵

As noted in the previous section, at any given point of time we scrape the career path of a given individual to classify that individual into one of four activity categories: in the private sector, in the regulatory sector, as a student, and unemployed.⁶ Our empirical analysis mainly relies on transitions between private and regulatory sectors. We present in Table 1 summary statistics for our main variables of interest, split by whether these measures are used in a panel (1A) or cross-section analysis (1B). We will discuss the variable definitions in detail in the remaining sections.

3. New Facts on Regulators' Job Transitions

This section presents a first set of stylized facts concerning worker flows into and out of the banking regulatory sector. Following the labor search literature (for example Shimer 2005 and Fallick and

⁵ Comparing the number of workers in our sample to headcount of regulators, which we obtain from public sources (such as Internet websites), we find that while total employment in the regulatory bodies that we study fluctuates from year to year (especially around recession, as we will see), overall it remained fairly stable, or declined, over time. For instance, the total number of full-time employees (irrespective of occupation) at the Fed has remained roughly around 22,000 during the sample period, with a bit of decline in recent years. Full-time employees at OTS declined on net through 2010, the last year of that agency during our sample period. Finally, the FDIC has had roughly 5,000 full-time employees during the last twenty years, but significantly more in the years before then.

⁶ As noted in Section 2.1, there is also a small fifth category, “unusable” or inactive, for periods when individuals have missing information in their job history for a period of longer than two years. Figure 1 shows the total number of active individuals in each year.

Fleischman 2004), we first investigate the relation between workers' transitions between the private and regulatory sectors. Next, we compare the pattern of these transitions to worker flows in the private sector from our never-regulators sample. Finally, we study the selection of individuals into and out of the regulatory sector by assessing how the worker transitions relate to observable characteristics such as their education and job seniority.

3.1 Economic Cycles in the Revolving Door

Net Worker Flows

In this section we characterize how worker flows into and out of the regulatory sector vary with economic conditions. We first analyze the aggregate data graphically and then use panel-level regressions at the year and worker levels. We run this analysis starting in 1988 and ending in 2013 for the sample of regulators, which, as discussed above, is defined by all workers that have been employed by a banking regulator at some point in their career. The choice of our starting date balances the more limited availability of information in the early 1980s and our interest in studying worker flows around the 1990-91 recession.

Figure 3 plots net worker flows (measured on the left scale) against macroeconomic conditions as measured by real GDP annual growth rates (red dashed lines) and NBER recessions (shaded vertical areas). Net private-to-regulator worker flows (thick black line) are defined as the share in each year of all workers in our sample that transition from the private sector to the regulatory sector, less the share of transitions out of the regulatory and into the private sector. We also show total net-regulator flows (thin black line), which include transitions in and out of the regulatory sector to the private sector, as well as to student status and to unemployment.

Focusing on the net private-to-regulator worker flows, it is apparent that these flows are strongly countercyclical. A second fact that can be inferred from the chart is that regulatory net flows picked up following the 2008 financial crisis. Turning to the cyclicity first, net worker flows into the regulatory sector fall (mid-2000s) and are even negative (1990s) outside economic recessions (barring the most recent years); that is, workers exit, on net, the regulatory sector into the private sector during normal economic times. As we will see in more detail below when looking at gross flows, this fact is mainly driven by a pickup in outflows in booms that is not stemmed by sufficient

regulatory hiring. In contrast, we observe an increase in net worker flows from private sector into regulatory sector during all three recessions in the sample, especially for the 2007-09 recession. Looking at finer measures of economic activity, private-to-regulator net worker flows have a correlation of -0.6 with the GDP-growth measure, and similar correlations are also present with other indicators of economic condition (for example, 0.75 with the yearly unemployment rate—not shown). We return to these patterns in our panel regressions below.

An interesting exception to these patterns is the sample around the most recent recession, when private-to-regulator inflows increase following the recession. The likely driver of this exception is the implementation of, and enhanced supervisory monitoring under, the Dodd-Frank Act, which has increased the demand of regulatory staff drastically. Given the exceptional circumstances around these years and the recent financial crisis, we will explore the robustness of our regression results to the exclusion of the post-2007 sample.

Aside from flows from the private sector, total net flows into regulation may also be driven by flows from schooling and unemployment. Figure 3 shows what we refer to as “total net regulator flows,” which includes these other flows. The time-series variation in total net flow series is extremely similar to the net flows from private sector to regulatory sector, highlighting that the time series variation in net regulator worker flows is dominated by private sector flows. Given our interest in “revolving doors” and their importance, we will focus on this category in our empirical analysis below.

We turn next to the panel regression analysis, which has the main advantage of testing more formally for business cycle effects while controlling for sampling issues such as the fact that we are dealing with an unbalanced panel due to cohort effects, as discussed above. We estimate a regression where the dependent variable, $\Delta Regulator Status_{it}$, measures for each individual i transitions in and out of employment in the regulatory sector between year t and $t-1$. In particular, the dependent variable takes a value of 1 for an individual who is employed in regulation today but was not in the regulatory sector last year, 0 if an individual stays in the same activity today and tomorrow (i.e., if she or he is either in regulation in both periods or not in regulation in both periods), and -1 if an individual who was employed in the regulatory sector last year is in the private

sector this year. The main explanatory variables are current and lagged values of a *Recession Indicator*, which measures the number of months each year that have been classified by the NBER as being part of a recession.

Let us indicate with y_{it} our dependent variable of interest for individual i and year t . The standard specifications we employ follow either a pooled structure:

$$y_{it} = \alpha_1 \text{Recession}_t + \alpha_2 \text{Recession}_{t-1} + \beta X_i + \rho(t) + \varepsilon_{it}, \quad (1)$$

or an individual fixed effects structure:

$$y_{it} = \alpha_1 \text{Recession}_t + \alpha_2 \text{Recession}_{t-1} + \mu_i + \rho(t) + \varepsilon_{it}. \quad (2)$$

We consider both current and lagged economic conditions to account for possible delayed effects, and run analogous specifications using real GDP growth as a control. In terms of additional controls, we include controls for the unbalanced nature of the panel: a quadratic-polynomial in the calendar year $\rho(t)$ to account for secular trends and cohort fixed effects --where cohorts are defined as all individuals whose first career entry year on their CV is within a five-year band, beginning with 1964 (i.e., cohorts are defined as dummies for individuals whose first career entry on the CV is between 1964 and 1968, 1969 and 1973, etc.). In the individual fixed effects analysis we drop the cohort effects, as these are spanned by the individual effects. We always report standard errors clustered at the locality level.

Table 2A reports the regression estimates. Column 1 presents results for pooled analysis on the entire sample starting in 1988. Matching the intuition from Figure 2, the coefficients on concurrent and lagged *Recession* are both positive and highly statistically significant. This is a robust relation that survives if we include cohort fixed effects (column 2), include individual fixed effects (column 3), exclude the recent financial crisis (i.e., use the period 1988-2006) (column 4) and finally proxy for economic conditions using real GDP growth (column 5). The magnitudes of this relationship are economically large. For instance, when using within-individual variation in column 3, the propensity to move into banking regulation increases by around 1.7 percentage points around a recession year ($[0.011+0.023]/2$), which is about as large as the average within-worker net transition rate in the

sample (1.5%, reported at the bottom of the table) and about 10% of the within-worker standard deviation (16%). Similarly, estimates from column 5 suggest that a one-standard-deviation change in real GDP growth rate would increase the transition rate out of the regulatory sector by roughly 40% relative to the average within-individual transition rate.

