

Unintended Benefits of Employment Protection Laws: Households' Increased Risk-taking Behaviors

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Abstract

Using the staggered exogenous adoption of US state-level labor protection laws and longitudinal survey data, I provide novel findings on the effect of employment protection laws on households' portfolio choices. I find that households increase the share of risky assets in financial wealth by 8.9% following the adoption of these laws. Stock market participation accounting for indirect investment also increases one year after the adoption. These effects are stronger for households with a higher unemployment risk, associated with young and low-income households. The exact opposite risk-taking behaviors are observed when the law is reversed. I also find that already discharged households at the time of the adoption reduce their stock holding and participation after the adoption. The adoption of the law contributes to wealth accumulation: purchases of stocks following the laws lead to 7% increase in the total equity value five years after trades. Finally, households are more likely to invest in out-of-state stocks than in-state stocks after the adoption, reducing investors' local-bias. Overall, the findings imply the economic and statistical significance of employment protection laws in effectively inducing households to take more financial risk, thereby improving wealth accumulation. This is an indirect social benefit of the employment protection law.

JEL Classification: D14, G11, G18, G51

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1 Introduction

A series of wrongful discharge laws (WDLs, hereafter) has been adopted by the state judiciaries, which restricts the ability of employers to adjust their workforces at their own discretion. While these laws benefit employed households, providing greater employment protection, it appears that the social costs incurred by these laws are non-trivial. For example, after the adoption of WDLs, employment levels, employment flows, and firm entry decreases.¹ Also, labor expenses increase and overall profitability decreases (e.g., [Bird and Knopf, 2009](#)). Recently, [Bai, Fairhurst, and Serfling \(2019\)](#) find that the adoption of these laws results in lower investment rates and lower sales growth rates. Consistent with these findings, [Serfling \(2016\)](#) shows that firms experience negative abnormal stock returns when a state adopts the law. While much focus has been put on the negatives effects of these laws, especially for the firm side, little is known about the households' side and potential benefits to them. In this article, I study the effect of the employment protection laws on households' portfolio choices.

The standard portfolio theory predicts that, in the presence of a positive correlation between stock returns and labor income growth, investors optimally choose to hedge against their labor income risk by reducing their exposure to financial risk. However, an exogenous reduction in labor income risk led by the adoption of WDLs could make the labor income risk less concern for portfolio choices. This channel could induce households to tilt their portfolios towards risky assets and also optimally participate in the stock market.

Consistent with this prediction, the current study documents a novel empirical finding that households increase their exposure to financial risk after the adoption of WDLs. In particular, the effect of the adoption is stronger for those households with a higher unemployment risk. The exact opposite risk-taking behaviors are observed when a WDL is reversed. The findings are robust to (1) a variety of financial risk-taking measures: risky share of financial wealth or total wealth, and dollar value of the risky asset, and stock market participation with or without indirect holding through retirement accounts, (2) controlling for a rich set of household level- and state-level characteristics, and (3) considering un-

¹E.g., [Dertouzos and Karoly \(1992\)](#), [Autor, Donohue III, and Schwab \(2006\)](#), and [Autor, Kerr, and Kugler \(2007\)](#) among others.

employment insurance generosity and impact on neighboring states. I further find that increased risk-taking behaviors have a positive impact on wealth accumulation. Overall, these results provide strong evidence that employment protection law plays a crucial role in shaping households' risk-taking behaviors and, in turn, wealth accumulation.

Financial income from market participation is an important source of income over their lives (e.g., [Mankiw and Zeldes, 1991](#); [Haliassos and Bertaut, 1995](#)). Also, stock market participation leads to a substantial welfare gain ([Cocco, Gomes, and Maenhout, 2005](#)). Hence, the findings in this paper imply that the adoption of wrongful discharge laws can potentially improve household welfare through increased risk-taking and stock market participation, especially for those who are exposed to high unemployment risk. Moreover, at the societal level, market participation can mitigate the wealth inequality ([Bach, Calvet, and Sodini, 2019](#)). These positive externalities may have quantitatively large welfare benefits and should be taken into account by policymakers.

I use micro-level longitudinal Survey of Income and Program Participation (SIPP, hereafter) from 1984 panel to 1996 panel. The SIPP contains detailed household demographics as well as asset information. By utilizing the information on households' state of residence in the SIPP, this study adopts a difference-in-differences research design in which the treatment and control groups consist of households residing in states that do and do not adopt the WDL. WDLs evolve into three common laws: the good faith, implied contract, and public policy exception. The good faith law applies in cases when a court determines that an employer discharged a worker out of bad faith, malice, or retaliation. It is well-known that this law represents the largest deviation from at-will employment doctrine out of three exceptions (e.g., [Dertouzos and Karoly, 1992](#); [Kugler and Saint-Paul, 2004](#)). Thus, following the literature (e.g., [Serfling, 2016](#); [Bai, Fairhurst, and Serfling, 2019](#)), this study focuses on the adoption of the good faith exception and uses other WDLs as control variables.

I begin the analysis by investigating the real effect of the WDLs on households' layoff for the SIPP sample households. I find that the adoption of the good faith exception is associated with the significant decline in the layoff 2 - 3 years after the adoption. However, I do not find a statistically significant effect of the implied contract and public policy exception on layoff. This finding is consistent with the existing literature showing the economic

importance of the good faith exception (e.g., [Acharya, Baghai, and Subramanian, 2014](#); [Serfling, 2016](#); [Bai, Fairhurst, and Serfling, 2019](#)) and confirms that it is the good faith exception that effectively reduces households' labor income risk.

Next, I investigate the effect of the good faith exception on the share of risky assets in financial wealth and the stock market participation. I find a significant 8.9% increase in the share of risky assets in one year for households in states after the adoption of the good faith relative to households in control group states. As for the stock market participation accounting for indirect holding, the adoption comes into effect significantly one year after the adoption. This delayed reaction of participation can be explained by stock market entry costs. These results are robust to controlling for a rich set of household characteristics (e.g., total wealth, labor income, education, etc.), and state-level controls (e.g., state income growth, and unemployment). I further find that out of safe assets (checking, saving, and bond), it is the savings account that households move towards the stock market.

To interpret these results as the causal relationship, this effect should be larger for households with a higher unemployment risk. This is because those households with a high unemployment risk are the ones who are concerned about their unemployment risk the most, which deter their market participation. To test this prediction, I estimate the probability of being laid off to capture the unemployment risk for each household. This measure is constructed by running a linear probability regression of layoff on household- and state-level characteristics with controls for state-year-month fixed effects and also industry-occupation fixed effects. Industry-occupation fixed effects capture time-invariant layoff intensity for every pair of classified occupations and industries across the nation. I use the fitted value of this regression as the unemployment risk and estimate triple-difference regressions. I find that the increase in both the share of risky assets in financial wealth and market participation is stronger for households with a higher unemployment risk. These results hold for different measures of the unemployment risk estimated from different specifications and also hold after controlling for state-year-month fixed effects. Previous studies find that employment level decreases after the adoption of the WDLs (e.g., [Dertouzos and Karoly, 1992](#); [Autor, Donohue III, and Schwab, 2004, 2006](#)), which implies that it becomes increasingly more difficult for already discharged workers to get a new job, resulting in a higher labor

income risk. Consistent with this, I find that already discharged households reduce their exposure to the stock market.

Oklahoma had adopted the good faith exception in May 1985 and reversed it in February 1989. I further test whether the opposite risk-taking behaviors are observed after the reversal of the good faith. Consistent with the adoption, following the reversal, households in Oklahoma reduce the share of risky assets by 13.5% and stock market participation rate by 16.9%. These negative effects of the reversal are significantly stronger for households who have a higher unemployment risk. These findings further strengthen a causal interpretation between the adoption of the employment protection laws and households' increased risk-taking behavior.

I further analyze how households' increased risk-taking behavior impacts households' wealth accumulation. Since the SIPP does not provide long-term wealth information, I exploit the brokerage data used in [Barber and Odean \(2000\)](#), where one can observe the identification of securities held by households from 1991 to 1996. I keep track of changes in stock prices households purchased following the adoption of the good faith exception for the five years after purchases. I find that on average, purchases in stocks after the adoption positively contribute to wealth accumulation: 7.02% increase in the total equity value five years after purchases, conditional on participation. This finding implies that households' increased risk-taking behavior induced by the adoption of the employment protection laws is critical to wealth accumulation and indeed benefit households.

Next, I investigate which types of stocks households invest in after the adoption of the employment protection laws. It is natural to hypothesize that households increase out-of-state stocks. This is because prior studies have documented a wide range of negative effects of this law on affected firms (in-state stocks). Hence, households would not purchase in-state stocks experiencing a negative shock. To test this hypothesis, I use the same brokerage data used to study wealth accumulation. First, I find that the percentage growth of holding value increases after the adoption,² consistent with the finding from the SIPP data. More importantly, I find that, indeed, households are more likely to invest in out-of-state stocks

²This measure fixes the trading price and therefore captures a change only driven by trading activities, not by price changes.

than in-state stocks. An interesting implication of this finding is that the adoption of the employment protection laws plays a role in reducing investors' local-bias (e.g., [Grinblatt and Keloharju, 2001](#); [Massa and Simonov, 2006](#); [Seasholes and Zhu, 2010](#); [Gargano and Rossi, 2018](#)) and the own-company stock puzzle (e.g., [Benartzi, 2001](#); [Mitchell and Utkus, 2002](#); [Meulbroek, 2005](#)).³

Finally, I examine changes in households' consumption choices after the adoption of labor protection laws using the Consumer Expenditure Survey data. I find that both the level and growth of households' consumption decreases after the adoption of the law. This finding can be rationalized by households with low consumption-smoothing demand because a better investment opportunity leads to a decrease in consumption.

There are at least eight potential concerns that could threaten the validity of the empirical strategy of the current study. (1) If the adoption of the WDLs was anticipated, the effect of the adoption on household portfolio choices could be due to some other reasons instead of an exogenous adoption of these laws. [Serfling \(2016\)](#), however, shows significantly negative abnormal returns of affected firms' stocks over the adoption of the good exception faith, suggesting that the adoption of this law was at least partially unanticipated. (2) The WDLs could be adopted due to a high layoff rate rather than an exogenous reason. The empirical result shows that there is no significant difference in layoff rates between the control and treated states before the adoption in the SIPP sample. (3) There could be potential lobbying activities, which could influence courts' decisions to recognize these laws. However, this concern is not likely a large problem because the recognition of WDLs is based on judicial rather than legislative decisions and is, therefore, more likely driven by the merits of the case than political economy considerations (e.g., [Serfling, 2016](#); [Bai, Fairhurst, and Serfling, 2019](#)). (4) The effect of the adoption on households' portfolio choices could spuriously capture a trend of outcome variables for treated groups. To address this concern, I show that before the adoption of the WDLs, the average change in the share of risky assets and market participation for treated households are statistically not different from untreated households. (5) It is possible that some households who already hold the

³The own-company stock puzzle is a phenomenon that individual investors voluntarily hold significant amount of their employers' stock.

stocks move in a state where the good faith is adopted to take advantage of improved employment protection. To avoid this effect, I compare the exact same households before and after the adoption of the good faith. (6) It is well documented that many US households hold stocks indirectly through a retirement account. Thus, I use a market participation measure accounting for indirect holding through retirement accounts for the main analysis. In the robustness test, I also use participation excluding retirement accounts, as in the literature (e.g., [Hong, Kubik, and Stein, 2004](#); [Kozak and Sosyura, 2019](#); [Agarwal et al., 2019](#)), and show that results are much stronger in this case. I also repeat the analysis using the share of the risky assets in total wealth including illiquid assets and the dollar amount of risky assets. I find that the main findings in this paper are robust to different measures of stock holding. (7) To the extent that unemployment insurance reduces the labor income risk, unemployment insurance also could play a role in households' portfolio choices. I find that a change in unemployment insurance generosity does not have a significant effect on households' portfolio choices, and the effect of the WDLs remains significant after controlling for unemployment insurance. (8) Finally, an important identifying assumption is that the state of residence is the same as the state of the workplace. I also control for states sharing the border with a state which adopted the laws. The magnitude of the effect on those neighboring states is smaller than states which adopted the laws, and the effect is not statistically significant.

Contribution and related literature: This study contributes to the existing literature in the following ways. First, to the best of my knowledge, this is the first study that examines how households adjust their portfolio holdings in response to the adoption of employment protection laws. While existing research in corporate finance literature studies the effect of these laws on firms' choice,⁴ little research is done to study the effect of these laws on the households' choice. Specifically, there is no evidence on how households' portfolio choices are affected by the adoption of these laws.

Second, the current study adds to the literature that empirically studies the implication of labor income risk for portfolio choices. [Guiso, Jappelli, and Terlizzese \(1996\)](#) and [An-](#)

⁴E.g., [Dertouzos and Karoly \(1992\)](#), [Autor, Donohue III, and Schwab \(2006\)](#), [Autor, Kerr, and Kugler \(2007\)](#), [Simintzi, Vig, and Volpin \(2015\)](#), [Serfling \(2016\)](#), and [Bai, Fairhurst, and Serfling \(2019\)](#).

gerer and Lam (2009) find that a higher labor income risk is associated with lower risky asset holding in the Italian 1989 Survey of Household Income and Wealth data and the US 1979 National Longitudinal Survey of Youth data, respectively. Also, Betermier et al. (2012) show that when households switch their jobs from low wage volatility industry to high volatility, they decrease risky portfolio share in Swedish data. A more recent study by Ranish (2013), however, finds that in the US Survey of Consumer Finances, households whose characteristics are associated with greater labor income risk tend to allocate a greater share of financial assets to stocks. Arrondel and Pardo (2014) also find a positive correlation between subjective income risk and the risky portfolio of French households. Therefore, in the data, the impact of labor income risk on financial risk-taking behavior in the empirical literature is not clear. The important issue in this literature is an endogeneity that stems from risk-tolerant individuals' self-selection into risky occupation and financial risk-taking simultaneously. This can drive a positive correlation between labor income risk and risky asset holding, making it challenging to identify a true relationship. The current paper addresses this identification challenge by using the staggered adoption of WDLs as an exogenous shock and isolating the impact of the labor income risk on risk-taking behavior in a quasi-natural experiment setting. Also, the panel setting in this paper allows for taking into account the unobserved households heterogeneity, mitigating the endogeneity issue. My findings complement papers in the literature by providing support for the optimal portfolio theories with labor income risk. Another related paper in this literature is Fagereng, Guiso, and Pistaferri (2018). Using Norwegian data, they find a sizable negative relationship between wage risk and financial risk-taking, consistent with the theoretical prediction. However, they find very small effects of unemployment risk measured by employment turnover and firm closure due to bankruptcy, potentially due to generous social insurance programs in Norway. The setting in my paper is different in that the unemployment risk changes due to the adoption of employment protection law, and also the US has less generous social insurance than Norway, rendering the unemployment risk more important for portfolio choices.

Lastly, this paper belongs to a large group of literature which empirically examines the determinants of stock market participation. One class of this literature proposes investors'

characteristics, which can affect investors' risk attitudes, information, and perception, as a determinant of stock market participation.⁵ The other class of the literature proposes exogenous changes in investment environment such as corporate scandals, housing price, political uncertainty, and banking deregulation as a determinant of stock market participation.⁶ My work adds to the latter by documenting that a legal change in the form of employment protection can affect stock market participation especially for households with a high unemployment risk.

The remainder of the paper is organized as follows: Section 2 discusses the theoretical motivation and institution background, Section 3 describes the research design and the data, Section 4 presents results, and Section 5 concludes.

2 Theoretical Motivation and Institutional Background

2.1 Theoretical motivation

There is a large body of theoretical literature that has studied optimal portfolio implications of human capital risk.⁷ In a simple continuous time setting with general preferences and stochastic labor income, one can derive the following optimal fraction of financial wealth invested in risky asset.⁸

$$\alpha_t = \underbrace{\frac{\mu_s - r_f}{\sigma_s^2} \left(-\frac{V_X}{X_t V_{XX}} \right)}_{\text{Speculative demand}} - \underbrace{\frac{\rho \sigma_y}{\sigma_s} \frac{V_{XY} Y_t}{V_{XX} X_t}}_{\text{Hedging demand}} \quad (1)$$

where $\mu_s - r_f$ is the equity premium. σ_s is the volatility of equity returns. ρ is the correlation between dividend growth and labor income growth. σ_y is the volatility of labor income growth. V is the indirect utility. X_t is the total financial wealth. V_X , V_{XX} , and

⁵E.g., Social interaction: [Hong, Kubik, and Stein \(2004\)](#), Awareness: [Guiso and Jappelli \(2005\)](#), Trust: [Guiso, Sapienza, and Zingales \(2008\)](#) and [Georgarakos and Inderst \(2014\)](#), IQ: [Grinblatt, Keloharju, and Linnainmaa \(2011\)](#), Financial literacy: [van Rooij, Lusardi, and Alessie \(2011\)](#), Ambiguity aversion: [Dimmock et al. \(2016\)](#), Social risk: [Bazley et al. \(2019\)](#), genetic factor: [Sias, Starks, and Turtle \(2019\)](#), among others.

⁶E.g., [Giannetti and Wang \(2016\)](#), [Chetty, Sándor, and Szeidl \(2017\)](#), [Agarwal et al. \(2019\)](#), and [Kozak and Sosyura \(2019\)](#), among others.

⁷See [Merton \(1971\)](#), [Pratt and Zeckhauser \(1987\)](#), [Bodie, Merton, and Samuelson \(1992\)](#), [Kimball \(1993\)](#), [Constantinides and Duffie \(1996\)](#), [Bertaut and Haliassos \(1997\)](#), [Heaton and Lucas \(1997\)](#), [Koo \(1998\)](#), [Viceira \(1998\)](#), [Viceira \(2001\)](#), [Campbell and Viceira \(2002\)](#), and [Cocco, Gomes, and Maenhout \(2005\)](#), among others.

⁸Proof is in Appendix A.1.

V_{XY} denote partial derivatives. $-\frac{V_X}{X_t V_{XX}}$ is the reciprocal of an investor's relative risk aversion. This equation shows that given $V_{XX} < 0$ and $V_{XY} < 0$,⁹ as long as the correlation between dividend growth and labor income growth is positive, the second term is positive, and therefore, the presence of labor income risk induces investors to tilt their portfolios towards riskless assets.

The intuition behind this theoretical result is when financial income and non-financial income are positively correlated, investors can face a negative income shock at the same time with a negative financial income shock. Then, investors can hedge their labor income risk and smooth their consumption by reducing their exposure to financial risk. A positive correlation between dividend growth and labor income growth in the data (e.g., [Dittmar, Palomino, and Yang, 2016](#); [Elkamhi and Jo, 2019](#)) suggests that the implied-hedging demand in the data is likely positive.¹⁰ Therefore, labor income risk could play a role in disincentivizing households from investing in the stock market in the data. For some households with sufficiently high risk aversion, the speculative demand is not high. The hedging demand (positive second term) can dominate the speculative demand, resulting in an optimal short-sale demand ($\alpha_t < 0$). Short-sales constraints can bind for those households and generate the presence of non-market participants as in [Elkamhi and Jo \(2019\)](#). Sizable entry costs can also generate non-market participants.¹¹

Employment protection laws increase firms' labor adjustment costs, and therefore, decrease employed households' labor income risk, resulting in a decrease in labor income uncertainty σ_y . The decrease in labor income uncertainty σ_y makes the labor income risk less concern for portfolio choices, reducing the hedging demand. This mechanism will, in turn, induce households to tilt their portfolios towards risky assets and also optimally participate in the stock market. Therefore, a portfolio theory with labor income risk predicts that the adoption of employment protection laws makes households more willing to take

⁹This inequality holds in theory because an increase in labor income comes as good news for an investor. Therefore, an increase in labor income decreases the marginal utility with respect to wealth.

¹⁰This is also the case using the most recent sample. The unconditional correlation between real per capita dividend income growth and non-financial personal income (total personal income minus dividend income) growth is 0.1354 from February 1959 to December 2020, using the data from the US. Bureau of Economic Analysis.

¹¹See [Allen and Gale \(1994\)](#), [Williamson \(1994\)](#), [Haliassos and Michaelides \(2003\)](#), [Alan \(2006\)](#), [Gomes and Michaelides \(2008\)](#), and [Fagereng, Gottlieb, and Guiso \(2017\)](#).

financial risk.

2.2 Institutional background on wrongful discharge laws

The United States had had a legal presumption that employees can be laid off ‘at-will’ doctrine, that is employers are free to terminate any employee without warning and for any reason - a good reason, a bad reason, or no reason at all, without the risk of legal liability. This ‘at-will’ doctrine was first articulated by the Tennessee Supreme Court in 1884 and was subsequently adopted into the common law by almost all US state courts by the mid-1930s (Morriss, 1994). However, since the 1970s, the vast majority of US states have adopted common law exceptions to the employment-at-will doctrine, so-called “Wrongful Discharge Laws”, to protect employees from unfair dismissal practices. These common laws are typically classified into three common law exceptions: the good faith, implied contract, and public policy exceptions. Unlike federal laws that aim to protect a particular class of workers, such as union members, racial minorities, women, or the aged, these exceptions pertain to workers not already covered by federal legislation or by explicit contractual agreements (Miles, 2000).¹²

The good faith exception, adopted in a total of 12 states by 1998, requires an employer not to terminate workers for “bad cause”. For example, employers cannot discharge workers out of bad faith, malice, or retaliation. Employees can sue their employers if they are discharged before pensions vest, or they receive bonuses or commissions that they are entitled to (Serfling, 2016). An example is the case of *Fortune v. National Cash Register Co.*, where the employer fired a salesperson just before a substantial commission was due. The court found that the employer had deprived the plaintiff of the “benefit of his bargain” and awarded compensatory and punitive damages (Autor, Donohue III, and Schwab, 2006).

The implied contract exception, adopted in a total of 41 states by 1992, requires an employer not to terminate workers when the employer has implicitly promised to the employee that they will not be discharged without good cause. Such implicit promises may include, for example: personnel manuals stating that the employer’s policy is to terminate employees only for just cause; expectations arising from a worker’s longevity of service; and usual

¹²A detailed discussion on these laws are provided in Dertouzos and Karoly (1992), Schwarz (1996), Miles (2000), Autor, Donohue III, and Schwab (2006), Serfling (2016), and Bai, Fairhurst, and Serfling (2019).

company practices that preclude terminating workers without good cause (Autor, Kerr, and Kugler, 2007).

Last, the public policy exception, adopted in a total of 43 states by 1992, requires an employer not to terminate workers because they refuse to violate an established public policy or commit an illegal act. In states recognizing the public policy exception, workers may litigate if they are discharged for performing, for example, jury duty, reporting an employer's wrongdoing, or refusing to commit perjury on behalf of the employer. Because courts typically limit public policy cases to clear violations of explicit legislative commands, rather than violations of a vaguer sense of public obligation, the public policy exception is not generally thought to impose substantial constraints on employer behavior (Autor, Kerr, and Kugler, 2007).

Legal studies regard the good faith exception to be the most far-reaching WDL because it represents the largest deviation from at-will employment (e.g., Dertouzos and Karoly, 1992; Kugler and Saint-Paul, 2004). Therefore, this law should have the largest effect on firms' ability to discharge workers at their own discretion. Consistent with this importance of the good faith, prior studies find the strongest effect of the adoption of good faith on firms (e.g., Acharya, Baghai, and Subramanian, 2014; Serfling, 2016; Bai, Fairhurst, and Serfling, 2019). I will also show that only the good faith exception significantly reduces households' layoffs.

3 Research Design and Data

3.1 Empirical methodology

To examine the effect of the recognition of the good faith exception on the share of risky assets in financial wealth and market participation, this study adopts a difference-in-differences research design and estimate the following panel regression model.

$$\begin{aligned}
 y_{i,s,t} = & \alpha + \beta_1 \text{Good faith}_{(-1),s,t} + \beta_2 \text{Good faith}_{(0,+1),s,t} + \gamma_1 \text{Implied contract}_{(-1),s,t} \\
 & + \gamma_2 \text{Implied contract}_{(0,+1),s,t} + \delta_1 \text{Public policy}_{s,t-1} + \delta_2 \text{Public policy}_{(0,+1),s,t} \\
 & + X'_{i,s,t} \Gamma + \theta_i + \psi_s + \omega_t + \epsilon_{i,s,t}
 \end{aligned} \tag{2}$$

where $y_{i,s,t}$ is either the share of risky assets in financial wealth and the stock market participation of household i in state s and month t . $\text{Good faith}_{(-1),s,t}$, $\text{Implied contract}_{(-1),s,t}$, and $\text{Public policy}_{(-1),s,t}$ are indicator variables set to one for a state which will adopt the good faith, implied contract, and public policy exception, respectively, in one year and zero otherwise. $\text{Good faith}_{(0,+1),s,t}$, $\text{Implied contract}_{(0,+1),s,t}$, and $\text{Public policy}_{(0,+1),s,t}$ are indicator variables set to one for a state which adopts or adopted the good faith, implied contract, and public policy exception, respectively, at a given month or a year ago. The parameter of interest is β_2 , which measures the difference in outcome variable $y_{i,s,t}$ before and after the adoption of the good faith exception, relative to a control group of households residing in states which do not adopt the laws.

Following the literature (e.g., [Campbell, 2006](#); [Malloy, Moskowitz, and Vissing-Jørgensen, 2009](#); [Giannetti and Wang, 2016](#); [Chetty, Sándor, and Szeidl, 2017](#); [Agarwal et al., 2019](#)), the vector of control variables $X_{i,s,t}$ includes a rich set of time-varying household- and state-level variables that have been shown to be associated with households' risky portfolio choices. Household-level variables are total wealth, labor income, the number of children, marital status, a high school degree, and a college degree. State-level variables are income growth, the relative unemployment rate, and the state GDP growth rate. The control variables also include household fixed effects θ_i to control for time-invariant heterogeneous household characteristics, state fixed effects ψ_s to control time-invariant state characteristics, and year-month fixed effects ω_t that controls for time-varying nationwide factors such as macroeconomic conditions. I estimate (2) using the ordinary least square even when $y_{i,s,t}$ is an indicator variable set to one for a market participating household because the specifications include a large number of fixed effects (e.g., [Giannetti and Wang, 2016](#); [Agarwal et al., 2019](#)). Standard errors are double clustered by state and year-month to account for the time-series correlations in households' portfolio choices from the same state and the cross-sectional correlations for households across states in the same year-month.

To interpret the effect of the adoption of the good faith exception captured in (2) as a causal effect, the effect should be stronger for households with a higher unemployment risk. To test a heterogeneous effect of the adoption across households with heterogeneous unemployment risks, I estimate the following triple-difference regression equations.

$$\begin{aligned}
y_{i,s,t} = & \alpha + \beta_1 \text{Good faith}_{(-1),s,t} + \beta_2 \text{Good faith}_{(0,+1),s,t} + \beta_3 \text{Good faith}_{(0,+1),s,t} \times \widehat{\text{layoff}}_{i,s,t} \\
& + \beta_4 \widehat{\text{layoff}}_{i,s,t} + \gamma_1 \text{Implied contract}_{(-1),s,t} + \gamma_2 \text{Implied contract}_{(0,+1),s,t} \\
& + \delta_1 \text{Public policy}_{s,t-1} + \delta_2 \text{Public policy}_{(0,+1),s,t} + X'_{i,s,t} \Gamma + \theta_i + \psi_s + \omega_t + \epsilon_{i,s,t} \quad (3)
\end{aligned}$$

$$y_{i,s,t} = \alpha + \beta_3 \text{Good faith}_{(0,+1),s,t} \times \widehat{\text{layoff}}_{i,s,t} + \beta_4 \widehat{\text{layoff}}_{i,s,t} + X'_{i,s,t} \Gamma + \theta_i + \psi_{s,t} + \epsilon_{i,s,t} \quad (4)$$

Equation (3) is the same as Equation (2), except that I interact the good faith dummy variable $\text{Good faith}_{(0,+1),s,t}$ with a measure of unemployment risk (layoff risk), $\widehat{\text{layoff}}_{i,s,t}$. $\widehat{\text{layoff}}_{i,s,t}$ is the fitted part from the regression of a layoff dummy variable on the same household and state controls $X_{i,s,t}$ as in (3) together with union dummy variable, household, state, year-month, and industry-occupation fixed effects. Industry-occupation fixed effects, based on the employer's three-digit Census Industry Classification and the Integrated Public Use Microdata Series code for the worker's occupation available in the SIPP data, account for time-invariant layoff intensity for every pair of classified occupations and industries across nation.¹³

By identifying heterogeneous effects across households within the treatment group, the triple-difference estimator can alleviate the concern that unobserved factors could affect households in states that do and do not adopt the good faith exception differently. I also estimate (4) which includes joint state-year-month fixed effects. The state-year-month fixed effects absorb any time-varying state-level omitted factors that could be correlated with households' portfolio choices and thus could drive the effect spuriously.

3.2 Adoption of wrongful discharge by laws by state courts

The empirical analysis in this study utilizes the considerable variation across states in the timing and extent of their recognition of WDLs. I identify the recognition of WDLs from previous studies (e.g., Schwarz, 1996; Autor, Donohue III, and Schwab, 2006; Littler, 2009; Serfling, 2016; Bai, Fairhurst, and Serfling, 2019).

Table 1 reports the month and year when each state court adopted each particular exception with marks to denote the adoptions the current study covers. The current study cannot

¹³This control is motivated by previous studies documenting heterogeneity of unemployment risk across occupation and industry (e.g., Rodriguez and Zavodny, 2003). The ten highest layoff rates by industry, occupation, and industry \times occupation in my sample data from the SIPP is reported in Table A.2.

make use of all adoptions because the SIPP data is available only from 1984. Also, the good faith exception in Idaho in 1989 and Wyoming in 1994 cannot be used in the SIPP because the SIPP aggregates four small states - Alaska, Idaho, Montana, and Wyoming - into one group to protect the confidentiality of respondents from 1985 panel to 1993 panel. However, I exploit the adoption of the good faith exception in Wyoming using the brokerage data. Consequently, the current study covers 50% of the adoptions of the good faith exception, 58.54% of the adoptions of the implied contract exception, and 46.51% of the adoptions of the public policy exception.¹⁴ A few states have reversed prior adoptions. In this study, I also exploit the reversal of the good faith exception in Oklahoma in February 1989 to test whether the households' risk-taking behavior, in this case, is opposite to the adoption of the laws.

Table 1 here

Figure 1 visualizes the states recognizing the good faith exception (Panel A), implied contract (Panel B), and public policy (Panel C) as of 2019. Most state courts have adopted at least one WDL except for three states (Florida, Georgia, and Rhode Island). While the implied contract and public policy exceptions are widely recognized by most state courts, a few states have adopted the good faith exception. Also, only nine states recognize all three of the exceptions - Alaska, California, Connecticut, Idaho, Massachusetts, Montana, Nevada, Utah, and Wyoming.

Figure 1 here

3.3 SIPP data

Throughout the analysis, I rely on the Survey of Income and Program Participation (SIPP), a US national discount brokerage firm database, and the Consumer Expenditure (CEX, hereafter). In this section, I only detail the SIPP, which is mainly used, and postpone describing the others until when they are used.

¹⁴In spite of this limitation, the SIPP is the most appropriate data source for the current study as the Panel Study Income Dynamics (PSID), an alternative micro-level household data set, provides household portfolio information at a very low frequency - every four years before 1999 and every two years after 1999 while for the SIPP, we are able to observe households' an annual change in portfolio at the monthly frequency, which makes it possible to credibly analyze portfolio changes after the adoption of the good faith exception.