Inflows and Outflows

A countercyclical relationship between economic conditions and net flows into banking regulation can occur because of two channels: either gross inflows in regulation increase, or gross outflows from regulation decline. For example, higher inflows in bad times may be due to higher labor demand in the regulatory sector in harsh economic conditions, as banks are likely to be under stress. Alternatively, private-sector employees may find a regulatory job more attractive at this time. In terms of outflows, fewer people may decide to leave regulator jobs if the private sector is not doing as well, while in periods of economic booms job prospects in the financial sector may be more lucrative. In this section we study regulatory gross worker inflows and outflows.

Figure 4 shows gross worker flows in our main sample (of workers that have been in the regulatory sector at least once in the sample). Several patterns emerge. First, over the first fifteen years in the sample, worker regulator outflows to the private sector outside the recessions average around 2% in 1990s (peaking at 2.8%) and around 1.6% in 2000s. In contrast, during this period, the rate of worker flows from private sector to regulatory sector is relatively flat at around 1%. As a result, the countercyclical net flows into the regulatory sector are driven to some extent by more individuals exiting the regulatory sector in good times. We also observe that worker regulator inflows increase to some extent in economic downturns, consistent with either higher regulatory demand or higher attractiveness of regulatory jobs versus private ones in bad times. The regulatory demand likely dominates regulatory inflows in the post-2007 sample, due to increased demand for regulation following the recent financial crisis.

More formally, in Table 2B, we study the relation between economic conditions and gross inflows and outflows separately in a panel regression analysis. We use gross inflows from private sector into the regulatory sector as the dependent variable in the odd columns (1, 3, and 5). The variable *Into Regulatory Status_{it}* is a dummy that takes a value 1 if the individual *i* enters a regulatory job in year *t*

from a private sector position in $t-1$ and is 0 otherwise. Similarly, in the even columns (2, 4, and 6) we study gross outflows from regulatory sector to private sector with a dummy variable, *Out of Regulatory Status* $_{it}$, which takes a value 1 if the individual i exits a regulatory job to private sector in year t and is 0 otherwise. The specifications mirror those employed earlier in Table 2A, with individual fixed effects and quadratic year trend.

Our results confirm the patterns we had highlighted when discussing Figure 4. Throughout the sample the cyclical nature of net flows is the result of higher regulatory inflows and lower outflows around recessions (columns 1 and 2). When excluding the post-2007 sample (columns 3 and 4) or when conditioning on GDP growth, however, net flows are dominated by higher gross outflows to the private sector in good times. For instance, column 4 shows that, on average, there is an increase in gross outflows into the regulatory sector of around 1.25% around the recessions $([.010+.015]/2)$. In contrast, column 3 shows that the increase in gross inflows out of regulatory sector of around 0.3% around the recessions $([.009-.003]/2)$. Comparing columns 1 and 2 with 3 and 4, we also note that the importance of gross inflows in the full sample is mainly the result of the post-financial-crisis period.

In conclusion, countercyclical worker flows into the regulatory sector are primarily due to higher gross regulatory outflows in good times up to the financial crisis. Gross inflows, which tended to increase marginally during recessions, have become more important in the aftermath of the recent financial crisis, likely due in part to the higher regulatory demand.

Benchmark

Our analysis so far has focused on worker flows in the regulators sample. We now briefly turn to the never-regulators sample to assess worker transitions in the private sector over time as a benchmark to our regulator analysis and to compare results from our sampling strategy with those of previous work in labor economics. Figure 5 plots the private sector worker job-to-job flows -- the share of active individuals who change jobs within the private sector between years t and $t-1$ in the never-regulators sample. Several patterns emerge. We observe an upward trend in worker flow transition rate over time. This trend may be the result of the cohort effects that we discussed above. Moreover, on net, we see annual private sector job-to-job transition rates around 20% during our sample period.

We also observe a somewhat cyclical pattern in these transitions with respect to the business cycle, with lower job transition rates in periods of economic recession on the order of 1% to 5%.

The average rate of job-to-job transitions in the private sector in our sample compares well with several studies in labor economics that have also examined job-to-job transition rates in the U.S. economy. Relying on the Bureau of Labor Statistics (BLS) Current Population Survey (CPS), Fallick and Fleischman (2004) find monthly switching hazard rates of about 2.6% between 1994 and 2004, which translate into annual switching rates of about 27%, and Mukoyama (2013) finds similar rates when extending their sample through 2012. Similarly, Shimer (2005) reports evidence consistent with monthly hazard switching rates between 2% and 3%. This result highlights that notwithstanding the unbalanced nature of our sample, the benchmark sample produces results that are comparable to those of standard surveys that have been employed in the labor literature. That said, it is useful to underscore here that the monthly CPS, which is a key data source of inter-firm and industry job-to-job transitions in the labor literature, samples only a handful of financial examiners in the public sector industry, making any empirical exercise using this data for our purpose futile.

More important, we can use private sector job-to-job transition rates from the never-regulators sample as a benchmark for the gross regulator/private sector worker flows that we discussed above. From Figure 3, total private-to-regulator and regulator-to-private flows add up to less than 5% in the regulator sample, which is less than a fourth of private sector job-to-job flows in the never-regulators sample. A large labor literature has studied the source of private-sector job-to-job mobility, and similarly we will try some characterization of regulator/private flows in the next section. That said, the mobility between private and regulator sectors is significantly smaller than that within the private sector.

3.2 Worker Mobility as a Function of Human Capital and Seniority

Interaction with Economic Cycles

We now study in more detail regulatory sector worker mobility by assessing which individuals enter and exit banking regulation over the business cycle as a function of their education levels and seniority in the regulatory organization. We study education levels as a proxy for human capital, while seniority proxies for workers' skills, connections, and importance within the organization. We

explore how the relation between economic conditions and movement into the regulatory sector interacts with the human capital and seniority of the individual by using the same specification as in Table 2. We then study, in the cross section of regulators, the time it takes for each worker to his or her first spell into regulation, and the length of the regulatory spell as a function of his or her human capital and seniority.

We explore the role of human capital by constructing a variable, *Human Capital Index*, which is a total, over the life of an individual, that adds a value 0.25 for any extra certification or associate's degree listed on the curriculum, a value 2 for a bachelor's degree, a value 3 for an MBA or other master's degree, and a value 4 for a PhD or a JD. In addition, to explore the role of skills/connections, we construct an explanatory variable, *Seniority Index*, that takes a value from 6 (low) to 1 (high) depending on the rank of the individual in the regulatory agency that she was last employed in. The index is assigned on an inverted scale to low-ranking staff (6), staff, lower management, senior management, high-level executive reporting to head, and head of the organization (1). The seniority index is constructed for each job title using regular expression and information from each organization; our classification covers about 70% of all titles with the remaining accounted for by idiosyncratic titles and temporary positions (for example interns, contractors, or consultants). For each individual we focus on the highest level of seniority while on a regulatory spell (that is, the within-worker minimum of the yearly seniority index). Including both these variables together in our analysis helps alleviate concerns that the coefficient on the human capital variable may be simply picking up the fact that high-human-capital individuals have more connections/access since they tend to be ranked higher in the organization.

Table 3 shows the sensitivity of worker flows to and from the regulatory sector to economic conditions as a function of the worker's human capital and seniority. We study this sensitivity by interacting the recession dummy with these indexes and include quadratic trends and individual fixed effects, which are the main specifications in Tables 2A/B. In addition, each index is demeaned so that the parameter estimates on the recession dummies are the same as the ones in those tables, up to sample differences.