The SIPP is a micro-level longitudinal survey where I use the samples from May 1984 - November 1999.¹⁵ The SIPP is a running panel that collects detailed information about income and demographics for 20,000 to 30,000 households over several waves - 8 to 12 waves - during 2 to 3 years. Each wave refers to four months of information, which consists of a (1) "core" survey that collects detailed information on household demographic attributes, employment and income, and (2) one or several topical modules that collect information on various topics. One of these topical modules, the assets and liabilities topical module, collects information on all assets and liabilities held by each household member. Households are interviewed every year about their stock market investments in separate groups (rotation group), and for each month, different groups of households are interviewed. Therefore, I can observe households' yearly changes in portfolio choices at a monthly frequency with different sets of households every month. Specifically, households report their stock investments (part of the assets and liabilities included in the topical module of the SIPP survey) ending in the month prior to the interview month. For example, if a household group was interviewed in October 2005, the SIPP reports its investments as of September 2005.

I exploit the SIPP asset and liabilities topical modules to create two main dependent variables: (1) *% Stock share*, defined as the value of stocks and mutual funds as a fraction of the total financial wealth and (2) *Participation (with IRA/401K/Keogh)*, an indicator variable set to one if a household holds stocks or mutual funds either directly or indirectly through retirement accounts. Previous studies primarily use the stock market participation excluding retirement accounts (e.g., [Hong, Kubik, and Stein, 2004](#); [Bonaparte, Korniotis, and Kumar, 2018](#); [Kozak and Sosyura, 2019](#); [Agarwal et al., 2019](#)). The reason for this exclusion is households do not actively rebalance or trade their retirement accounts ([Agnew, Balduzzi, and Sundén, 2003](#); [Ameriks and Zeldes, 2004](#); [Mitchell et al., 2006](#); [Benartzi and Thaler, 2007](#)). However, given the importance of the indirect holding,¹⁶ the exclusion

¹⁵This is based on the 1984, 1985, 1986, 1987, 1990, 1991, 1992, 1993, and 1996 panels. I do not use panels from 2001 because the last adoption of WDL was Louisiana in January 1998. I drop the 1988 panel because, for the 1988 panel, the asset and liabilities topical module is available in wave 4 only, which generates a single observation in my panel setting. The SIPP data is available online: <https://www.census.gov/sipp/>.

¹⁶In my sample of the SIPP data covering 1984 - 1999, the direct market participation rate is 27.6% while both direct and indirect market participation rate is 43.5%. In the 2016 Survey of Consumer Finances, the direct market participation rate is 29.7% and 60.2% for both direct and indirect stock market participation.

can overestimate the effect of the adoption of WDLs. Therefore, I use *Participation (with IRA/401K/Keogh)* as a key variable throughout the main analysis and assess the robustness by using only direct *Participation*, as in the literature, for the robustness test. In the robustness test in Section 4.8, I use two more measures of stock holding: (1) the share of risky assets in total wealth including both liquid and illiquid assets and (2) the dollar value of stocks, that is the log of one plus the value of stocks and mutual funds. I will show that my main findings are robust to those two measures.

I further construct household control variables from the SIPP data, which are log of total wealth, log of one plus labor income, the number of children, marital status, high school degree, and a college degree. Total wealth is defined as the sum of total financial wealth plus vehicle equity, home equity, and other assets where vehicle equity and home equity are computed by deducting debts against them. I winsorize all asset values at 1% level. All dollar values are expressed in 2012 dollars. A detailed description of household-level control variables used in this paper is in Table A.1.

I conduct the analysis at the household level instead of the individual level because it is possible that households often pool resources. Thus, I collapse observations at the household and year-month levels. I drop households whose head is younger than 20 years old and older than 80 years old, as is the common practice in the literature (e.g., Célerier and Matray, 2019). To test the change in portfolio choices of the same households, I drop households who finish the interview before the adoption of the good faith and also households who start the interview after the adoption. I further restrict households that have zero value of total financial wealth and negative total wealth, which generates missing values for the dependent variable and control variable. Finally, I delete households with a single observation. These restrictions result in the final sample of 92,205 unique households with 209,981 household-year observations.

Table 2 reports the summary statistics of the household variables for all sample households, treatment group comprised of households living in states in year $t - 1$ which adopt the good faith exception in year t , and control group comprised of households living in states in year $t - 1$ which do not adopt the good faith in year t . The ideal condition for a difference-in-differences research design is that treatment and control groups are similar

for the level of key dependent variable and characteristics that can possibly affect the effect of an exogenous shock on the dependent variable. In Panel A, the mean of % *Stock share in financial wealth*, *Participation*, and *Participation (with IRA/401K/Keogh)* are not statistically different. However, demographic characteristics and asset and labor income levels are not similar. For example, households in the treatment group have fewer children, more likely married, and older than control group households. Therefore, I control for each variable in regressions to account for these differences.

Table 2 here

During our sample from 1984 to 1999, on average, 27.61% of households own stocks or mutual funds. The value of stocks and mutual funds accounts for 13.43% of their financial wealth. If I include stocks held in IRA/401K/Keogh accounts, 43.48% of households invest in the stock market. These values are slightly larger than those in [Agarwal et al. \(2019\)](#) using the SIPP data from 1996 to 2011.¹⁷ Households have 0.74 number of children on average, 57% of them are married, 85% of them finished high school, 29% of them also finished college, and they are, on average, 50-years old.

4 Empirical Results

4.1 Effect on layoff

Previous research studying the impact of the WDLs (e.g., [Dertouzos and Karoly, 1992](#); [Autor, Donohue III, and Schwab, 2004, 2006](#)) finds a significant decrease in employment.¹⁸ This finding could imply that firms also decrease discharge in order to keep up a certain level of labor input. However, there is no evidence on how effectively layoff decreases following the adoption. Testing this effect is important because in order for households to adjust their risky portfolios in response to the adoption of the good faith, households should rationally expect that their labor incomer risks will be lowered after the adoption of the laws. Thus, I

¹⁷A recent study by [Agarwal et al. \(2019\)](#) also uses the SIPP data from 1996 to 2011 to study the effect of political uncertainty on stock market participation. They report the average participation rate of 22.3% and 39% with direct participation, and also 10.4% of the ratio of stocks and mutual funds to total financial wealth.

¹⁸[Dertouzos and Karoly \(1992\)](#) find that employment drops by 2 to 5%. [Autor, Donohue III, and Schwab \(2006\)](#) find the decline in employment by 0.8% to 1.7% using a different estimation method.

first investigate whether there is an economically meaningful real effect of the adoption of the good faith on the decrease in the layoff in the SIPP sample.

To this end, I run the baseline regression model (2) where the dependent variable is *layoff*, an indicator variable to set one if a household head is on layoff, and the following additional variables are added to capture the long-term effect: $\text{Good faith}_{(+2),s,t}$, $\text{Good faith}_{(\geq+3),s,t}$, $\text{Implied contract}_{(+2),s,t}$, $\text{Implied contract}_{(\geq+3),s,t}$, $\text{Public policy}_{(+2),s,t}$, and $\text{Public policy}_{(\geq+3),s,t}$. They are indicator variables set to one for a state that adopted the respective WDLs 2 years, and 3 or more years ago.

Table 3 presents the result. The controls are more stringent from Column (1) to Column (3). Column (1) includes neither household- nor state-level controls. Columns (2) and (3) include household level controls. Column (3) further includes state-level controls. The regression estimates in Table 3 suggest that layoffs in treated states decrease following the adoption of the WDLs relative to control states. In terms of timing, the effect manifests two years after and three years or more years after the adoption. While there is a significant effect on layoff after the adoption, there is no effect before the enactment of the law, alleviating a potential concern of reverse causality in this regression that a high layoff rate leads to the enactment of the law.

Moreover, the adoption of all types of the WDLs decreases the layoffs, but only the adoption of the good faith exception delivers a statistically significant effect. This result confirms that it is indeed the good faith exception that effectively reduces households' unemployment risk. This is consistent with previous studies arguing that the good faith exception represents the largest deviation from at-will employment doctrine, and therefore, this law should have the largest effect on economic outcomes (e.g., [Dertouzos and Karoly, 1992](#); [Kugler and Saint-Paul, 2004](#); [Serfling, 2016](#); [Bai, Fairhurst, and Serfling, 2019](#)).

Finally, the effect is economically significant. In Column (3), the adoption of the good faith exception is associated with around 0.85% point decline in layoff three years or more after the adoption. Since the sample mean of layoff is approximately 1.31%, 0.85% point decline implies that layoff decreases by 64.9% ($=0.0085/0.0131$). These findings imply that the adoption of the good faith exception has a significant real effect on the unemployment risk both economically and statistically. Therefore, it is reasonable to assume

that households rationally expect reduced unemployment risk and take this into account in making a portfolio decision.

Table 3 here

4.2 Effect on households' portfolio choices

Theoretically, the presence of labor income risk disincentivizes households from investing in a risky asset as long as returns and labor income growth are positively correlated. Empirically, if the labor income risk is indeed the reason why households have less exposure to the financial risk, we would observe that households optimally adjust their risky asset portfolio after the adoption of the good faith exception. This is because the adoption of the good faith exception effectively reduces unemployment risk, which is part of labor income risk, as presented in the previous section. I test this prediction in this section. Previous studies find mixed evidence on the theoretical prediction on the impact of labor income risk on portfolio choices. This could potentially be due to endogeneity that arises from risk-tolerant investors' self-selection into a risky job and financial risk-taking behaviors at the same time. The current study is less vulnerable to endogeneity because the research is based on a quasi-natural experiment created by the variation in the exogenous adoption of the employment protection law across states and times. Using a difference-in-difference design, I estimate the regression equation (2).

Table 4 reports the result. In Columns (1) - (3), the dependent variable is % *Stock share*. In Columns (4) - (6), the dependent variable is *Participation (with IRA/401K/Keogh)*. In Columns (1) and (4), there are no household-level controls nor state-level controls. In Columns (2) and (5), I include household-level controls. In Columns (3) and (6), I further include state-level controls. First, % *Stock share* is positive and statistically significant at 1% level, robust to both household- and state-level controls as well as household, state, and year-month fixed effects. The adoption of the good faith is associated with 1.21 to 1.32% point increase in % *Stock share* in treated states relative to untreated states. These estimates are economically large: the sample average of % *Stock share* is 0.1485, suggesting that % *Stock share* increases by 8.1 to 8.9%, suggesting an economically large effect. In Table A.3, I further investigate how households rebalance their financial wealth, and the result shows

that households significantly reduce savings account to invest in risky assets while there is a significant decrease neither in checking account nor bond account.

Table 4 here

Second, participation is seemingly negatively associated with the adoption of the good faith without household- and state-level controls. However, after properly controlling for household and state-level controls, the coefficient is insignificant. I further examine the dynamics of *Participation (with IRA/401K/Keogh)* along with % *Stock share* to analyze when the adoption comes into effect.

Figure 2 shows that for % *Stock share*, the effect is the strongest at the month of the adoption and starts to decline slightly the year after the adoption. Its long-term effect captured by $\text{Good faith}_{(\geq+3),s,t}$ is positive and statistically significant. As for *Participation (with IRA/401K/Keogh)*, the effect is not significant for the month of the adoption and the year after. However, the coefficients start to increase after the adoption, and it comes into effect one year after the adoption. This result suggests that while there is an immediate reaction of portfolio rebalancing for stockholders in response to the adoption of the good faith, the decision to enter the stock market for non-stockholders is not immediate. This phenomenon can be rationalized by entry costs to participate in the stock market (e.g., [Allen and Gale, 1994](#); [Williamson, 1994](#); [Haliassos and Michaelides, 2003](#); [Alan, 2006](#); [Gomes and Michaelides, 2008](#); [Fagereng, Gottlieb, and Guiso, 2017](#)) which deter households from participating in the stock market immediately after the adoption of the good faith exception.

Figure 2 here

Finally, the important identification strategy for the current study is the assumption that, in the absence of the passage of the good faith exception, % *Stock share* and stock participation of households in states that do and do not adopt this law would have evolved in the same way. This parallel trend assumption would be clearly violated if variables of interest evolved differently even before the adoption. This is not the case as the coefficients before the adoption are significant neither in Figure 2 nor in Table 4. This finding also confirms that there is no trend of % *Stock share* or *Participation (with IRA/401K/Keogh)* before the adoption of the good faith, which could spuriously drive the difference-in-differences result.

4.3 Heterogeneous Effects across households

4.3.1 Triple difference and measure of unemployment risk

The findings presented in the previous section provide evidence that a change in labor income risk led by the adoption of the good faith induces households optimally to take financial risk. Also, the result is less likely susceptible to reverse causality because there is no trend or effect before the adoption. To interpret the above evidence as a causal relationship more plausibly, however, there should be heterogeneous effects across households depending on their labor income risk. In this section, I estimate triple-difference regression models to test whether the recognition of the good faith exception has a larger effect on households with a higher unemployment risk. However, it is challenging to identify the degree to which each household is exposed to unemployment risk. Therefore, I estimate the probability of being laid off for each household. Specifically, I regress realized households' layoff on the household- and state-level controls as before in addition to an indicator variable set to one for union members, which can potentially affect unemployment risk. Furthermore, previous studies document heterogeneity of unemployment risk across occupations and industries (e.g., [Rodriguez and Zavodny, 2003](#)). Therefore, I add industry-occupation fixed effects, based on the employer's three-digit Census Industry Classification and the Integrated Public Use Microdata Series code for the worker's occupation available in the SIPP data, which account for time-invariant layoff intensity for every pair of classified occupation and industry across nation.¹⁹

Table 5 reports the result. In Column (1), I control for state fixed effects, year-month fixed effects along with households fixed effects, and industry-occupation fixed effects. In Column (2), I omit year-month fixed effects to estimate the unemployment risk measure less affected by time-varying economic conditions. Finally, in Column (3), I control for state-year-month fixed effects. I consider three different specifications to assess how much the triple-difference results are robust to different ways to estimate unemployment risk. The result shows that age and labor income are the strongest predictors for layoff. The unemployment risk is decreasing in age and also in labor income. These relationships are

¹⁹The ten highest layoff rates by industry, occupation, and industry \times occupation in my sample data from the SIPP is reported in Table A.2.

statistically strong and robust to various controls. This finding is consistent with previous empirical evidence (e.g., [Munnell et al., 2006](#); [Johnson and Mommaerts, 2011](#)) that older workers are less likely to lose their jobs than younger workers. I use the fitted part of each regression as a measure of unemployment risk. Then, even though some households are not currently on layoff, these measures can capture the degree to which households are exposed to unemployment risk, given households' characteristics. I interact these measures with the good faith indicator variable ($\text{Good faith}_{(0,+1),s,t}$) for triple-difference regressions. The distribution of each measure is plotted in [Figure A.1](#).²⁰

Table 5 here

4.3.2 Heterogeneous Effects on % Stock share

Table 6 reports the results for cross-sectional differences in the effect of the adoption of the good faith on % *Stock share*. In Columns (1), (3), and (5), results for equation (3), where $\text{Good faith}_{(0,+1),s,t} \times \widehat{\text{layoff}}_{i,s,t}$ and $\widehat{\text{layoff}}_{i,s,t}$ are added to the baseline DID regression equation (2), are reported. In Columns (2), (4), and (6), results for equation (4), where state-year-month fixed effects are included, are reported. First of all, the results show that, on average, households with a higher unemployment risk have significantly lower exposure to financial risk, as shown in negative coefficients on $\widehat{\text{layoff}}(1)_{i,s,t}$, $\widehat{\text{layoff}}(2)_{i,s,t}$, and $\widehat{\text{layoff}}(3)_{i,s,t}$. However, importantly, households with a high unemployment risk take more financial risk following the adoption of the good faith exception. This is because those households are concerned about layoff the most and therefore likely protected by the adoption of the law the most. These findings are robust to different measures of unemployment risk and also controlling for state-year-month fixed effects which account for any time-varying state-level latent factors that could be correlated with households portfolio choices.

Table 6 here

²⁰After constructing unemployment risk measures, I compute the average unemployment risk for those who are on layoff and those who are not. Not surprisingly, the means of $\widehat{\text{layoff}}(1)_{i,s,t}$, $\widehat{\text{layoff}}(2)_{i,s,t}$, and $\widehat{\text{layoff}}(3)_{i,s,t}$ for the discharged households are 0.0245, 0.0191, 0.0256, respectively, and 0.0118, 0.0118, and 0.0118, respectively, for the others with t -statistics of -19.59, -15.53, and -19.99, respectively, for the mean equality test.

Previous studies find that firms reduce employment after the adoption of the WDLs (e.g., [Dertouzos and Karoly, 1992](#); [Autor, Donohue III, and Schwab, 2004, 2006](#)). This suggests that it becomes more difficult for already discharged workers to get a new job after the adoption of the WDLs, resulting in a higher labor income risk for them. I further test the cross-sectional effect in terms of the current employment status. In Columns (7) and (8), I interact the good faith indicator variable ($\text{Good faith}_{(0,+1),s,t}$) with realized layoff instead of unemployment risk ($\widehat{\text{layoff}}_{i,s,t}$). The result shows that consistent with the prediction, households who already got laid off have significantly lower exposure to financial risk after the adoption relative to households who have a job.

4.3.3 Heterogeneous Effects on Participation (with IRA/401K/Keogh)

Table 7 reports the results for cross-sectional differences in the effect of the adoption of the good faith on *Participation (with IRA/401K/Keogh)*. As above, in Columns (1), (3), and (5), results for equation (3), where $\text{Good faith}_{(0,+1),s,t} \times \widehat{\text{layoff}}_{i,s,t}$ and $\widehat{\text{layoff}}_{i,s,t}$ are added to the baseline DID regression equation (2), are reported. In Columns (2), (4), and (6), results for equation (4), where state-year-month fixed effects are included, are reported. Overall, the results for *Participation (with IRA/401K/Keogh)* in this table are mostly consistent with results for % *Stock share* above. Households with a high unemployment risk are less likely to participate in the stock market. On the contrary, those households are more likely to participate in the stock market after the adoption of the good faith. Also, the opposite risk-taking behaviors are observed for households who already got laid off. I shall show that these findings are stronger for a participation measure excluding retirement accounts presented in Section 4.8. To summarize, findings from this analysis provide evidence that the effect of the adoption of the good faith on the households' portfolio choices is more likely to be a causal relationship than a spurious correlation as we can find a strong cross-sectional variation in the effect after controlling for the state-level time-varying latent factors.

Table 7 here

4.4 Effect of the Reversal of the good faith in Oklahoma

If changes in labor income risk led by employment protection laws are the key motive for changes in households' portfolio choices, we should observe reduced financial risk-taking

behavior if the law is reversed. Also, this reduction in the exposure to financial risk should be larger for households with a higher unemployment risk because they are the ones who need the protection the most to take financial risk. Oklahoma court reversed the good faith exception in February 1989. In this section, I further exploit the reversal of the good faith exception in Oklahoma and test whether the households' risk-taking behavior, in this case, is opposite to the adoption of the laws.

Table 8 reports the results from DID regression and also triple-difference regression where $\text{Reversal}_{(0,+1),s,t}$ is included, which is an indicator variable set to one for Oklahoma February 1989 and one year after. In Columns (1) - (4), the dependent variable is % *Stock share*. In Columns (5) - (8), the dependent variable is *Participation (with IRA/401K/Keogh)*. In Columns (1) and (5), results for DID are reported. For the rest of the columns, results for triple difference models are reported where state-year-month fixed effects are included. First, consistent with previous results in Table 6 and 7, households with a high unemployment risk are less exposed financial risk (negative coefficients on $\widehat{\text{layoff}}(1)_{i,s,t}$, $\widehat{\text{layoff}}(2)_{i,s,t}$, and $\widehat{\text{layoff}}(3)_{i,s,t}$). Second, households in Oklahoma significantly reduce their exposure after the reversal of the good faith. Finally, this relationship is stronger for households with a higher unemployment risk. These findings are robust to different measures of unemployment risk and both % *Stock share* and *Participation (with IRA/401K/Keogh)*. These results provide strong evidence that employment protection law plays a crucial role in shaping households' risk-taking behaviors. Especially, after the reversal, we consistently observe the reduced risk-taking behaviors as opposed to the adoption. These findings further strengthen a causal interpretation between the adoption of the employment protection laws and households' increased risk-taking behavior.

Table 8 here

4.5 Effect on households' wealth accumulation

So far, I have provided consistent evidence that households more engage in the stock market after the adoption of the good faith exception. Existing literature shows that stock market participation and risk-taking are critical to long-term wealth accumulation and wel-

fare gain.²¹ Given the findings in the literature, I study whether households' increased risk-taking behavior after the adoption of the good faith exception fosters wealth accumulation. Since SIPP database keeps track of the same households up to three years, it is challenging to estimate a long-term wealth accumulation using the SIPP. Instead, I rely on information from a large discount brokerage data, used in [Barber and Odean \(2000\)](#). This data set provides the identifier (CUSIP) for stocks households hold. By keeping track of changes in stock price, I am able to measure the marginal change in the wealth generated by purchase of stocks after the adoption of the good faith exception. This brokerage data set is available from January 1991 to November 1996, and therefore, I am able to exploit the adoption of the good faith exception in Delaware in April 1992 and also Wyoming in January 1994. I identify the state of residence using the recorded zip codes.

In order to study wealth accumulation, I keep track of stock prices households purchased for five years following their trades in response to the adoption. Specifically, I compute the marginal change in households' equity value due to buying activities in one year after the adoption of the good faith exception for each household at the monthly frequency as follows.

$$\Delta MC_{i,t} = \frac{\sum_j (p_{j,t} \sum_{\tau=0}^{12} q_{i,j,\tau} - \sum_{\tau=0}^{12} p_{j,\tau} q_{i,j,\tau})}{W_{i,12}} \quad \forall t \in [13, 72] \quad (5)$$

where $p_{j,t}$ is the stock price j at time t .²² $q_{i,j,\tau}$ is the quantity of stock j a household i purchases during the month of the adoption or one year after the adoption ($\tau \in [0, 12]$ where $\tau = 0$ at the month of the adoption). Therefore, $\sum_{\tau=0}^{12} p_{j,\tau} q_{i,j,\tau}$ is the amount of new investment. $p_{j,t} \sum_{\tau=0}^{12} q_{i,j,\tau}$ is the value of stocks generated by purchases. $W_{i,12}$ is the total equity value of household i at twelve-month after the adoption. Therefore $\Delta MC_{i,t}$ measures the marginal contribution of buying stocks to a wealth change in the percentage term. Then, I compute the average of $MC_{i,t}$ across households for each month up to five years following the adoption. [Figure 3](#) plots the result. A purchase of stocks in response to the adoption of the good faith exception has a positive effect on households' wealth accumulation. The

²¹See [Cocco, Gomes, and Maenhout \(2005\)](#), [Yoong \(2011\)](#), and [van Rooij, Lusardi, and Alessie \(2012\)](#) among others.

²²Stock price is adjusted for all distributions or stock splits using 'Cumulative Factor to Adjust Price' variable in the CRSP.

marginal change in the equity value steadily rises after the adoption, on average 7.02% in five years after trades ($t = 72$).²³ This finding confirms that increased risk-taking behavior of households in response to the adoption of the good faith exception benefit households' wealth accumulation.

Figure 3 here

4.6 Types of stocks households trade

A further question is which types of stocks households invest in between in-state and out-of-state following the adoption of the employment protection laws. One can naturally predict that households are more likely to invest in out-of-state stocks. This is because existing literature has documented the extensive evidence on the negative effects of this law on firms in a state which adopted this law. Therefore, adoption of the law comes as a negative shock to those affected firms. In this section, I investigate whether households indeed invest in out-of-state stocks in particular. To this end, I use the same brokerage data as in the previous section. Specifically, I use the CUSIP code to identify stocks household hold and the Compustat data to locate the headquarter of firms. Also, for each stock, I compute the following monthly percentage change in household i 's holding of a stock j , in line with [Giannetti and Wang \(2016\)](#) and [Agarwal et al. \(2019\)](#).²⁴

$$\Delta holding_{i,j,t} = p_{j,t-1}(q_{i,j,t} - q_{i,j,t-1})/p_{j,t-1}q_{i,j,t-1} \quad (6)$$

where $p_{j,t-1}$ is the stock price j at time $t - 1$, and $q_{i,j,t}$ is the quantity of stock j a household i holds at time t .²⁵ Note that this measure is only driven by changes in the quantity of a stock held by a household instead of a price change. Therefore, this measure purely captures how households actively trade stocks at a monthly frequency. Table 9 presents the result. Throughout this analysis, I exploit the fact that I can observe the CUSIP code

²³In other words, six years after the adoption of the laws.

²⁴My measure is slightly different from their measures. First, I compute a monthly change instead of a yearly change. The monthly change is more appropriate in my setting because I examine the effect of an exogenous shock at monthly frequency. The yearly change in my setting can be affected by many factors that happened before the shock. Second, different from those papers, I compute the change at the stock level instead of the portfolio level to distinguish in-state stocks in the regression.

²⁵By an abuse of notation, I use the same notation as in subsection 4.5 where $q_{i,j,t}$ denotes the quantity of stocks households newly purchase.

of stocks households hold, and therefore, I control for firm fixed effects. In Column (1), I reproduce the same finding as in the SIPP, but in the percentage term: the percentage change in households' portfolio holding increases after the adoption of the good faith exception. In Column (2), I interact the good faith indicator variable ($\text{Good faith}_{(0,+1),s,t}$) with an indicator variable set to one for stocks of firms headquartered in states which adopted the good faith exception. The significant negative interaction term suggests that households are indeed likely to invest in out-of-state stocks. In Column (3), I further strictly control for state-year-month fixed effects. The negative interaction term strongly supports the prediction that households' do not invest in in-state stocks after the adoption. Finally, in Column (4), I restrict the sample to only stocks of firms headquartered in states which adopted this law. The DID coefficient is now negative, suggesting that households decrease in holding for those in-state stocks. Overall, the findings consistently imply that households are more likely to buy out-of-state stocks after the adoption of the good faith exception. It is well-documented that individual investors are more likely to trade local stocks, commonly referred to as "local-bias" (e.g., [Grinblatt and Keloharju, 2001](#); [Seasholes and Zhu, 2010](#); [Gargano and Rossi, 2018](#)). Also, existing literature finds that households voluntarily hold significant amounts of their employers' stock, referred to as the "own-company stock puzzle" (e.g., [Benartzi, 2001](#); [Mitchell and Utkus, 2002](#); [Meulbroek, 2005](#)). Therefore, the result implies that the adoption of the good faith exception plays a role in reducing investors' local-bias as well as the own-company stock puzzle.

Table 9 here

4.7 Effect on households consumption

Although this study mainly focuses on households' portfolio choices in response to the adoption of the good faith exception, I further investigate how households' consumption changes. Theoretically, if households have a low desire for consumption smoothing (high elasticity of intertemporal substitution), better investment opportunities led by a decrease in labor income uncertainty would translate into a decrease in consumption. Since the SIPP data does not provide households' consumption, I complement the SIPP with data from the Bureau of Labor Statistics' Consumer Expenditure Survey (CEX) to study household

consumption. The CEX provides the residence of state from 1993 data. Therefore, I exploit the good faith exception in Louisiana in January 1998. Table 10 presents the result. The result in Column (1) shows that consumption growth of Louisiana households in January 1998 decreases after controlling for multiple fixed effects and both households- and state-level controls. Given the poor fitness of the regression model for consumption growth, I also examine a change in the consumption to labor income ratio. Column (2) shows that the ratio of consumption to labor income also decreases after the adoption of the good faith exception. This result can be rationalized by a low desire for consumption smoothing.

Table 10 here

4.8 Robustness

In this section, I test whether the main results presented so far are robust to alternative measures, or controlling for unemployment insurance and neighboring states.

4.8.1 Alternative Participation measure

Throughout my analysis, I use a participation measure accounting for indirect stock investments through retirement accounts. However, previous studies primarily use the stock market participation measure excluding indirect stock investment (e.g., [Hong, Kubik, and Stein, 2004](#); [Bonaparte, Korniotis, and Kumar, 2018](#); [Kozak and Sosyura, 2019](#); [Agarwal et al., 2019](#)) due to inactive trading activities in retirement accounts. Therefore, I conduct the main analysis in this paper using the stock market participation excluding retirement accounts, as in previous studies, to test the robustness of my findings.

Table 11 shows the DID results in Columns (1) and (6), and the triple-difference results in the rest of the columns for both the adoption and reversal of the good faith exception. The results show that previous results are robust to the stock market participation measure excluding indirect holding. Also, overall, the magnitudes are larger, and significance is stronger than before. For example, the triple-difference estimates for the adoption interacted with the unemployment risk are 1.1989, 2.0823, and 1.0991 in this table, that compare to 1.0355, 1.8589, and 0.9429 in Table 7. Moreover, the reversal is associated with 16.9% ($=0.0735/0.4348$) decrease in participation including indirect holding previously versus 25.8% ($=0.0713/0.27616$) decrease in participation excluding indirect holding in

this table. This stronger magnitude for participation excluding indirect holding is consistent with the empirical fact that households do not actively rebalance or trade their retirement accounts (Samuelson and Zeckhauser, 1988; Agnew, Balduzzi, and Sundén, 2003; Ameriks and Zeldes, 2004; Mitchell et al., 2006; Benartzi and Thaler, 2007).

Table 11 here

4.8.2 Alternative Stock measure

For the main part of my analysis, I use % of *Stock share of financial wealth*, consistent with the theoretical implication presented in Equation (1). In this section, I use different measures to offer more insight into the main findings in this paper. The first measure is % of *Stock share of total wealth*, defined as the ratio of the value of stocks and mutual funds to total wealth. The second measure is $\text{Log}(1 + \text{stock value})$, which is the dollar value of the stock holding.

Table 12 and Table 13 present the key results for % of *Stock share of total wealth* and $\text{Log}(1 + \text{stock value})$, respectively. The results show all coefficients have the same sign as before with statistical significance except for the DID term on the adoption of good faith in Column (1) in Table 13. Overall, the robustness presented in this section implies that households adjust their risky asset portfolios in terms of the fraction of stock in either financial or total wealth, as well as in terms of the dollar values.

Table 12 here

Table 13 here

4.8.3 Unemployment Insurance

The key economic mechanism of this paper is that an exogenous reduction in labor income risk led by the adoption of WDLs renders the labor income risk less concern, which induces households to take more financial risk. The US government provides unemployment insurance to eligible workers who lose their job for a limited time during the unemployment spell. To the extent that the unemployment insurance lowers labor income risk concerns, a similar effect as the adoption of WDLs could be predicted. The joint federal-state system has a common structure nationwide. However, there is heterogeneity in terms of the

generosity of unemployment insurance across states. This is because each state determines the maximum weekly benefit amount and the maximum number of weeks, typically to 26 weeks. Exploiting the state-level change in the unemployment insurance generosity defined as the maximum number of weeks and the maximum weekly benefit amount, as in the literature, I test whether the effect of the WDLs remains significant after controlling for the unemployment insurance.²⁶ Table 14 shows that the adoption of the good faith is strongly significant after controlling for the unemployment insurance generosity. Moreover, the coefficient on the unemployment insurance generosity is negative and insignificant regardless of household- and state-level controls. This result highlights the importance of the good faith and implies the insignificance of the unemployment insurance on households' portfolio choices. The result is intuitive in the sense that the unemployment insurance provides benefits for workers who are already laid off for a limited duration while the employment protection laws lower the layoff risk in the first place.

Table 14 here

4.8.4 Border states

An important identifying assumption throughout the analysis is that the state of residence is the same as the state of the workplace. However, some households who reside in a border area could work in a state different from the state of residence. In this section, I test whether the adoption of the good faith in a given state has an effect on households living in neighboring states.