As can be observed from column 1, the interaction term between the current and lagged recession indicators and the human capital index are both negative, with the interaction with the lagged indicator being statistically significant. This suggests that the net flows of higher-human-capital individuals, as proxied by their educational qualification, into the regulatory sector are less sensitive to business cycle fluctuations. The effects are moderately large. In particular, a one-standard-deviation increase in human capital would imply a reduction in sensitivity of net flows into the regulatory sector to current and lagged recessions by around 11% ($.0015 * 2.5 / .034$). Columns 2 and 3 suggest that this effect is driven by reduced sensitivity of gross outflows of high-human-capital regulators to recessions. In other words, movement of higher-human-capital regulators out of regulation is relatively less countercyclical – higher-human-capital workers are more likely to leave during recessions and less likely to leave during boom periods than their lower-human-capital counterparts.

The next three columns mirror the first three ones and use the interactions of recession indicators with *Seniority Index* as the main explanatory variable. Interpreting seniority as a proxy for skill, one concludes that the patterns are similar to those obtained in the first three columns. In particular, estimates in column 4 suggest that an increase in rank by one unit would imply a lower sensitivity of net flows into the regulatory sector to current and lagged recessions by around 5% ($.0018 / .044$). The next two columns reveal that this effect is also driven to a large extent by gross outflows, though there is also an effect due to gross inflows. As was the case for higher-human-capital workers, movement of higher-ranked regulators out of regulation is relatively less cyclical, as these workers are less likely to leave during recessions and more likely to leave during boom periods relative to lower-ranked colleagues.

In unreported analysis, we obtain similar results when using GDP growth as an alternative measure of business cycles or when restricting attention to periods outside the recent financial crisis.

Overall, while the evidence presented in the previous section concluded that net worker flows from private sector to regulatory sector were countercyclical -- with the effects driven by gross outflows during economic booms, especially before the financial turmoil -- we now show that this effect is present across individuals of varying human capital. Of course, higher or lower cyclicity does not

predict whether higher-skilled and more senior regulatory staff outflows are higher or lower on average, an issue that we analyze next.

Retention of Talent

To better understand the interaction of worker flows in the regulatory sector and talent, we construct two dependent variables for our main sample -- *Time to first regulatory spell*, which captures the time it takes for an individual to start her or his first spell in regulation from the first career activity reported on her or his CV, and *Regulatory spell duration*, which captures the number of years in a regulatory spell spent by an individual. In Table 4 we relate these variables to the human capital index and seniority index we discussed earlier. These regressions are estimated in the cross section, and we condition on cohort fixed effects and a quadratic year trend. We cluster the standard errors at the level of locality of the regulator.

Column 1 reveals that individuals with higher *Human Capital*, as captured by the highest educational qualification of an individual, predicts a later entry into regulation in that individual's career. The estimates in column 1 suggest that individuals with an increment in their *Human Capital Index* of 3 points -- the difference between an individual with a bachelor's degree and one who also holds an MBA or equivalent master's -- enter the regulatory sector almost 15 months later than those with a lower degree relative to a median of 7 years' time to entry into regulation. This pattern, while interesting, could be somewhat mechanical since individuals who spend time acquiring human capital would tend to enter the regulatory sector later in the career. This issue is alleviated to some extent since we construct the time to regulatory sector for an individual from the first year of career-related activity for that individual.

Next, we examine the relation between seniority of regulators and the time it takes them to enter the regulatory sector. In general, this relation can be positive or negative. On the one hand, if most senior-ranked regulators are hired externally or spend more time accumulating human capital outside the regulatory sector, this relation would be positive (i.e., a negative with the index, which is on an inverted scale). The reason is that such individuals would have spent more time in the private sector rising up the ranks before becoming regulators. Alternatively, if most senior-ranked regulators are promoted from within, one would expect a negative relation as these individuals would enter the

regulatory sector early and then move up the ranks. Column 2 shows that the first effect is more dominant in our data -- more senior-ranked individuals tend to enter the regulatory sector later. These patterns are robust to including both the human capital index and seniority index together (column 3).

The next three columns assess the relation between human capital and seniority of regulators and the time they spend on average in a regulatory spell. As discussed above, more senior and educated workers display less cyclical flows in and out of regulation, but these results do not have any prediction on the average likelihood that these workers may leave their positions. The results show that individuals with higher human capital tend to have shorter spells in regulation once they enter regulation. The estimates we find are economically meaningful. For instance, estimates in column 6 suggest that individuals with an increment in their *Human Capital Index* of 3 points will tend to remain about 22 fewer months than those with a lower value of the index, which is sizable relative to a median spell duration of 4 years in regulation. We also find an opposite effect of seniority: more senior regulators tend to have longer spells (negative sign). This may not be very surprising since we pick the highest level in the regulatory organization for each worker, and the rank will tend to be higher for more seasoned workers.

While the patterns in terms of seniority may be somewhat mechanical, the evidence in terms of human capital suggests that regulators face some retention challenges. The best talent, as proxied by higher human capital (and seniority in regulatory organization) takes longer to enter the regulatory sector and spends less time in the regulatory sector before switching to the private sector.

4. Regulator Mobility and Corruption

Thus far we have characterized worker mobility in the regulatory sector by studying its business cycle variation and its relation with each worker's human capital and seniority within the regulatory organization. We now turn to a corruption hypothesis as a driver of regulator mobility by studying whether quid pro quo may be driving job transitions from the regulatory sector into the private sector. We first study regulator mobility as a function of enforcement actions, followed by its relation with future lobbying efforts as measured by participation in Dodd-Frank rulemaking meetings between regulators and the private sector.

4.1 Evidence from Enforcement Actions

In this section we study regulator mobility as a function of regulatory actions in each state, as measured by total enforcement actions undertaken with respect to institutions located in that state. We first collect *all the enforcement* orders and actions by banking regulators during our sample period. We do this by collecting information for the Fed, the FDIC, the OCC, and the OTS, for each year and state. We restrict this information to that reported by federal banking regulators because information for state regulators is not standardized and is difficult to collect. That said, because state regulators supervise state chartered banks jointly with the FDIC and the Fed (Agarwal et al. 2013), and many of these enforcement actions are taken jointly by the two regulators, our sample includes information on state regulators' actions as well. Next, we match each worker in our sample year to the total formal enforcement orders issued by officers at her or his agency in the state of the worker's location. We focus on the intensity of enforcement orders by regulators on institutions in their geographical jurisdiction as an indicator of regulatory strictness. These orders provide an objective criterion to compare the intensity of regulatory enforcement. As noted in Agarwal et al. (2013), these formal enforcement orders are the most strict supervision tool that regulators employ to ensure the financial stability of institutions.

In Table 5 we use specifications similar to those employed in Table 2A and Table 2B to examine whether movement of an individual in and out of the regulatory sector is related to the intensity of formal enforcement orders by that individual's regulatory agency. In the first two columns, the dependent variable is $\Delta Regulator\ Status_{it}$, which measures whether an individual is employed in the regulatory sector this year relative to the prior year. In columns 3 and 4 we run analogous regressions, using the dummy for inflow and outflow as defined in Table 2B. All regression specifications include individual fixed effects, quadratic trends and NBER recession dummies, which we showed to be an important determinant of regulator mobility in Section 3. The main explanatory variable is current and lagged *Enforcement Actions*, which captures the total formal enforcement orders issued by officers at her or his agency in the state and year of location of that regulator.