Table 15 shows that households in neighboring states positively react to the adoption of the good faith exception, on average. However, its magnitude is smaller than the one in the states which adopt the laws. Also, coefficients are not statistically significant at the conventional level. This result lends support the identifying assumption as well as the validity of the empirical result because the effect of the WDLs is weaker for neighboring states.

Table 15 here

²⁶The data is collected by Chetty (2008) obtained from the Department of Labor for each state/year pair. More details can be found in Chetty (2008).

5 Conclusion

In this paper, I study the relationship between employment labor protection laws and households' portfolio choices. To identify the causal effect of employment labor protection on portfolio choices, I exploit the staggered exogenous adoption of the good faith exception by US state courts. This exception protects workers from termination out of bad faith, malice, or retaliation, and it is known to have a significant impact on labor firing costs. Using a difference-in-differences research design, I analyze changes in households' exposure to financial risk in states that adopt this law relative to households in states that do not adopt this law.

I document that households' layoff significantly decreases after the adoption of the good faith two years or more years after the adoption of the good faith that effectively reduces households' unemployment risk. I also find that US households increase the share of risky assets in financial wealth in one year and also participate in the stock market significantly one year after the adoption of this law. This relationship is stronger for households who have a higher unemployment risk, associated with young and low-income households. I continue to exploit the reversal of the good faith in Oklahoma in February 1989. I observe households lower their exposure to financial risk following the reversal. Several robustness tests support a causal interpretation of these findings.

These findings are consistent with optimal portfolio theories, which predict that when labor income growth and stock returns are positively correlated, a lowered labor income risk induces an investor to be more willing to take a risk. Also, given substantial welfare gain by stock market participation (Cocco, Gomes, and Maenhout, 2005), these findings imply that the adoption of wrongful discharge laws can potentially benefit households through stock market participation and wealth accumulation. This positive externality may have quantitatively large welfare benefits, and therefore it should be taken into account by policymakers for the policy decision on employment protection. As a future extension, one can study whether the social benefits that stem from households' increased risk-taking behavior can outweigh the costs of firms through the lens of a theoretical model. I leave this for future research.

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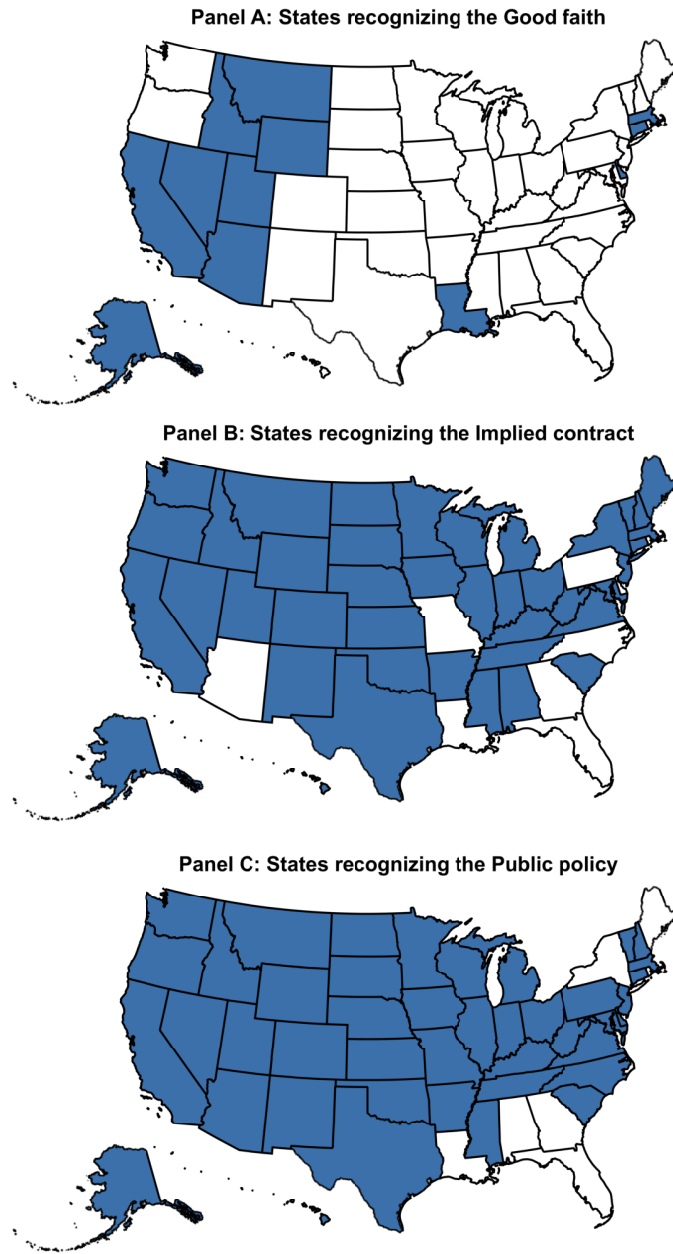


Figure 1. States recognizing the WDLs

This figure plots states recognizing the WDLs as of 2019 by the three classifications. The shaded area denotes states recognizing the WDLs.

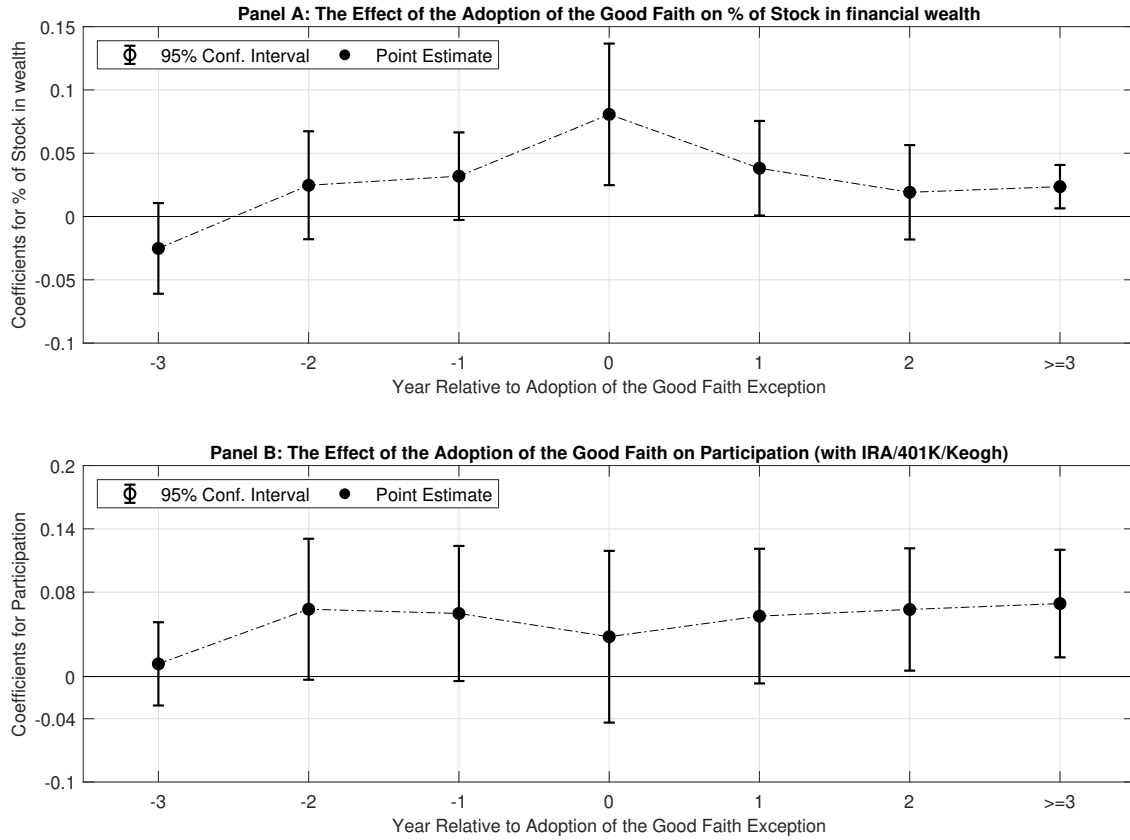


Figure 2. Effect of the Good faith exception on Households' portfolio choices

This figure shows the effect of the adoption of the good faith exception on % *Stock share* (Panel A) and *Participation (with IRA/401K/Keogh)* (Panel B). On the y-axis, the graph plots the coefficient estimates from the regression equation (2) in addition to $Good\ faith_{(-3),s,t}$, $Good\ faith_{(-2),s,t}$, $Good\ faith_{(+2),s,t}$, and $Good\ faith_{(\geq+3),s,t}$. $GF_{(-3),s,t}$ is a dummy variable set to one for a state which will adopt the good faith in three years. $GF_{(-2),s,t}$ is a dummy variable set to one for a state which will adopt the good faith in two years. $Good\ faith_{(+2),s,t}$ is a dummy variable set to one for a state that adopted the good faith two years ago. $Good\ faith_{(\geq+3),s,t}$ is a dummy variable set to one for a state which adopted the good faith three or more years ago. The same control variables are used as in Columns (3) and (6) of Table 4.

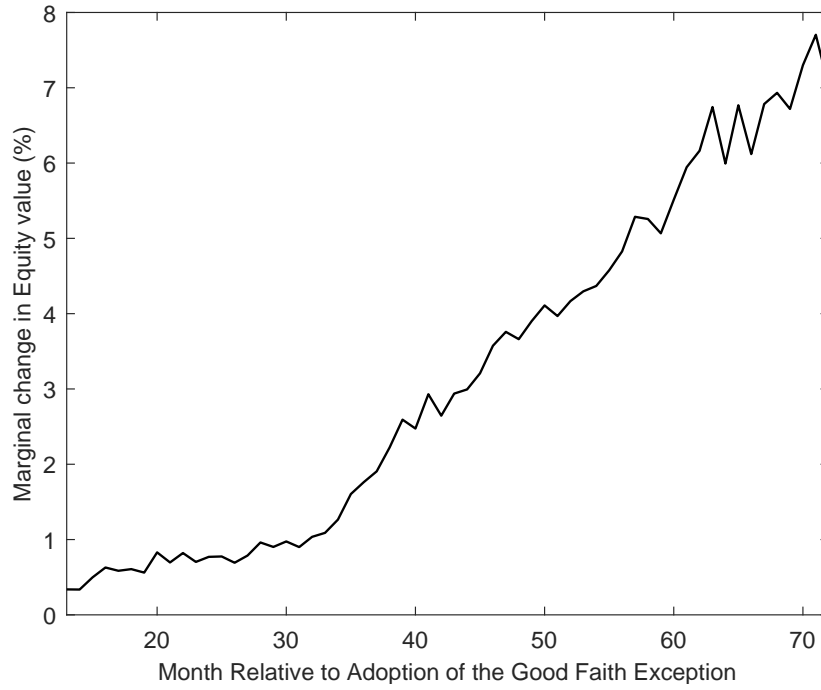


Figure 3. Effect of the Good faith exception on Households' Wealth Accumulation

This figure shows the average marginal changes in the equity value after the adoption of the good faith exception in the percentage term: $\frac{\sum_i^N \Delta MC_{i,t}}{N}$ where $\Delta MC_{i,t} = \sum_j (p_{j,t} \sum_{\tau=0}^{12} q_{i,j,\tau} - \sum_{\tau=0}^{12} p_{j,\tau} q_{i,j,\tau}) / W_{i,12} \quad \forall t \in [13, 72]$ where $p_{j,t}$ is the stock price j at time t . $q_{i,j,\tau}$ is the quantity of stock j a household i purchases during the month of the adoption or one year after the adoption ($\tau \in [0, 12]$ where $\tau = 0$ at the month of the adoption). $W_{i,12}$ is the total equity value of household i at twelve-month after the adoption.

Table 1. Adoption of state-level Wrongful Discharge Laws

Table 1 reports the month and year when each state adopted the good faith, implied contract, and public policy exceptions to the traditional employment at-will rule. ‘✓’ denotes an event that this study covers. ‘rev’ denotes the revision. This identification of the recognition of WDLs is sourced from Serfling (2016) and Bai, Fairhurst, and Serfling (2019). The current study does not cover all adoptions of WDLs because the SIPP data is available from 1984, and also SIPP categorizes small states into one group to protect the confidentiality of respondents.

State	Good faith	Implied contract	Public policy
Alabama		7/1987 ✓	
Alaska	5/1983	5/1983	2/1986
Arizona	6/1985 ✓	6/1983 (rev. 4/1984) ✓	6/1985 ✓
Arkansas		6/1984 ✓	3/1980
California	10/1980	3/1972	9/1959
Colorado		10/1983 ✓	9/1985 ✓
Connecticut	6/1980	10/1985 ✓	1/1980
Delaware	4/1992 ✓		3/1992 ✓
Florida			
Georgia			
Hawaii		8/1986 ✓	10/1982
Idaho	8/1989	4/1977	4/1977
Illinois		12/1974	12/1978
Indiana		8/1987 ✓	5/1973
Iowa		11/1987	7/1985
Kansas		8/1984 ✓	6/1981
Kentucky		8/1983 ✓	11/1983 ✓
Louisiana	1/1998 ✓		
Maine		11/1977	
Maryland		1/1985 ✓	7/1981
Massachusetts	7/1977	5/1988 ✓	5/1980
Michigan		6/1980	6/1976
Minnesota		4/1983 ✓	11/1986 ✓
Mississippi		6/1992 ✓	7/1987 ✓
Missouri		1/1983 (rev. 2/1988)	11/1985 ✓
Montana	1/1982	6/1987	1/1980
Nebraska		11/1983 ✓	11/1987 ✓
Nevada	2/1987 ✓	8/1983 ✓	1/1984 ✓
New Hampshire	2/1974 (rev. 5/1980)	8/1988 ✓	2/1974
New Jersey		5/1985 ✓	7/1980
New Mexico		2/1980	7/1983 ✓
New York		11/1982	
North Carolina			5/1985 ✓
North Dakota		2/1984	11/1987
Ohio		4/1982	3/1990 ✓
Oklahoma	5/1985 (rev. 2/1989 ✓) ✓	12/1976	2/1989 ✓
Oregon		3/1978	6/1975
Pennsylvania			3/1974
Rhode Island			
South Carolina		6/1987 ✓	11/1985 ✓
South Dakota		4/1983	12/1988 ✓
Tennessee		11/1981	8/1984 ✓
Texas		4/1985 ✓	6/1984 ✓
Utah	3/1989 ✓	5/1986 ✓	3/1989 ✓
Vermont		8/1985 ✓	9/1986 ✓
Virginia		9/1983 ✓	6/1985 ✓
Washington		8/1977	7/1984 ✓
West Virginia		4/1986 ✓	7/1978
Wisconsin		6/1985 ✓	1/1980
Wyoming	1/1994 ✓	8/1985	7/1989

Table 2. Summary statistics: SIPP data

Table 2 reports the summary statistics for the main variables. Panel A presents statistics for key dependent variables, Panel B for demographic characteristics, Panel C for asset variables, and Panel D for labor-related variables. I divide samples into treatment group and control group. Statistics for treatment and control groups are the sample means and standard deviations of households in year $t - 1$ in states that do adopt and do not the good faith exception in year t . The last column reports t -statistics of whether the two samples have equal means where ***, **, and * indicate significance at 1%, 5%, and 10%, respectively. The sample consists of 92,205 SIPP households from May 1984 - November 1999. Continuous variables, except state-level economic variables, are winsorized at their 1st and 99th percentiles, and all dollar values are expressed in 2012 dollars. A detailed description of household-level control variables used in this paper is in Table A.1.

	Mean			SD			t -stat for $H_0: \mu_T = \mu_C$
	Treated	Control	Total	Treated	Control	Total	
Panel A: Key dependent variables							
% Stock share in financial wealth	0.1343	0.1447	0.1485	0.2821	0.2923	0.2945	0.8933
% Stock share in total wealth	0.0992	0.1157	0.1161	0.2379	1.7572	1.0060	1.8730*
Participation	0.2783	0.2729	0.2761	0.4384	0.4454	0.4481	0.7670
Participation (with IRA/401K/Keogh)	0.4020	0.4111	0.4348	0.4907	0.4920	0.4957	0.4398
Panel B: Demographic characteristics							
Number of children	0.6831	0.7731	0.7395	1.0060	1.1078	1.0879	2.1549**
Married	0.6576	0.5225	0.5666	0.4749	0.4995	0.4956	-6.8566***
High school	0.8552	0.8389	0.8511	0.35224	0.3676	0.3560	-1.1149
College	0.2760	0.2801	0.2868	0.4474	0.4491	0.4523	0.2232
Age	51.0767	49.4533	49.7717	15.3311	15.2444	15.1211	-2.5533**
Panel C: Asset variables							
Stock value (\$)	15,081	16,963	18,214	55,861	60,494	62,216	0.8116
Checking account (\$)	1,130	779	775	1,671	1,441	1,456	-5.0631***
Saving account (\$)	19,682	17,564	18,072	37,299	33,783	33,935	-1.3707
Bond (\$)	3,553	5,238	5,232	15,123	20,545	20,471	2.6758***
Vehicle equity (\$)	4,956	3,826	4,089	8,581	7,567	7,800	-3.1792***
Home equity (\$)	20,732	18,264	18,267	60,238	59,619	60,053	-0.9881
Other asset equity (\$)	6,707	10,404	11,446	35,510	46,376	48,476	2.5019**
Panel D: Labor-related variables							
Yearly Labor income (\$)	35,257	43,766	44,758	40,086	42,340	43,229	5.1158***
Layoff rate	0.0153	0.0155	0.0131	0.1230	0.1234	0.1135	0.0242
Union rate	0.1172	0.1360	0.1320	0.3223	0.3428	0.3385	0.9885

Table 3. Effect of the Wrongful Discharge Laws on layoff

Table 3 reports OLS regression results to study the effect of the WDLs on households' layoff. The table uses data from the SIPP from the 1984 panel to the 1999 panel. The dependent variable is a dummy variable set to one if a household is on layoff. $\text{Good faith}_{(-1),s,t}$, $\text{Implied contract}_{(-1),s,t}$, and $\text{Public policy}_{(-1),s,t}$ are indicator variables set to one for a state which will adopt the good faith, implied contract, and public policy exception, respectively, in one year. $\text{Good faith}_{(0,+1),s,t}$, $\text{Implied contract}_{(0,+1),s,t}$, and $\text{Public policy}_{(0,+1),s,t}$ are indicator variables set to one for a state which adopts at a given month or adopted the respective WDLs a year ago. $\text{Good faith}_{(+2),s,t}$, $\text{Implied contract}_{(+2),s,t}$, $\text{Implied contract}_{(\geq+3),s,t}$, $\text{Public policy}_{(+2),s,t}$, and $\text{Public policy}_{(\geq+3),s,t}$ are indicator variables set to one for a state that adopted the respective WDLs 2 years, and 3 or more years ago. Household controls are the log of total wealth, log of one plus 4-month labor income, the number of children, marital status, a high school degree, and a college degree. The state controls are income growth, the relative unemployment rate, and the state GDP growth rate. t -statistics based on standard errors clustered at the state and year-month level are in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively. A detailed description of the variables used in this paper is in Table A.1.

Dep. var.:	Layoff $_{i,s,t}$		
	(1)	(2)	(3)
Good faith $_{(-1),s,t}$	-0.0067 (-1.337)	-0.0069 (-1.301)	-0.0068 (-1.268)
Good faith $_{(0,+1),s,t}$	-0.0079 (-1.358)	-0.0080 (-1.352)	-0.0081 (-1.370)
Good faith $_{(+2),s,t}$	-0.0074** (-2.560)	-0.0073** (-2.424)	-0.0076** (-2.548)
Good faith $_{(\geq+3),s,t}$	-0.0082* (-1.928)	-0.0081* (-1.922)	-0.0085** (-2.026)
Implied contract $_{(-1),s,t}$	0.0002 (0.029)	0.0003 (0.032)	0.0003 (0.031)
Implied contract $_{(0,+1),s,t}$	-0.0064 (-0.665)	-0.0064 (-0.666)	-0.0065 (-0.673)
Implied contract $_{(+2),s,t}$	-0.0065 (-0.487)	-0.0065 (-0.485)	-0.0068 (-0.506)
Implied contract $_{(\geq+3),s,t}$	-0.0091 (-0.611)	-0.0091 (-0.611)	-0.0094 (-0.632)
Public policy $_{(-1),s,t}$	0.0014 (0.260)	0.0014 (0.248)	0.0013 (0.236)
Public policy $_{(0,+1),s,t}$	-0.0003 (-0.074)	-0.0004 (-0.081)	-0.0005 (-0.101)
Public policy $_{(+2),s,t}$	-0.0007 (-0.094)	-0.0007 (-0.095)	-0.0008 (-0.111)
Public policy $_{(\geq+3),s,t}$	-0.0003 (-0.046)	-0.0003 (-0.041)	-0.0006 (-0.100)
Household controls	No	Yes	Yes
State controls	No	No	Yes
Household FE	Yes	Yes	Yes
State FE	Yes	Yes	Yes
Year \times Month FE	Yes	Yes	Yes
Observations	209,981	209,981	209,981
Adjusted R ²	0.1963	0.1964	0.1964

Table 4. Effect of the Good faith exception on Household Portfolio choices

Table 4 reports OLS regression results to study the effect of the WDLs on households' portfolio choices. The table uses data from the SIPP from the 1984 panel to the 1999 panel. In Columns (1) - (3), the dependent variable is % Stock share, the percentage of stocks and mutual funds in total financial wealth. In Columns (4) - (6), the dependent variable is Participation (with IRA/401K/Keogh), a dummy variable set to one if a household holds stocks or mutual funds either directly or indirectly through IRA/401K/Keogh accounts. Good faith_{(-1),s,t}, Implied contract_{(-1),s,t}, and Public policy_{(-1),s,t} are indicator variables set to one for a state which will adopt the good faith, implied contract, and public policy exception, respectively, in one year. Good faith_{(0,+1),s,t}, Implied contract_{(0,+1),s,t}, and Public policy_{(0,+1),s,t} are indicator variables set to one for a state which adopts at a given month or adopted the respective WDLs a year ago. Household controls are the log of total wealth, log of one plus 4-month labor income, the number of children, marital status, a high school degree, and a college degree. The state controls are income growth, the relative unemployment rate, and the state GDP growth rate. *t*-statistics based on standard errors clustered at the state and year-month level are in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively. A detailed description of the variables used in this paper is in Table A.1.

<i>Dep. var.:</i>	% Stock share			Participation (with IRA/401K/Keogh)		
	(1)	(2)	(3)	(4)	(5)	(6)
Good faith _{(0,+1),s,t}	0.0121*** (3.084)	0.0127*** (2.766)	0.0132*** (2.715)	-0.0090** (-2.304)	-0.0089* (-1.953)	-0.0087 (-1.601)
Good faith _{(-1),s,t}	0.0008 (0.201)	0.0054 (0.898)	0.0058 (0.941)	-0.0077* (-1.718)	-0.0053 (-1.085)	-0.0052 (-1.096)
Implied contract _{(0,+1),s,t}	0.0038 (0.693)	0.0050 (0.885)	0.0076 (0.894)	-0.0102** (-2.062)	-0.0096* (-1.866)	-0.0096* (-1.795)
Implied contract _{(-1),s,t}	0.0038 (0.389)	0.0030 (0.408)	0.0034 (0.398)	-0.0017 (-0.513)	-0.0014 (-0.365)	-0.0016 (-0.423)
Public policy _{(0,+1),s,t}	-0.0018 (-0.391)	-0.0018 (-0.193)	-0.0011 (-0.248)	-0.0005 (-0.135)	-0.00005 (-0.013)	-0.0002 (-0.052)
Public policy _{(-1),s,t}	-0.0050 (-1.407)	-0.0039 (-0.933)	-0.0042 (-0.991)	-0.0034 (-0.516)	-0.0029 (-0.431)	-0.0030 (-0.450)
Household controls	No	Yes	Yes	No	Yes	Yes
State controls	No	No	Yes	No	No	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Year×Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	209,981	209,981	209,981	209,981	209,981	209,981
Adjusted R ²	0.6185	0.6323	0.6323	0.9006	0.9023	0.9023

Table 5. Estimation of Unemployment Risk

Table 5 reports the results from OLS regressions of layoff on a rich set of factors that can potentially affect households' realized layoff. The table uses data from the SIPP from the 1984 panel to the 1999 panel. The dependent variable is a dummy variable set to one if a household head is on layoff. Household controls are the log of total wealth, log of one plus 4-month labor income, the number of children, marital status, a high school degree, and a college degree. The state controls are income growth, the relative unemployment rate, and the state GDP growth rate. Industry-occupation fixed effects are also controlled in these regressions, based on the employer's three-digit Census Industry Classification and the Integrated Public Use Microdata Series code for the worker's occupation available in the SIPP data, which account for time-invariant layoff intensity for every pair of classified occupation and industry across the nation. t -statistics based on standard errors clustered at the state and year-month level are in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively. A detailed description of the variables used in this paper is in Table A.1.

<i>Dep. var.:</i>	Layoff _{<i>i,s,t</i>}		
	(1)	(2)	(3)
Number of children _{<i>i,s,t</i>}	-0.0006 (-0.395)	-0.0006 (-0.433)	-0.0004 (-0.272)
Married _{<i>i,s,t</i>}	-0.0003 (-0.098)	-0.0003 (-0.089)	-0.0002 (-0.066)
High school _{<i>i,s,t</i>}	-0.0030 (-0.413)	-0.0029 (-0.398)	-0.0046 (-0.606)
College _{<i>i,s,t</i>}	-0.0101 (-1.227)	-0.0099 (-1.218)	-0.0104 (-1.249)
Age _{<i>i,s,t</i>}	-0.0033** (-2.367)	-0.0024** (-2.555)	-0.0031** (-2.260)
Age ² _{<i>i,s,t</i>}	9.6×10^{-6} (1.328)	1.0×10^{-5} (1.388)	6.6×10^{-6} (0.929)
Log(Total wealth) _{<i>i,s,t</i>}	-0.0004 (-1.547)	-0.0004 (-1.625)	-0.0003 (-1.453)
Log(1+Labor income) _{<i>i,s,t</i>}	-0.0014*** (-5.036)	-0.0014*** (-5.026)	-0.0014*** (-4.694)
Union member _{<i>i,s,t</i>}	0.0005 (0.197)	0.0006 (0.213)	0.0003 (0.104)
State income growth _{<i>s,t</i>}	-0.0317 (-1.205)	-0.0163 (-1.382)	
State relative unemployment _{<i>s,t</i>}	0.0012 (0.275)	-0.0004 (-0.138)	
Household FE	Yes	Yes	Yes
State FE	Yes	Yes	No
Year \times Month FE	Yes	No	No
State \times Year \times Month FE	No	No	Yes
Industry \times Occupation FE	Yes	Yes	Yes
Observations	188,617	188,617	188,554
Adjusted R ²	0.2383	0.2386	0.2334

Table 6. Cross-sectional variation in the effect of the Good faith on % Stock share

Table 6 reports OLS regression results to study the heterogeneous effects of the good faith exception on households' portfolio choices. The table uses data from the SIPP from the 1984 panel to the 1999 panel. The dependent variable is % Stock share. $\widehat{\text{Good faith}}_{(0,+1),s,t}$ is an indicator variable set to one for a state which adopts at a given month or adopted the good faith exception a year ago. $\widehat{\text{layoff}}(1)_{i,s,t}$, $\widehat{\text{layoff}}(2)_{i,s,t}$, and $\widehat{\text{layoff}}(3)_{i,s,t}$ are measures of unemployment risk, estimated from the fitted part of regressions in Columns (1), (2), and (3), respectively, of Table 5. $\text{layoff}_{i,s,t}$ is a dummy variable set to one if a household head is on layoff. Household controls are the log of total wealth, log of one plus 4-month labor income, the number of children, marital status, a high school degree, and a college degree. The state controls are income growth, the relative unemployment rate, and the state GDP growth rate. t -statistics based on standard errors clustered at the state and year-month level are in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively. A detailed description of the variables used in this paper is in Table A.1.

Dep. var.:	% Stock share							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\widehat{\text{Good faith}}_{(0,+1),s,t} \times \widehat{\text{layoff}}(1)_{i,s,t}$	0.6552*** (3.141)	0.6235** (2.533)						
$\widehat{\text{Good faith}}_{(0,+1),s,t} \times \widehat{\text{layoff}}(2)_{i,s,t}$			0.9500*** (3.392)	0.9388** (2.494)				
$\widehat{\text{Good faith}}_{(0,+1),s,t} \times \widehat{\text{layoff}}(3)_{i,s,t}$					0.6150*** (3.009)	0.5786** (2.458)		
$\widehat{\text{Good faith}}_{(0,+1),s,t} \times \text{layoff}_{i,s,t}$							-0.2401*** (-2.870)	-0.2370*** (-2.854)
$\widehat{\text{layoff}}(1)_{i,s,t}$	-4.6500** (-2.519)	-5.1974*** (-2.710)						
$\widehat{\text{layoff}}(2)_{i,s,t}$			-4.3552** (-2.529)	-4.8623*** (-2.719)				
$\widehat{\text{layoff}}(3)_{i,s,t}$					-6.7571** (-2.480)	-7.5443** (-2.655)		
$\text{layoff}_{i,s,t}$							0.0025 (0.492)	0.0023 (0.450)
$\widehat{\text{Good faith}}_{(0,+1),s,t}$	0.0099 (1.641)		0.0061 (0.946)		0.0101* (1.689)		0.0159*** (3.166)	
State FE	Yes	No	Yes	No	Yes	No	Yes	No
Year \times Month FE	Yes	No	Yes	No	Yes	No	Yes	No
State \times Year \times Month FE	No	Yes	No	Yes	No	Yes	No	Yes
Household controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State controls	Yes	No	Yes	No	Yes	No	Yes	No
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Good faith lags	Yes	No	Yes	No	Yes	No	Yes	No
Other protection laws controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	192,586	192,523	192,586	192,523	192,586	192,523	209,981	209,924
Adjusted R ²	0.6320	0.6306	0.6320	0.6306	0.6320	0.6306	0.6324	0.6312

Table 7. Cross-sectional variation in the effect of the Good faith on Participation

Table 7 reports OLS regression results to study the heterogeneous effects of the good faith exception on households' portfolio choices. The table uses data from the SIPP from the 1984 panel to the 1999 panel. The dependent variable is Participation (with IRA/401K/Keogh). Good faith_{(0,+1),s,t} is an indicator variable set to one for a state which adopts at a given month or adopted the good faith exception a year ago. $\widehat{\text{layoff}}(1)_{i,s,t}$, $\widehat{\text{layoff}}(2)_{i,s,t}$, and $\widehat{\text{layoff}}(3)_{i,s,t}$ are measures of unemployment risk, estimated from the fitted part of regressions in Columns (1), (2), and (3), respectively, of Table 5. $\text{layoff}_{i,s,t}$ is a dummy variable set to one if a household head is on layoff. Household controls are the log of total wealth, log of one plus 4-month labor income, the number of children, marital status, a high school degree, and a college degree. The state controls are income growth, the relative unemployment rate, and the state GDP growth rate. *t*-statistics based on standard errors clustered at the state and year-month level are in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively. A detailed description of the variables used in this paper is in Table A.1.