Based on the often-cited revolving door hypothesis, future implicit employment in the private sector might, as a quid pro quo, dampen the strictness of actions of a regulator while the individual is employed in the regulatory sector. On net, we find a positive association between the intensity of strict actions and the net movement into the regulatory sector both in the full sample (column 1) and in the sample through 2006 that excludes the financial turmoil (column 3). Prima facie, this evidence is consistent with the revolving door channel, since the positive association implies that a lower degree of enforcement is associated with more movement from the regulatory sector into the private sector.

Next, we drill down into these patterns by examining the relation between intensity of enforcement and gross inflows (column 3) and outflows (column 4) from the regulatory sector into the private sector. Several striking patterns emerge from this analysis. First, the results established in the first two columns are driven largely by inflows of individuals into regulatory jobs around periods of high enforcement activity rather than outflows, which should be dominant in a revolving door story. This can be clearly seen if we compare the magnitude of estimates on enforcement variables in column 3 ($[0.019-0.001]/2=0.009$) with estimates on these variables in column 4 ($[0.003+0.001]/2=0.02$). The estimates in column 3 suggest about 15% higher inflows into the regulatory sector, relative to the within-individual standard deviation of inflows, around periods of one-standard-deviation higher enforcement activity in a given state. In other words, the relationship between high enforcement intensity and flows into the regulatory sector is driven by a surge of inflows around periods of high regulatory activity. We find similar patterns when we estimate specifications that mirror the first two columns, but where we proxy for economic condition by real GDP growth instead.

Second, focusing on the outflows from the regulatory sector in column 4 shows further lack of support for a revolving door channel. Indeed, more lax regulatory activity is not followed by contemporaneous or subsequent outflow to the private sector as such a channel would predict. Instead, there is more outflow from the regulatory sector around periods of higher enforcement activity.

Overall, the facts appear to be consistent with an intuitive pattern of more inflows into regulatory jobs in periods of high enforcement/more intense regulatory activity. This might not be too

surprising since regulatory demand for workers is higher in periods of financial stress. While these tests do not completely rule out that the presence of a revolving door distorts regulatory behavior, our findings do suggest that such distortions are not large enough to show up in the aggregated data such as we use. Instead, the patterns here are consistent with a more mundane and benign channel as a source of regulatory workers' mobility in periods of intense regulatory actions.

4.2 Evidence from Dodd-Frank Rule Making Meeting Attendees

We now examine another commonly argued aspect of revolving doors as a driver of regulatory worker mobility to the private sector: former regulatory workers may be hired by the private sector because connected former regulatory employees may help private firms shape rules and supervision. Assessing this claim requires examining whether regulators who transition to the private sector play an active role in influencing rules that affect the firms in the private sector. It goes without saying that there is no single data source that can help address this issue for the sample of all regulators. In this section we attempt a more narrow task within the confines of meetings between the private sector and regulators in the rulemaking stage of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, which is arguably among the most significant financial regulatory overhauls of the last fifty years.

Information on the meetings and individuals who attended them is from the Sunlight Foundation, a nongovernmental advocacy organization. This data was constructed by Sunlight exploiting the fact that the Dodd-Frank legislation explicitly requires all regulators to publicly disclose the identity and the nature of any meeting between agency employees and private sector parties when pertinent to rulemaking. There were a total of 1,378 meetings between July 2010 and May 2013 on Dodd-Frank rulemaking on topics such as consumer protection, enhanced banking supervision, and the Volcker rule. Our sample includes meetings with staff of the federal financial supervisors (Fed, FDIC, and OCC) and representatives of the financial industry (or other, such as consumer advocates). A total of 8,147 unique individuals attended one or more of the meetings in our sample. Of these about 10% were representative of the regulatory sector and 90% were private sector representatives.

We begin by cross-matching our complete list of former and current banking regulators in the regulators sample with the list of attendees from the Sunlight Foundation data using the unique name

of the individual and the name of the latest employer in our sample matched to those in the Sunlight Foundation data. We match 265 individuals from the regulators sample to the roughly 1,000 active supervisors who attended the meetings (about 26%). Moreover, we are able to match 70 individuals from the regulators sample to around 7,000 who are currently employed in the private industry (about 1%).

In Table 6, we examine the characteristics of individuals -- both current regulator representatives and private sector representatives who were former regulators, i.e., “revolvers” -- who attended the Dodd-Frank rulemaking meetings. In particular, we construct the variable *Current Regulator*, which is a dummy that takes a value 1 for any individual that is involved in the rulemaking meetings and is currently employed in the regulatory sector. In addition, we construct a *Dodd-Frank Revolver*, which is a dummy variable that takes a value 1 for any individual that is involved in the rulemaking meetings and employed in the private sector while having been in the regulatory sector in the past. The main explanatory variables are *Human Capital Index*, *Seniority Index* and *Time in Regulation*. The regression model is estimated on the cross section of individuals active in the 2010-2013 sample, and as in prior cross-sectional specifications it includes cohort fixed effects.

As can be observed from columns 1 and 2, the coefficient on the human capital index is positive and statistically significant. Thus, individuals who are currently employed in the regulatory sector and are involved in rulemaking tend to be more highly educated than the remaining sample of regulators. Column 2 shows that these individuals are likely to have spent more time in the regulatory sector and tend to be more senior (recall, a higher seniority index is captured by a smaller number).

The next two columns reveal that revolvers also tend to be higher-educated individuals, who have spent less time in the regulatory sector. As was the case for their regulatory counterparts, these individuals also were more senior when they were employed as regulators. As discussed in the previous section, higher education level is an indication that these revolvers tend to have higher human capital. Higher seniority (i.e., lower seniority index) may indicate that these individuals were also more skilled and competent relative to their peers, or simply more connected, which would be consistent to a revolving door hypothesis. While we cannot tell the two effects apart, based on the current regulators’ regression results (column 3), it appears that even the current regulators tended to

be more senior than their peers, possibly suggesting a more benign interpretation that only individuals of high enough competence participate in these meetings.

While this evidence is far from conclusive on the strength of lobbying efforts by former revolvers, it is interesting to note that based on the overall low rate of matching in the revolver sample, lobbying may not be a key driver of private sector hiring. In principle, the lower match rate of individuals from the regulator sample could be due either to a low number of revolvers -- individuals who spent time in regulation before moving to private sector -- or to some such individuals not posting their CVs on the major professional networking website. We can, in fact, assess how our inferences might have changed if this low match were due to the latter reason. In particular, under the reasonable assumption that active supervisors are no more likely to be on the website than individuals who are in the private sector, we would expect no more than $70/.26 = 270$ lobbyists to be revolvers. This is only about 4% of the total individuals from the private sector who attended these meetings (270/7000). Moreover, based on our sample, the stock of former supervisors is much larger than that based on the approximate 4% outflow per year. This evidence suggests that former supervisors are not being sent en masse to attend these rulemaking meetings, implying that the private sector, when hiring, may be looking for characteristics beyond the individual being an ex-regulator.

5. Conclusion

The revolving door between jobs in the public and private sectors has been blamed for distorting government regulators' actions on behalf of industry interests due to the prospect of a future job opportunity in the regulated industry. In the aftermath of the 2008 financial turmoil, the revolving door hypothesis has received much attention among economists (Johnson and Kwak 2010), legal scholars (John Coffee in Financial Times [April 23, 2012]) and policymakers (Dodd-Frank Act, Section 968). The general perception driving these discussions are often informed by anecdotes linked to former regulators transitioning to the private sector around apparent regulatory failures.

This paper presents a novel data set tracing the career profiles of a large sample of former and current banking regulators in and out of the private sector. We show that the revolving door, in practice, appears to work differently from how it would seem based on the anecdotes. A main factor impacting worker flows from the regulatory sector into the private sector appears to be business

cycle conditions, with large cyclicalities in such flows. The regulatory sector, in general, faces a retention challenge when it comes to individuals with higher human capital. While regulatory capture may very well exist and work on a smaller scale, it does not appear to be a driver of the dynamics of industry-government total job flows at the macro level.

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Table 1: Summary Statistics

This table presents summary statistics for the main variables of interest, split by whether these measures are used in a panel (1A) or cross-section analysis (1B). Sample period is 1988-2013.

Panel A: Variables used in Panel Regressions

	N	Mean	SD	Min	Max
<i>Δ Regulator Status</i>	561321	0.0099	0.24	-1	1
<i>Into Regulator Status</i>	561321	0.033	0.18	0	1
<i>Out of Regulator Status</i>	561321	0.023	0.15	0	1
<i>Recession Indicator</i>	561321	0.13	0.28	0	1
<i>Real GDP</i>	533590	2.45	1.8	-2.8	4.85
<i>Enforcement Actions</i>	537027	0.19	2.07	0	105
<i>Human Capital Index</i>	561321	3.39	2.57	0	21.5
<i>Seniority Index</i>	337418	4.71	0.87	1	6

Panel B: Variables used in Cross-sectional Regressions

	N	Mean	SD	Min	Max
<i>Time to first regulatory spell</i>	24543	9.57	9.06	0	56
<i>Regulatory spell duration</i>	30419	6.01	7.39	0	53
<i>Dodd-Frank Revolver</i>	30419	0.0023	0.048	0	1
<i>Current Regulator</i>	30419	0.0078	0.088	0	1
<i>Human Capital Index</i>	30419	3.27	2.55	0	21.5
<i>Seniority Index</i>	16768	4.75	0.85	1	6

Table 2: Economic Cycles and Regulatory-Private Sector Worker flows

This table reports estimates from regressions of net worker flows into regulatory sector and gross inflows and outflows on business cycle measures. In Panel A, the dependent variable is $\Delta Regulator Status_{it}$ which measures for each individual i transitions in and out of employment in the regulatory sector between year $t-1$ and t . The main explanatory variables are current and lagged values of a *Recession Indicator*, which measures the number of months each year that have been classified by the NBER as being part of a recession. In last column *Real GDP* growth is annual real GDP growth rate in percent. In Panel B, shows estimates analogous to Panel A using gross inflows and gross outflows from regulatory sector as the dependent variables. *Into Regulator Status_{it}* (*Out of Regulator Status_{it}*) is a dummy that takes a value 1 if the individual i enters (exits) a regulatory job in year t from (to) a private sector position in $t-1$ and is 0 otherwise. Controls include a quadratic-polynomial in the calendar year and cohort fixed effects. In the individual fixed effects analysis we drop the cohort effects, as these are spanned by the individual effects. Standard errors clustered at the locality level. Sample period is 1988-2013. *** significant at 1% level. ** significant at 5% level. * significant at 10% level.

Panel A: Net Worker Flows into Regulatory Sector

	(1)	(2)	(3)	(4)	(5)
	$\Delta Regulator Status$				
<i>Recession Indicator_t</i>	0.011*** [0.002]	0.011*** [0.002]	0.011*** [0.002]	0.019*** [0.003]	
<i>Recession Indicator_{t-1}</i>	0.025*** [0.003]	0.023*** [0.003]	0.023*** [0.004]	0.013*** [0.002]	
<i>Real GDP_t</i>					-0.003*** [0.001]
<i>Real GDP_{t-1}</i>					-0.001** [0.001]
Observations	561,321	561,321	561,321	363,749	533,590
R-squared	0.001	0.004	0.027	0.039	0.030
Individual FE	No	No	Yes	Yes	Yes
Other Controls	Quad.Trend	Quad.Trend and Cohort FEs	Quad.Trend	Quad.Trend	Quad.Trend
Sample	1988-2013	1988-2013	1988-2013	1988-2006	1988-2012
N Individuals	30374	30374	30374	27510	30294
Within Mean			0.0151	0.00851	0.0174
Within SD			0.162	0.179	0.168

Table 2: Economic Cycles and Regulatory-Private Sector Worker flows (contd.)

Panel B: Gross Worker Flows into and out of Regulatory Sector

	(1)	(2)	(3)	(4)	(5)	(6)
	Into Reg. Status	Out of Reg. Status	Into Reg. Status	Out of Reg. Status	Into Reg. Status	Out of Reg. Status
<i>Recession Indicator_t</i>	0.006*** [0.001]	-0.005*** [0.001]	0.009*** [0.002]	-0.010*** [0.001]		
<i>Recession Indicator_{t-1}</i>	0.015*** [0.003]	-0.008*** [0.001]	-0.003 [0.002]	-0.015*** [0.001]		
<i>Real GDP_t</i>					-0.001* [0.000]	0.002*** [0.000]
<i>Real GDP_{t-1}</i>					-0.001 [0.001]	0.001*** [0.000]
Observations	561,321	561,321	363,749	363,749	533,590	533,590
R-squared	0.040	0.040	0.064	0.054	0.046	0.043
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Quad.Trend	Quad.Trend	Quad.Trend	Quad.Trend	Quad.Trend	Quad.Trend
Sample	1988-2013	1988-2013	1988-2006	1988-2006	1988-2012	1988-2012
N Individuals	30374	30374	27510	27510	30294	30294
Within Mean	0.0410	0.0259	0.0301	0.0216	0.0441	0.0266
Within SD	0.135	0.125	0.142	0.125	0.142	0.127

Table 3: Economic Cycles and Regulatory-Private Sector Worker flows as a function of Human Capital and Seniority

This table reports estimates from regressions of net worker flows into regulatory sector and gross inflows and outflows on business cycle conditions. The explanatory variables include interactions of a *Human Capital Index* (higher value implying more educational qualification) and a *Seniority Index* (lower value implying higher rank in the regulatory organization) with current and lagged values of a *Recession Indicator*, which measures the number of months each year that have been classified by the NBER as being part of a recession. Additional controls are quadratic-polynomial in the calendar year and individual fixed effects. Standard errors clustered at the locality level. Sample period is 1988-2013. *** significant at 1% level. ** significant at 5% level. * significant at 10% level.