Dep. var.:	Participation (with IRA/401K/Keogh)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Good faith _{(0,+1),s,t} × $\widehat{\text{layoff}}(1)_{i,s,t}$	0.8804*** (4.970)	1.0355*** (9.063)						
Good faith _{(0,+1),s,t} × $\widehat{\text{layoff}}(2)_{i,s,t}$			1.6104*** (4.349)	1.8589*** (7.230)				
Good faith _{(0,+1),s,t} × $\widehat{\text{layoff}}(3)_{i,s,t}$					0.8015*** (5.011)	0.9429*** (9.249)		
Good faith _{(0,+1),s,t} × $\text{layoff}_{i,t}$							-0.2772* (-1.960)	-0.3268* (-1.944)
$\widehat{\text{layoff}}(1)_{i,s,t}$	-2.5644* (-1.848)	-3.0262** (-2.130)						
$\widehat{\text{layoff}}(2)_{i,s,t}$			-2.3922* (-1.848)	-2.8243** (-2.132)				
$\widehat{\text{layoff}}(3)_{i,s,t}$					-3.9400* (-1.911)	-4.6237** (-2.181)		
$\text{layoff}_{i,s,t}$							0.0010 (0.217)	0.0020 (0.443)
Good faith _{(0,+1),s,t}	-0.0132*** (-3.234)		-0.0212*** (-4.964)		-0.0127*** (-3.167)		-0.0055 (-0.902)	
State FE	Yes	No	Yes	No	Yes	No	Yes	No
Year × Month FE	Yes	No	Yes	No	Yes	No	Yes	No
State × Year × Month FE	No	Yes	No	Yes	No	Yes	No	Yes
Household controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State controls	Yes	No	Yes	No	Yes	No	Yes	No
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Good faith lags	Yes	No	Yes	No	Yes	No	Yes	No
Other protection laws controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	192,586	192,523	192,586	192,523	192,586	192,523	209,981	209,924
Adjusted R ²	0.9043	0.9040	0.9043	0.9040	0.9043	0.9040	0.9023	0.9020

Table 8. Effect of the Reversal of the Good faith exception in Oklahoma 1989

Table 8 reports OLS regression results to study the effect of the reversal of the good faith exception on households' portfolio choices. The table uses data from the SIPP from the 1984 panel to the 1999 panel. In Columns (1) - (4), the dependent variable is % Stock share. In Columns (5) - (8), the dependent variable is Participation (with IRA/401K/Keogh). $\text{Reversal}_{(0,+1),s,t}$ is an indicator variable set to one for Oklahoma February 1989 and one year after. $\widehat{\text{layoff}}(1)_{i,s,t}$, $\widehat{\text{layoff}}(2)_{i,s,t}$, and $\widehat{\text{layoff}}(3)_{i,s,t}$ are measures of unemployment risk, estimated from the fitted part of regressions in Columns (1), (2), and (3), respectively, of Table 5. $\text{layoff}_{i,s,t}$ is a dummy variable set to one if a household head is on layoff. Household controls are the log of total wealth, log of one plus 4-month labor income, the number of children, marital status, a high school degree, and a college degree. The state controls are income growth, the relative unemployment rate, and the state GDP growth rate. t -statistics based on standard errors clustered at the state and year-month level are in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively. A detailed description of the variables used in this paper is in Table A.1.

Dep. var.:	% Stock share				Participation (with IRA/401K/Keogh)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\text{Reversal}_{(0,+1),s,t}$	-0.0200*** (-3.159)				-0.0735*** (-6.223)			
$\text{Reversal}_{(0,+1),s,t} \times \widehat{\text{layoff}}(1)_{i,s,t}$		-1.3012*** (-4.104)				-1.0259*** (-7.477)		
$\text{Reversal}_{(0,+1),s,t} \times \widehat{\text{layoff}}(2)_{i,s,t}$			-1.7522*** (-3.334)				-1.2858*** (-5.803)	
$\text{Reversal}_{(0,+1),s,t} \times \widehat{\text{layoff}}(3)_{i,s,t}$				-1.2741*** (-4.262)				-1.0031*** (-7.704)
$\widehat{\text{layoff}}(1)_{i,s,t}$		-5.3103*** (-2.7811)				-3.1701** (-2.238)		
$\widehat{\text{layoff}}(2)_{i,s,t}$			-4.9424*** (-2.772)				-2.9424** (-2.230)	
$\widehat{\text{layoff}}(3)_{i,s,t}$				-7.7170*** (-2.729)				-4.8392** (-2.287)
State FE	Yes	No	No	No	Yes	No	No	No
Year \times Month FE	Yes	No	No	No	Yes	No	No	No
State \times Year \times Month FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State controls	Yes	No	No	No	Yes	No	No	No
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other protection laws controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	209,981	192,523	192,523	192,523	209,981	192,523	192,523	192,523
Adjusted R ²	0.6324	0.6306	0.6306	0.6306	0.9023	0.9040	0.9040	0.9040

Table 9. Types of stocks households trade using Brokerage data

Table 9 reports OLS regression results to study the effect of the WDLs on households' change in stock holdings using the brokerage data of Barber and Odean (2000) from 1991 to 1995. This analysis is based on the adoption of the good faith in Delaware in April 1992 and also in Wyoming in January 1994. The dependent variable is the value of the monthly changes in the number of shares of a stock j held by a household i , divided by the value of the equity holdings of the stock j of a household at the beginning of the month. All values are computed using beginning-of-period prices. Good faith $_{(0,+1),s,t}$ is an indicator variable set to one for a state which adopts at a given month or adopted the good faith exception a year ago. Affected stocks $_{j,s,t}$ is an indicator variable set to one for stocks headquartered in a state where the good faith exception is adopted. The state controls are income growth, the relative unemployment rate, and the state GDP growth rate. Household characteristics are not controlled in this regression. This is because demographic information is time-invariant in this brokerage data set, and therefore the effects are subsumed by household fixed effects once they are controlled for. t -statistics based on standard errors clustered at the state and year-month level are in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively. A detailed description of the variables used in this paper is in Table A.1.

<i>Dep. var.</i>	% Change in stock holding $_{i,j,s,t}$			
	(1)	(2)	(3)	(4)
Good faith $_{(0,+1),s,t}$	0.0212* (2.007)	0.0216** (2.057)		-0.0219* (-1.824)
Good faith $_{(0,+1),s,t} \times$ Affected stocks $_{j,s,t}$		-0.0253** (-2.599)	-0.0140*** (-6.222)	
Stocks j	All	All	All	Affected Stocks only
State FE	Yes	Yes	No	Yes
Year \times Month FE	Yes	Yes	No	Yes
State \times Year \times Month FE	No	No	Yes	No
Household FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
State controls	Yes	Yes	No	Yes
Observations	2,200,363	2,200,363	2,200,363	9,540
Adjusted R ²	0.0118	0.0118	0.0124	-0.0108

Table 10. Effect of the Good faith exception on Household Consumption using CEX

Table 10 reports OLS regression results to study the effect of the WDLs on households' change in consumption using the Consumer Expenditure Survey data from 1997 to 1999. This analysis is based on the adoption of the good faith in Louisiana in January 1998. In Column (1), the dependent variable is the three-month consumption growth at a monthly frequency. In Column (2), the dependent variable is the ratio of three-month consumption level to annual labor income level at a monthly frequency. $\text{Good faith}_{(0,+1),s,t}$ is an indicator variable set to one for a state which adopts at a given month or adopted the good faith exception a year ago. The state controls are income growth, the relative unemployment rate, and the state GDP growth rate. Household characteristics are age, age square, the number of children, a high school degree, a college degree. In the first Column, the log of one plus labor income is also added. t -statistics based on standard errors clustered at the state and year-month level are in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively. A detailed description of the variables used in this paper is in Table A.1.

<i>Dep. var.</i>	Consumption growth (1)	Consumption/Labor (2)
Good faith _{(0,+1),s,t}	-0.0915*** (-3.357)	-0.0306** (-2.728)
State FE	Yes	Yes
Year × Month FE	Yes	Yes
Household FE	Yes	Yes
State controls	Yes	Yes
Household controls	Yes	Yes
Observations	31,213	39,154
Adjusted R ²	-0.1151	0.5949

Table 11. Robustness Test: using Participation excluding retirement accounts

Table 11 reports OLS regressions results, based on *Participation* excluding indirect stock holding. The table uses data from the SIPP from the 1984 panel to the 1999 panel. $\text{Good faith}_{(0,+1),s,t}$ is an indicator variable set to one for a state which adopts at a given month or adopted the good faith exception a year ago. $\text{Reversal}_{(0,+1),s,t}$ is an indicator variable set to one for Oklahoma February 1989 and one year after. $\widehat{\text{layoff}}(1)_{i,s,t}$, $\widehat{\text{layoff}}(2)_{i,s,t}$, and $\widehat{\text{layoff}}(3)_{i,s,t}$ are measures of unemployment risk, estimated from the fitted part of regressions in Columns (1), (2), and (3), respectively, of Table 5. $\text{layoff}_{i,s,t}$ is a dummy variable set to one if a household head is on layoff. Household controls are the log of total wealth, log of one plus 4-month labor income, the number of children, marital status, a high school degree, and a college degree. The state controls are income growth, the relative unemployment rate, and the state GDP growth rate. *t*-statistics based on standard errors clustered at the state and year-month level are in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively. A detailed description of the variables used in this paper is in Table A.1.

Dep. var.:	Participation								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Good faith _{(0,+1),s,t}	0.0031 (0.539)								
Good faith _{(0,+1),s,t} × $\widehat{\text{layoff}}(1)_{i,s,t}$		1.1989*** (7.682)							
Good faith _{(0,+1),s,t} × $\widehat{\text{layoff}}(2)_{i,s,t}$			2.0823*** (6.619)						
Good faith _{(0,+1),s,t} × $\widehat{\text{layoff}}(3)_{i,s,t}$				1.0991*** (7.857)					
Good faith _{(0,+1),s,t} × $\text{layoff}_{i,s,t}$					-0.4392*** (-5.289)				
Reversal _{(0,+1),s,t}						-0.0713*** (-5.777)			
Reversal _{(0,+1),s,t} × $\widehat{\text{layoff}}(1)_{i,s,t}$							-1.4022*** (-11.442)		
Reversal _{(0,+1),s,t} × $\widehat{\text{layoff}}(2)_{i,s,t}$								-1.9864*** (-9.957)	
Reversal _{(0,+1),s,t} × $\widehat{\text{layoff}}(3)_{i,s,t}$									-1.3576*** (-11.656)
State FE	Yes	No	No	No	No	Yes	No	No	No
Year × Month FE	Yes	No	No	No	No	Yes	No	No	No
State × Year × Month FE	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State controls	Yes	No	No	No	No	Yes	No	No	No
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Good faith lags	Yes	No	No	No	No	Yes	No	No	No
Other protection laws controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	209,981	192,523	192,523	192,523	209,924	209,981	192,523	192,523	192,523
Adjusted R ²	0.7599	0.7630	0.7630	0.7630	0.7659	0.7668	0.7630	0.7630	0.7630

Table 12. Robustness Test: using % of Stock in total wealth

Table 12 reports OLS regression results, based on % of Stock in total wealth which is the ratio of stock and mutual funds to total wealth. The table uses data from the SIPP from the 1984 panel to the 1999 panel. Good faith_{(0,+1),s,t} is an indicator variable set to one for a state which adopts at a given month or adopted the good faith exception a year ago. Reversal_{(0,+1),s,t} is an indicator variable set to one for Oklahoma February 1989 and one year after. $\widehat{\text{layoff}}(1)_{i,s,t}$, $\widehat{\text{layoff}}(2)_{i,s,t}$, and $\widehat{\text{layoff}}(3)_{i,s,t}$ are measures of unemployment risk, estimated from the fitted part of regressions in Columns (1), (2), and (3), respectively, of Table 5. $\text{layoff}_{i,s,t}$ is a dummy variable set to one if a household head is on layoff. Household controls are the log of total wealth, log of one plus 4-month labor income, the number of children, marital status, a high school degree, and a college degree. The state controls are income growth, the relative unemployment rate, and the state GDP growth rate. *t*-statistics based on standard errors clustered at the state and year-month level are in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively. A detailed description of the variables used in this paper is in Table A.1.

Dep. var.:	% of Stock in total wealth								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Good faith _{(0,+1),s,t}	0.0132*** (2.715)								
Good faith _{(0,+1),s,t} × $\widehat{\text{layoff}}(1)_{i,s,t}$		0.6235** (2.533)							
Good faith _{(0,+1),s,t} × $\widehat{\text{layoff}}(2)_{i,s,t}$			0.9388** (2.494)						
Good faith _{(0,+1),s,t} × $\widehat{\text{layoff}}(3)_{i,s,t}$				0.5786** (7.857)					
Good faith _{(0,+1),s,t} × $\text{layoff}_{i,s,t}$					-0.2370*** (-2.854)				
Reversal _{(0,+1),s,t}						-0.0199*** (-3.153)			
Reversal _{(0,+1),s,t} × $\widehat{\text{layoff}}(1)_{i,s,t}$							-1.3012*** (-4.104)		
Reversal _{(0,+1),s,t} × $\widehat{\text{layoff}}(2)_{i,s,t}$								-1.7522*** (-3.334)	
Reversal _{(0,+1),s,t} × $\widehat{\text{layoff}}(3)_{i,s,t}$									-1.2741*** (-4.262)
State FE	Yes	No	No	No	No	Yes	No	No	No
Year × Month FE	Yes	No	No	No	No	Yes	No	No	No
State × Year × Month FE	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State controls	Yes	No	No	No	No	Yes	No	No	No
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Good faith lags	Yes	No	No	No	No	Yes	No	No	No
Other protection laws controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	209,981	192,523	192,523	192,523	209,924	209,981	192,523	192,523	192,523
Adjusted R ²	0.6323	0.6306	0.6306	0.6306	0.6312	0.6323	0.6306	0.6306	0.6306

Table 13. Robustness Test: using Log(1+stock value)

Table 13 reports OLS regressions results, based on $\text{Log}(1+\text{stock value})$ which is the ratio of stock and mutual funds to total wealth. The table uses data from the SIPP from the 1984 panel to the 1999 panel. Good faith $_{(0,+1),s,t}$ is an indicator variable set to one for a state which adopts at a given month or adopted the good faith exception a year ago. Reversal $_{(0,+1),s,t}$ is an indicator variable set to one for Oklahoma February 1989 and one year after. $\widehat{\text{layoff}}(1)_{i,s,t}$, $\widehat{\text{layoff}}(2)_{i,s,t}$, and $\widehat{\text{layoff}}(3)_{i,s,t}$ are measures of unemployment risk, estimated from the fitted part of regressions in Columns (1), (2), and (3), respectively, of Table 5. $\text{layoff}_{i,s,t}$ is a dummy variable set to one if a household head is on layoff. Household controls are the log of total wealth, log of one plus 4-month labor income, the number of children, marital status, a high school degree, and a college degree. The state controls are income growth, the relative unemployment rate, and the state GDP growth rate. t -statistics based on standard errors clustered at the state and year-month level are in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively. A detailed description of the variables used in this paper is in Table A.1.