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ Regulator Status	Into Reg. Status	Out of Reg. Status	Δ Regulator Status	Into Reg. Status	Out of Reg. Status
<i>Recession Indicator_t</i>	0.0112*** [0.0020]	0.0061*** [0.0015]	-0.0051*** [0.0009]	0.0181*** [0.0024]	0.0124*** [0.0016]	-0.0057*** [0.0013]
<i>Recession Indicator_{t-1}</i>	0.0230*** [0.0035]	0.0149*** [0.0034]	-0.0081*** [0.0010]	0.0264*** [0.0034]	0.0167*** [0.0032]	-0.0098*** [0.0011]
<i>Human Capital Index* Recession Indicator_t</i>	-0.0004 [0.0005]	-0.0003 [0.0004]	0.0002 [0.0003]			
<i>Human Capital Index*Recession Indicator_{t-1}</i>	-0.0011*** [0.0004]	-0.0005 [0.0004]	0.0006** [0.0003]			
<i>Seniority Index* Recession Indicator_t</i>				-0.0044* [0.0023]	-0.0035* [0.0018]	0.0009 [0.0014]
<i>Seniority Index * Recession Indicator_{t-1}</i>				0.0062*** [0.0017]	0.0020 [0.0014]	-0.0043*** [0.0009]
Observations	561,321	561,321	561,321	337,418	337,418	337,418
R-squared	0.027	0.040	0.040	0.026	0.035	0.031
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Quad.Trend	Quad.Trend	Quad.Trend	Quad.Trend	Quad.Trend	Quad.Trend
Sample	1988-2013	1988-2013	1988-2013	1988-2013	1988-2013	1988-2013
N Individuals	30374	30374	30374	16743	16743	16743
Within Mean	0.0151	0.0410	0.0259	0.00950	0.0374	0.0279
Within SD	0.162	0.135	0.125	0.138	0.124	0.119

Table 4: Time to first Regulatory spell and Regulatory spell duration as a function of Human Capital and Seniority

This table reports estimates from regressions that relate the time it takes an individual to enter the regulatory sector and the years spent on average in regulation to human capital and seniority indices we constructed earlier. The main dependent variables in the first three columns is *Time to first regulatory spell*, which captures the time it takes for an individual to start their first spell in regulation from their first career activity reported on their CV. In the last three columns the dependent variable is *Regulatory spell duration*, which captures the number of years in a regulatory spell spent by an individual. The main explanatory variables are *Human Capital Index* (higher value implying more educational qualification) and *Seniority Index* (lower value implying higher rank in the regulatory organization) Controls include a quadratic-polynomial in the calendar year and cohort fixed effects. Standard errors clustered at the locality level. Sample period is 1988-2013. *** significant at 1% level. ** significant at 5% level. * significant at 10% level.

	(1)	(2)	(3)	(4)	(5)	(6)
	Time to first regulatory spell			Regulatory spell duration		
<i>Human Capital Index</i>	0.424*** [0.029]		0.541*** [0.026]	-0.551*** [0.019]		-0.772*** [0.023]
<i>Seniority Index</i>		-0.231** [0.102]	-0.079 [0.093]		-1.903*** [0.107]	-2.113*** [0.097]
Observations	24,543	15,823	15,823	30,419	16,768	16,768
R-squared	0.237	0.199	0.223	0.182	0.169	0.220
Year and Cohort FEs	Yes	Yes	Yes	Yes	Yes	Yes
Sample	1988-2013	1988-2013	1988-2013	1988-2013	1988-2013	1988-2013

Table 5: Formal Enforcement actions and Regulatory-Private Sector Worker flows

This table reports estimates from regressions that examine whether movements of an individual in and out of the regulatory sector are related to the intensity of formal enforcement orders by that individual's regulatory agency. In the first two columns, the dependent variable is $\Delta Regulator Status_{it}$, which measures whether an individual is employed in the regulatory sector this year relative to the prior year. In columns 3 and 4 we run analogous regressions, using *Into Regulatory Status_{it}* and *Out of Regulatory_{it}* as the dependent variable. The main explanatory variable are current and lagged *Enforcement Actions*, which captures the total formal enforcement orders issued by a regulators' agency in the state and year of location of that regulator. All regression specifications include individual fixed effects, quadratic trends and NBER recession dummies. Standard errors clustered at the locality level. Sample period is 1988-2013. *** significant at 1% level. ** significant at 5% level. * significant at 10% level.

	(1)	(2)	(3)	(4)
	Δ Regulator Status		Into Reg. Status	Out of Reg. Status
<i>Enforcement Actions_t</i>	0.016*** [0.002]	0.020*** [0.004]	0.019*** [0.003]	0.003*** [0.001]
<i>Enforcement Actions_{t-1}</i>	-0.003*** [0.001]	-0.006*** [0.001]	-0.001*** [0.000]	0.002*** [0.000]
<i>Recession Indicator_t</i>	0.007*** [0.002]	0.016*** [0.003]	0.003** [0.001]	-0.004*** [0.001]
<i>Recession Indicator_{t-1}</i>	0.016*** [0.003]	0.013*** [0.002]	0.005* [0.003]	-0.011*** [0.001]
Observations	523,595	326,023	523,595	523,595
R-squared	0.050	0.050	0.091	0.046
Individual FE	Yes	Yes	Yes	Yes
Other Controls	Quad.Trend	Quad.Trend	Quad.Trend	Quad.Trend
Sample	1988-2013	1988-2006	1988-2013	1988-2013
N Individuals	30324	27460	30324	30324
Within Mean	0.0139	0.00638	0.0401	0.0262
Within SD	0.165	0.181	0.139	0.127

Table 6: Characteristics of Current Regulators and Revolvers attending Dodd-Frank Rule-Making Meetings

This table reports estimates from regressions that relate the characteristics of individuals, both regulator and private sector participants who were former regulators (i.e., “revolvers”) at Dodd-Frank rule-making meetings. The dependent variable in the first two columns is *Current Regulator*, a dummy that takes a value 1 for any regulator employee that participated in the rule making meetings. In last two columns we use as dependent variable, *Dodd-Frank Revolver*, a dummy variable that takes a value 1 for any private sector participant in the meetings who was previously employed in the regulatory sector. The main explanatory variables are *Human Capital Index*, *Seniority Index* and *Regulation Spell Duration*. Controls include cohort fixed effects. Standard errors clustered at the locality level. Sample period is 2010-2013. *** significant at 1% level. ** significant at 5% level. * significant at 10% level.

	(1)	(2)	(3)	(4)
	Current Regulator		Dodd-Frank Revolver	
<i>Human Capital Index</i>	0.0013*** [0.0005]	0.0026*** [0.0008]	0.0005*** [0.0002]	0.0006*** [0.0002]
<i>Seniority Index</i>		-0.0105*** [0.0026]		-0.0028** [0.0013]
<i>Regulatory spell duration</i>		0.0006*** [0.0002]		-0.0001*** [0.0000]
Observations	29,131	16,185	29,131	16,185
R-squared	0.002	0.016	0.002	0.005
Cohort FE	Yes	Yes	Yes	Yes
Sample	2010-2013	2010-2013	2010-2013	2010-2013

Figure 1: Scope of the paper

This figure depicts the regulatory structure for US Commercial Banks and thrifts in our sample period. The regulatory institutions are the Federal Reserve Banks (Fed), the Federal Depository Insurance Corporation (FDIC), the Office of Comptroller and Currency (OCC), the Office of Thrift Supervision (OTS) and the state banking regulators.

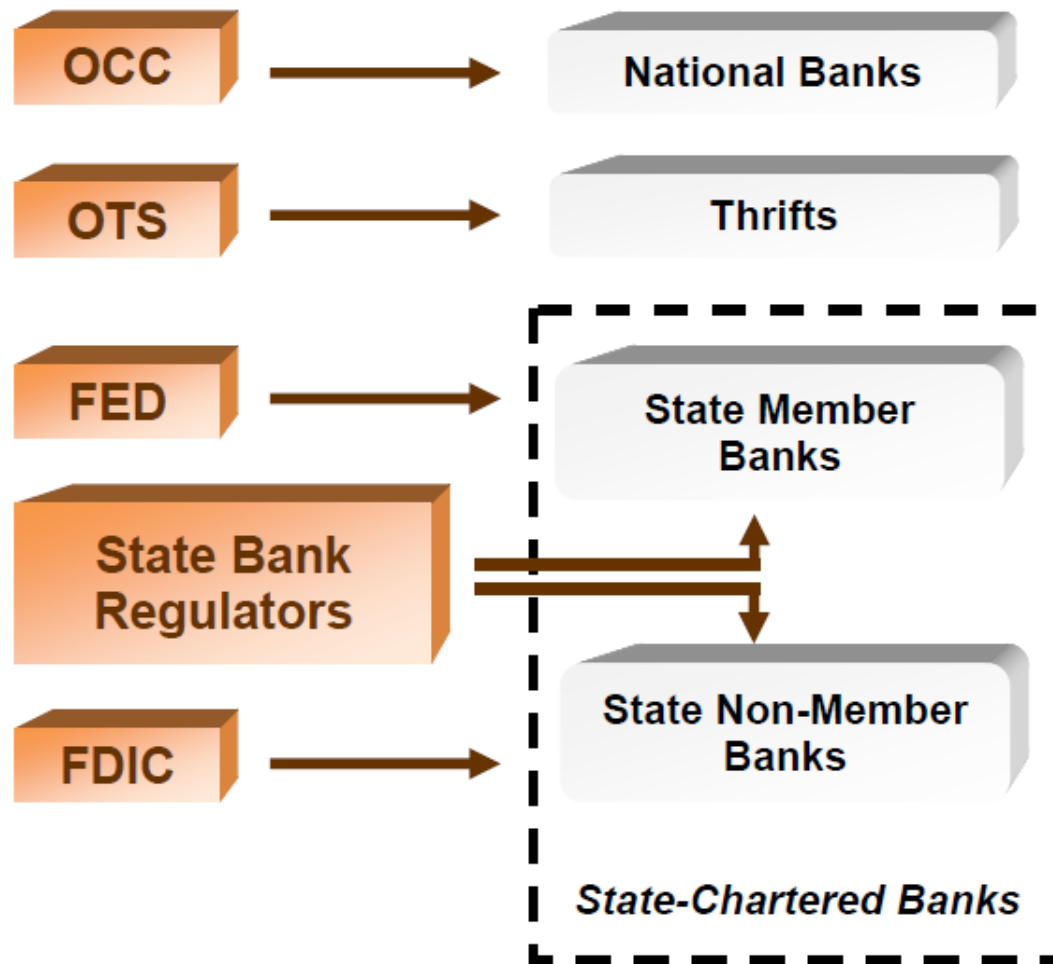


Figure 2: Total number of individuals in our sample and the number split by regulator

In the left panel, the black line shows the active individuals in a given year in the “regulator” sample, i.e., sample of individuals who have worked at any point in time during their careers in the regulatory agencies. The thin grey line in the left panel shows the active individuals in a given year in the “never-regulator” sample, i.e., sample of individuals who are never employed in the regulatory sector. In the right panel, we plot the number of career active individuals that have worked for a given regulator at a point in time in their career.

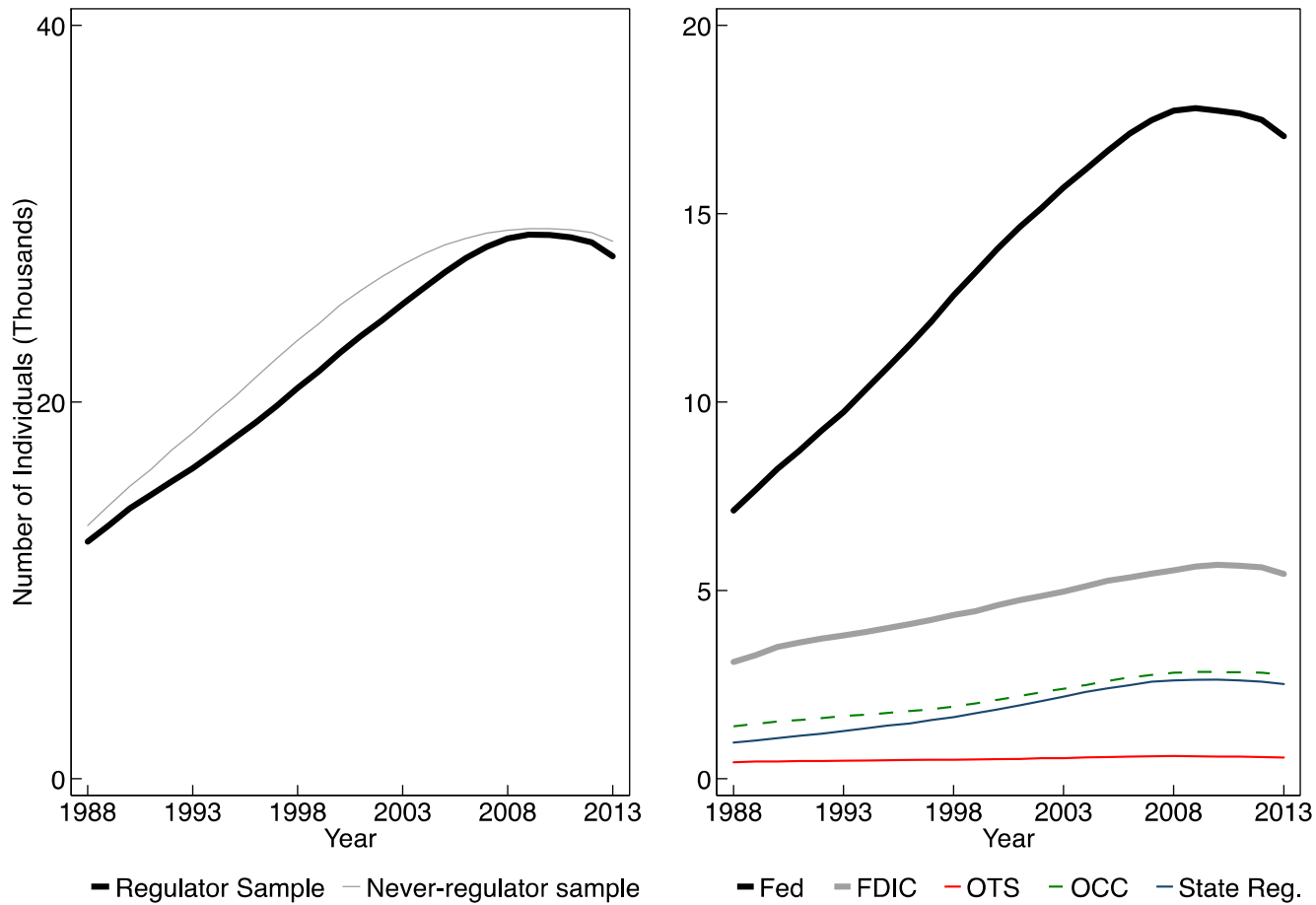


Figure 3: Net Worker Flows into Regulatory Sector

This figure plots net worker flows (measured on the left-scale) against macroeconomic conditions as measured by real GDP annual growth rates (red-dashed lines) and NBER recessions (shaded vertical areas). Net private-to-regulator worker flows (thick black line) are defined as the share in each year of all workers in our sample that transition from the private sector to the regulatory sector, less the share of transitions out of the regulatory and into the private sector. We also show total net-regulator flows (thin black line), which include transitions in and out of the regulatory sector to the private sector, as well as to student status and to unemployment.