Dep. var.:	Log(1+stock value)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Good faith $_{(0,+1),s,t}$	0.0278 (0.411)								
Good faith $_{(0,+1),s,t} \times \widehat{\text{layoff}}(1)_{i,s,t}$		10.6557*** (5.835)							
Good faith $_{(0,+1),s,t} \times \widehat{\text{layoff}}(2)_{i,s,t}$			18.6747*** (7.125)						
Good faith $_{(0,+1),s,t} \times \widehat{\text{layoff}}(3)_{i,s,t}$				9.7403*** (5.508)					
Good faith $_{(0,+1),s,t} \times \text{layoff}_{i,s,t}$					-3.6396*** (-5.693)				
Reversal $_{(0,+1),s,t}$						-0.5666*** (-6.605)			
Reversal $_{(0,+1),s,t} \times \widehat{\text{layoff}}(1)_{i,s,t}$							-15.8000*** (-7.005)		
Reversal $_{(0,+1),s,t} \times \widehat{\text{layoff}}(2)_{i,s,t}$								-20.9107*** (-5.848)	
Reversal $_{(0,+1),s,t} \times \widehat{\text{layoff}}(3)_{i,s,t}$									-15.3656*** (-7.178)
State FE	Yes	No	No	No	No	Yes	No	No	No
Year \times Month FE	Yes	No	No	No	No	Yes	No	No	No
State \times Year \times Month FE	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State controls	Yes	No	No	No	No	Yes	No	No	No
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Good faith lags	Yes	No	No	No	No	Yes	No	No	No
Other protection laws controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	209,981	192,523	192,523	192,523	209,924	209,981	192,523	192,523	192,523
Adjusted R ²	0.7716	0.7687	0.7687	0.7687	0.7707	0.7716	0.7687	0.7687	0.7687

Table 14. Robustness Test: Unemployment insurance

Table 14 reports OLS regression results to study the effect of the WDLs on households' portfolio choices after controlling for the unemployment insurance. $\text{Log UI}_{s,t}$ denotes the log of unemployment insurance generosity defined as the maximum number of weeks and the maximum weekly benefit amount. The table uses data from the SIPP from the 1984 panel to the 1999 panel. The dependent variable is % Stock share, the percentage of stocks and mutual funds in total financial wealth. $\text{Good faith}_{(0,+1),s,t}$ is an indicator variable set to one for a state which adopts at a given month or adopted the good faith exception a year ago. Household controls are the log of total wealth, log of one plus 4-month labor income, the number of children, marital status, a high school degree, and a college degree. The state controls are income growth, the relative unemployment rate, and the state GDP growth rate. t -statistics based on standard errors clustered at the state and year-month level are in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively. A detailed description of the variables used in this paper is in Table A.1.

<i>Dep. var.:</i>	% Stock share		
	(1)	(2)	(3)
Good faith _{(0,+1),s,t}	0.0128*** (2.944)	0.0132*** (2.760)	0.0134** (2.715)
Log UI _{s,t}	-0.0332 (-1.303)	-0.0279 (-1.269)	-0.0274 (-1.233)
Household controls	No	Yes	Yes
State controls	No	No	Yes
Household FE	Yes	Yes	Yes
State FE	Yes	Yes	Yes
Year×Month FE	Yes	Yes	Yes
Observations	201,826	201,826	201,826
Adjusted R ²	0.6190	0.6329	0.6329

Table 15. Robustness Test: Border state

Table 15 reports OLS regression results to study the effect of the WDLs on households' portfolio choices for states which adopt the WDLs as well as neighboring states. The table uses data from the SIPP from the 1984 panel to the 1999 panel. The dependent variable is % Stock share, the percentage of stocks and mutual funds in total financial wealth. $\text{Good faith}_{(0,+1),s,t}$ is an indicator variable set to one for a state which adopts at a given month or adopted the good faith exception a year ago. $\text{Good faith border state}_{(0,+1),s,t}$ is an indicator variable set to one for a state which shares borders with a state which adopts at a given month or adopted the good faith exception a year ago. Household controls are the log of total wealth, log of one plus 4-month labor income, the number of children, marital status, a high school degree, and a college degree. The state controls are income growth, the relative unemployment rate, and the state GDP growth rate. t -statistics based on standard errors clustered at the state and year-month level are in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively. A detailed description of the variables used in this paper is in Table A.1.

<i>Dep. var.:</i>	% Stock share		
	(1)	(2)	(3)
Good faith _{(0,+1),s,t}	0.0124*** (3.149)	0.0129*** (2.816)	0.0134*** (2.751)
Good faith border state _{(0,+1),s,t}	0.0025 (1.444)	0.0022 (1.421)	0.0023 (1.500)
Household controls	No	Yes	Yes
State controls	No	No	Yes
Household FE	Yes	Yes	Yes
State FE	Yes	Yes	Yes
Year×Month FE	Yes	Yes	Yes
Observations	201,826	201,826	201,826
Adjusted R ²	0.6185	0.6323	0.6323

A. Appendix

A.1 Proof of Equation (1)

An investor can allocate wealth to the following two assets: A riskless asset B_t and risky asset S_t whose dynamics are:

$$\frac{dB_t}{B_t} = r_f dt \quad (\text{A.1})$$

$$\frac{dS_t + D_t dt}{S_t} = \mu_s dt + \sigma_s dW_{d,t} \quad (\text{A.2})$$

where r_f denotes the risk-free rate, μ_s is the mean of stock returns, σ_s is the volatility of stock returns, and $dW_{d,t}$ is the standard Brownian Motion shock representing shocks to dividend. A risky asset which is a claim to an exogenous dividend D_t that follows: $\frac{dD_t}{D_t} = \mu_d dt + \sigma_d dW_{d,t}$ where $\mu_d > 0$ is the expected dividend growth rate, and $\sigma_d > 0$ is the dividend growth volatility. The investor receives the stochastic exogenous non-financial income.

$$\frac{dY_t}{Y_t} = \mu_y dt + \sigma_y dW_{y,t} \quad (\text{A.3})$$

where $\mu_y > 0$ is the expected labor income growth rate, $\sigma_y > 0$ is the labor income growth volatility, and $dW_{y,t}$ is the standard Brownian Motion shock representing shocks to labor income. The two Brownian motion shocks are correlated (i.e., $dW_{d,t}dW_{y,t} = \rho dt$). Individual optimization problem is to search for possible consumption and the risky asset share to maximize the lifetime sum of expected utility at each point in time, given the states i.e., $\{C_t^*, \alpha_t^*\} = \arg \max_{(c,\pi)} \mathbb{E}_t[\int_t^\infty e^{-\delta(s-t)} u(c_s) ds]$ where $u(c)$ is a utility function of consumption.

A trading strategy satisfies the following dynamic budget constraints.

$$\begin{aligned} dX_t &= \alpha_t X_t \left(\frac{dS_t + D_t dt}{S_t} \right) + (X_t - \alpha_t X_t) r_f dt + (Y_t - C_t) dt \\ &= [\alpha_t X_t (\mu_s - r_f) + r_f X_t + Y_t - C_t] dt + \alpha_t X_t \sigma_s dW_{d,t} \end{aligned} \quad (\text{A.4})$$

This dynamic programming can be formulated by the following Hamilton-Jacobian-Bellman equation.

$$\begin{aligned} 0 &= \max_{(c,\pi)} \{ u(C_t) - \delta V + V_X [r_f X_t + \alpha_t X_t (\mu_s - r_f) + Y_t - C_t] + \frac{1}{2} V_{XX} \alpha_t^2 X_t^2 \sigma_s^2 \\ &\quad + V_Y \mu_y Y_t + \frac{1}{2} V_{YY} \sigma_y^2 Y_t^2 + V_{XY} \alpha_t X_t \sigma_s \sigma_y Y_t \rho \end{aligned} \quad (\text{A.5})$$

The first order condition with respect to α is

$$V_X X_t (\mu_s - r_f) + V_{XX} \alpha X_t^2 \sigma_s^2 + V_{XY} X_t \sigma_s \sigma_y Y_t \rho = 0 \quad (\text{A.6})$$

By solving for α ,

$$\alpha^* = \frac{\mu_s - r}{\sigma_s^2} \left(-\frac{V_X}{X_t V_{XX}} \right) - \frac{\sigma_y \rho}{\sigma_s} \frac{V_{XY} Y_t}{V_{XX} X_t} \quad \blacksquare \quad (\text{A.7})$$

Table A.1. Variable Definition

This table describes variables used in the current study.

Variable	Description
Panel A: Demographic variables	
Number of children	Number of own children in family
Married	A dummy variable set to one if the household head is married and zero otherwise
High school	A dummy variable set to one if the household head finished high school
College	a dummy variable set to one if the household head finished college
Age	Age of the household head
Panel B: Assets and liabilities	
Stock	The value of stocks and mutual funds
Checking	The value of checking accounts which do not earn interest
Saving	The value of savings accounts, money market deposit accounts, certificates of deposit
Bond	The value of money market funds, U.S. Government securities, municipal or corporate bonds, other interest-earning assets
Total financial wealth	Stock + Checking + Saving + Bond
% Stock share	Percentage of total financial wealth invested in stocks and mutual funds (Stock / Total financial wealth)
Participation	A dummy variable set to one if a household holds either stocks or mutual funds (stock > 0)
Participation (with IRA/401K/Keogh)	A dummy variable set to one if a household holds stocks or mutual funds either directly or directly through IRA/401K/Keogh accounts. The question that asks the type of assets in retirement accounts which is used to identify the indirect stock investment appears only once a year before 1996 panel. Therefore, I assume that the kind of assets invested in the retirement do not change for the same year before 1996 panel.
Vehicle equity	The value of vehicles - the value of debts against vehicles
Home equity	The value of Properties - mortgage for the Properties + other real estate
Other assets	Business equity + equity in other investments. The question for the business equity appears only once a year before 1996 panel. Therefore, I assume that the business equity value does not change for the same year before 1996 panel.
Total wealth	Total financial wealth + vehicle equity + home equity + other assets
Panel C: Labor-related variables	
Labor income	The value of earnings from jobs
Layoff	A dummy variable set to one if the household head is on layoff. I classify households as laid off if they report separating from their employer because of layoff. I also utilize the question of “were you on layoff?”.
Union	A dummy variable set to one if the household head is a member of a labor union. This variable is available from the 1985 panel.
Panel D: Macro-level variables	
State income growth	Logarithm of the difference between the state income in a given year and that in the previous year
State relative unemployment	Ratio of the current unemployment rate to the moving average of the state unemployment rates over the previous four years.
Panel E: Brokerage data	
% Change in stock holding	The value of the monthly changes in the number of shares of a stock j held by a household i , divided by the value of the equity holdings of the stock j of a household at the beginning of the month $(p_{j,t-1}(q_{i,j,t} - q_{i,j,t-1})/p_{j,t-1}q_{i,j,t-1})$.

Affected stocks	A dummy variable set to one for stocks headquartered in a state where the good faith exception is adopted.
<hr/>	
Panel F: CEX data	
Consumption growth	Seasonally adjusted three-month consumption growth at a monthly frequency based on real per capita consumption (Household level)
Consumption/Labor	Ratio of three-month consumption level to annual labor income level at a monthly frequency (Household level)
<hr/>	

Table A.2. Layoff frequency by industry and occupation

Table A.2 reports the 10 highest layoff industry (Panel A), occupation (Panel B), and industry \times occupation pair (Panel C) in the sample data from the SIPP. This is based on employer's three-digit Census Industry Classification and the Integrated Public Use Microdata Series code for the worker's occupation available in the SIPP data.

Rank	Layoff (%)	Industry	Occupation
Panel A: By industry			
1	13.49	Logging	
2	11.20	Cycles and miscellaneous transportation equipment	
3	10.43	Landscape and horticultural services	
4	8.72	Personnel supply services	
5	7.73	Construction	
6	7.69	Lodging places, except hotels and motels	
7	7.02	Carpets and rugs	
8	6.67	Wood buildings and mobile homes	
9	6.53	Fishing, hunting, and trapping	
10	5.91	Agricultural production, crops	
Panel B: By occupation			
1	26.09		Concrete and terrazzo finishers
2	16.39		Boilermakers
3	16.36		Timber cutting and logging occupations
4	14.77		Structural metal workers
5	13.04		Helpers, mechanics, and repairers
6	11.41		Carpenters
7	10.87		Crushing and grinding machine operators
8	10.59		Roofers
9	10.54		Construction laborers
10	10.53		Lay-out workers
Panel C: By industry and occupation			
1	50.00	Miscellaneous entertainment and recreation services	Hotel clerks
2	44.44	Theaters and motion pictures	Teachers, n.e.c.
3	42.86	Residential care facilities, w/out nursing	Registered nurses
4	37.50	Computers and rel. equipment	Computer operators
5	30.00	Knitting mills	Textile sewing machine operators
6	30.00	Miscellaneous entertainment and recreation services	Receptionists
7	28.57	Construction	Carpenter apprentices
8	28.57	Fishing, hunting, and trapping	Laborers, except construction
9	28.57	Membership organizations, n.e.c.	General office clerks
10	28.57	Sugar and confectionery products	Packaging and filling machine operators

Table A.3. Asset Re-allocation

Table A.3 reports the results from OLS regressions to analyze how households rebalance their portfolios in response to the adoption of the good faith exception. In Column (1), the dependent variable is $\text{Checking}_{i,t}$ defined as the ratio of checking account to total financial wealth. In Column (2), the dependent variable is $\text{Saving}_{i,t}$, defined as the ratio of saving account to total financial wealth. In Column (3), the dependent variable is $\text{Bond}_{i,t}$, defined as the ratio of the value of bonds to total financial wealth. The table uses data from the SIPP from the 1984 panel to the 1999 panel. The dependent variable is % Stock share. $\text{Good faith}_{(0,+1),s,t}$ is an indicator variable set to one for a state which adopts at a given month or adopted the good faith exception a year ago. $\text{Good faith}_{(-1),s,t}$ is an indicator variables set to one for a state which will adopt the good faith exception in one year. Household controls are the log of total wealth, log of one plus 4-month labor income, the number of children, marital status, high school degree, and a college degree. The state controls are income growth, the relative unemployment rate, and the state GDP growth rate. t -statistics based on standard errors clustered at the state and year-month level are in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% levels, respectively. A detailed description of the variables used in this paper is in Table A.1.

<i>Dep. var.:</i>	$\text{Checking}_{i,t}$	$\text{Saving}_{i,t}$	$\text{Bond}_{i,t}$
	(1)	(2)	(3)
Good faith _{(0,+1),s,t}	0.0026 (0.644)	-0.0141** (-2.409)	-0.0017 (-0.455)
Good faith _{(-1),s,t}	-0.0006 (-0.395)	0.0004 (0.050)	-0.0066 (-1.606)
Household controls	Yes	Yes	Yes
State controls	Yes	Yes	Yes
Household FE	Yes	Yes	Yes
State FE	Yes	Yes	Yes
Year × Month FE	Yes	Yes	Yes
Other protection laws control	Yes	Yes	Yes
Observations	209,981	209,981	209,981
Adjusted R ²	0.6436	0.5856	0.5622

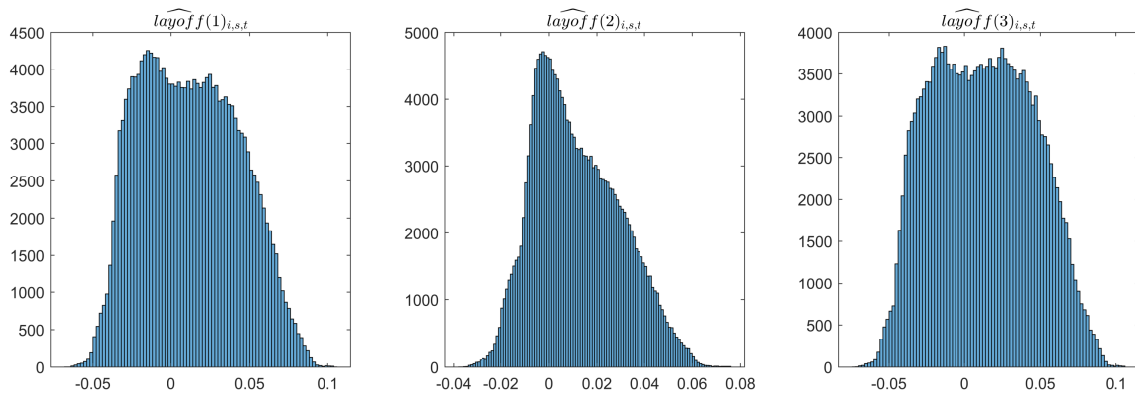


Figure A.1. Distribution of the probability of being laid off

This figure plots the distribution of $\widehat{\text{layoff}} (1)_{i,s,t}$, $\widehat{\text{layoff}} (2)_{i,s,t}$, $\widehat{\text{layoff}} (3)_{i,s,t}$ which are fitted values of regression models reported in Table 5.