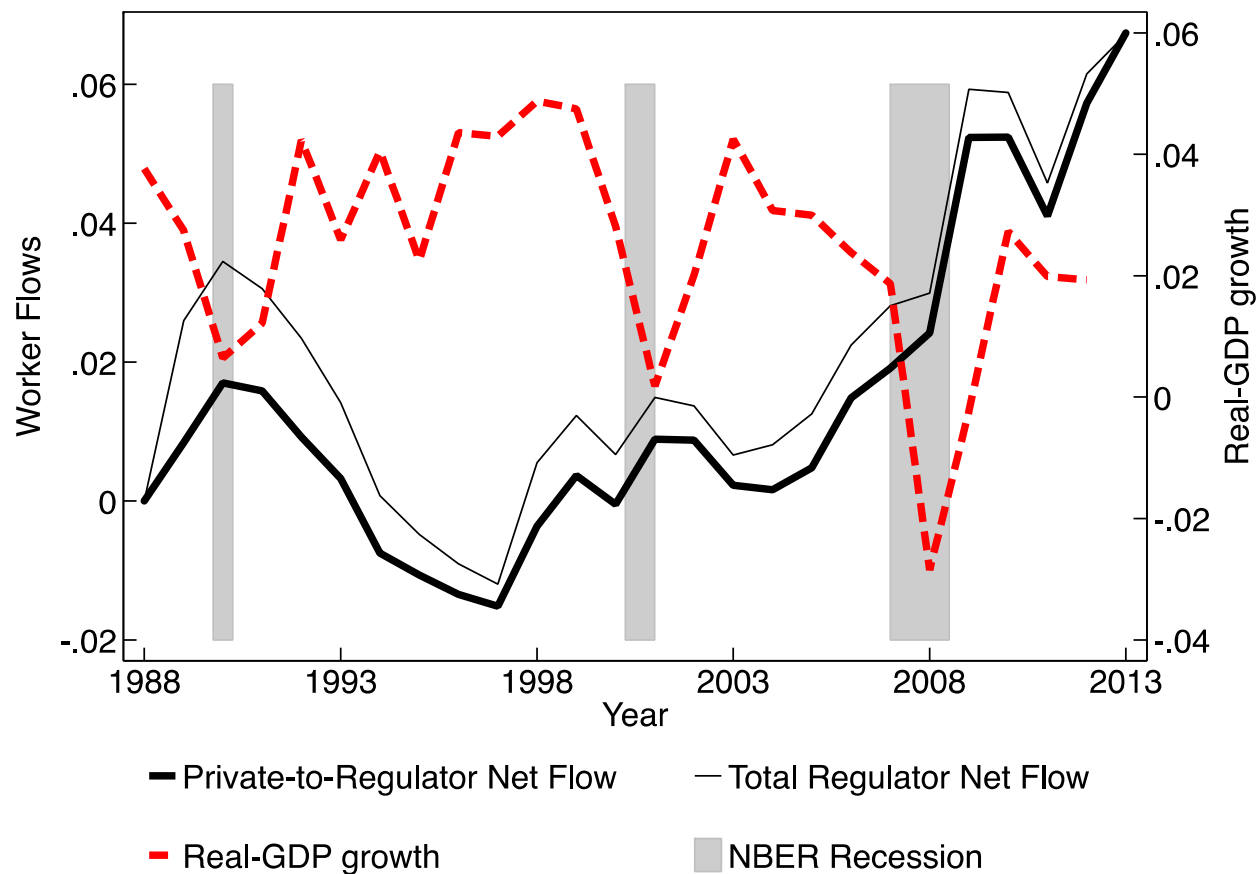


Figure 4: Gross Worker Flows into and out of Regulatory Sector

This figure shows gross worker flows against macroeconomic conditions as measured by NBER recessions (shaded vertical areas). Gross private-to-regulator worker flows are defined as the share in each year of all workers in our sample that transition from the private sector to the regulatory sector. Gross regulator-to-private worker flows are defined as the share in each year of all workers in our sample that transition from the regulatory sector into the private sector.

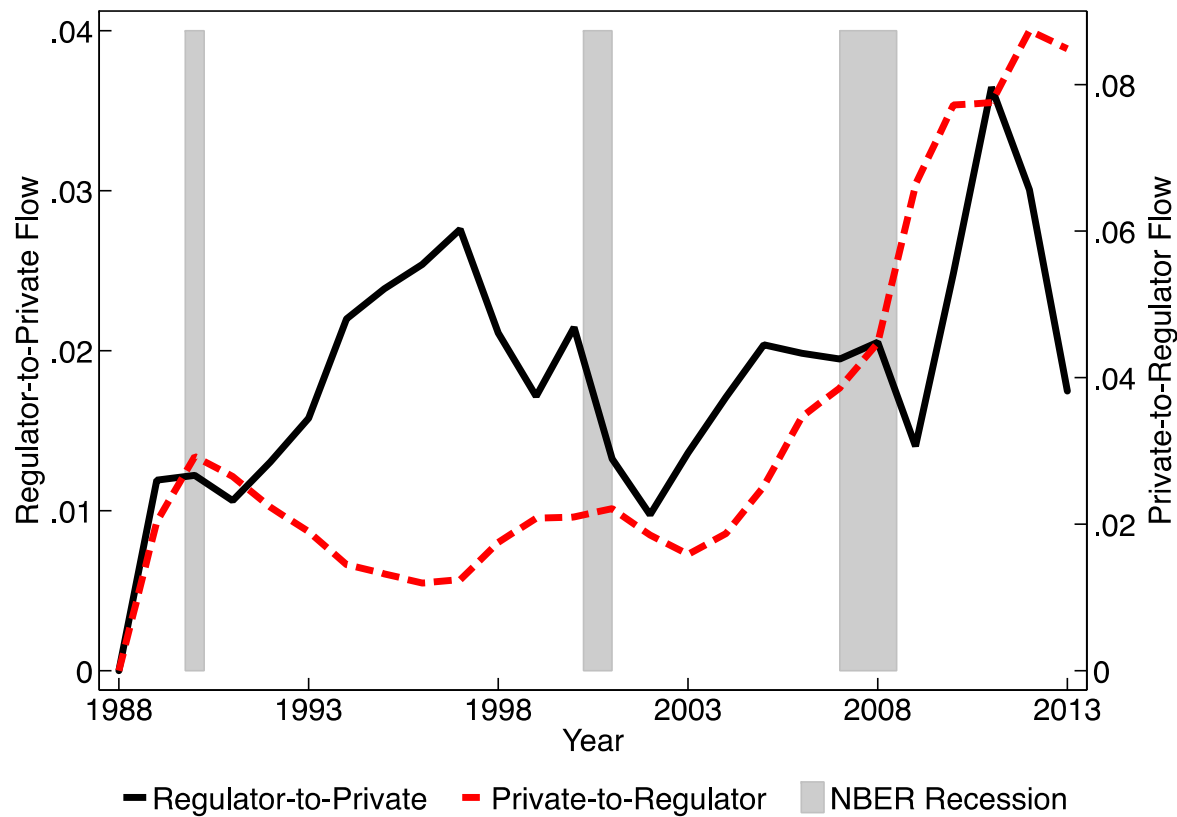


Figure 5: Private-sector Worker job-to-job flows

This figure plots the private sector worker job-to-job flows defined as the share of active individuals who change jobs within the private sector between years t and $t-1$ in the never-regulator sample.

