Employment and Wage Insurance within Firms: Worldwide Evidence

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Abstract

We investigate the determinants of employment and wage insurance that firms offer to their employees against industry-level and idiosyncratic shocks. Using data on firms from 41 countries, we find that family firms provide more employment protection but less wage stability than non-family ones. Employment protection is priced: family firms pay a 5% lower average wage, controlling for country, industry and time effects. The additional protection offered by family firms is stronger, and the wage discount larger, the less generous the unemployment insurance system, indicating that firm-provided and government-provided employment insurance are substitutes. State-owned firms provide more employment stability than privately owned ones, and the same applies to business groups relative to standalone companies. The cross-country evidence is broadly confirmed by Italian employee-employer matched data, which additionally show that family firms adjust to shocks mostly through the hiring margin, while separations are not responsive to shocks. The matched data also reveal that the real wage discount featured by family firms tend to disappear if one controls for workers unobserved characteristics though workers fixed effects, suggesting that the wage discount observed in family firms is at least in part due to lower unobserved workers' skills in family firms.

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"The family business in Warroad, Minnesota that didn't lay off a single one of their four thousand employees during this recession, even when their competitors shut down dozens of plants, even when it meant the owners gave up some perks and pay – because they understood their biggest asset was the community and the workers who helped build that business…" (President Obama, 2012)[1]

"In 1976 I faced Gianni Agnelli with a drastic choice: here at FIAT we must lay off 25,000 employees, I told him. He thought about it for two days, then replied: it cannot be done. That reply contained the moral heritage of his grandfather, his Savoy spirit, a sense of a commitment towards the country and Turin and also his respect for workers' dignity. I could not remain at FIAT and watch the company's coffers bleed empty, so I quit. In retrospect, I was right from the company's viewpoint, but from a broader, historical and social viewpoint, he was right." (Carlo De Benedetti, former CEO of FIAT, 2013)[2]

The idea that entrepreneurs insure workers against risk by providing them a stable income flow dates at least back to Knight (1921): "the system under which the confident and venturesome assume the risk and insure the doubtful and timid by guaranteeing to the latter a specified income in return for an assignment of the actual results ... is the enterprise and wage system of industry" (269-70). This idea was formalized in the *implicit contract* model of Baily (1974) and Azariadis (1975), where risk-neutral entrepreneurs provide insurance to risk-averse workers by insulating their salaries and (under more restrictive conditions) employment from adverse shocks to production, in exchange for a lower average salary.[3] The assumption that entrepreneurs are less risk-averse than workers may not be rooted in their preferences, but in their differential access to capital markets: if entrepreneurs can diversify idiosyncratic risk away better than workers, they behave "as if" they were less risk averse, and therefore insure workers. Indeed, as highlighted by Berk and Walden (2013), capital markets allow firms to offload the risk they assume from workers with firm-specific human capital by giving them a lifetime contract that pays a wage completely insensitive to firm-specific risk: hence, even if

[1] The Baltimore Sun, "Obama's full remarks", 6 September 2012.

[2] *La Repubblica*, "Agnelli, Intervista a De Benedetti", 13 February 2013.

[3] Azariadis (1975) shows that firms offer full employment insurance only if the product price is not too variable and the economy-wide labor demand is above average.

workers could hedge against such risk, in equilibrium they would not want to do so, being already insured by their employers.

However, in practice, we often observe distressed firms laying off workers and imposing wage cuts on them, even in response to purely firm-specific shocks. Hence, the interesting issue is to understand which factors limit the employment and wage insurance that firms offer to their employees against shocks below the level predicted by the theory. This is the topic of this paper. We start by recognizing that the extent of risk-sharing between firms and workers may be affected by two groups of determinants: those that affect the *supply* of insurance by firms and those that affect its *demand* by workers. Then we try to disentangle their role empirically in a large panel of firm-level data, exploiting their variation across firms, between countries, and over time.

First, firms may differ in their ability to *supply* insurance to workers. This may be due to differences in their ability to diversify risk: firms that can access more developed financial markets can offer better insurance to their employees; diversified firms and business groups can offer more insurance to their employees, being able to transfer financial resources from profitable to loss-making segments via their internal capital market or to move employees from declining to expanding segments via their internal labor market. Moreover, firms should be better placed to insulate their employees against temporary shocks to sales than against persistent ones, being unable to survive persistent losses (Gamber, 1988).

Apart from differences in exposure to shocks and hedging capacity, firms also differ in their credibility as providers of insurance: family firms are less likely to breach implicit contracts with their employees than non-family firms (as shown by the two quotes in the epigraph), because the reputation of the controlling family is at stake. The persistence of ownership and control for generations enables them to develop a reputation with their employees, and in order to retain it they have the incentive to deliver on their promises. Their credibility is buttressed also by the fact that family firms are typically immune from the risk of hostile takeovers, and thus by unforeseen changes in control.[4] In the context of implicit contract theory, this "commitment hypothesis" implies that family firms are able

[4] A firm's implicit contracts with its employees may lack credibility if corporate control is contestable, because the firm may be taken over by an entrepreneur who is not bound by this commitment, as noted by Shleifer and Summers (1988). Indeed, a takeover raider may be enticed precisely by the short-run gain from breaching such contracts, for instance from firing workers when the company is hit by a drop in sales, or by cutting wages once employees' investment in firm-specific human capital is sunk.

to offer both more stable wages and more secure employment than non-family ones. But family firms are also known to feature more direct (often "paternalistic") and less confrontational labor relations, as witnessed by the words of Charles Heinz, vice-president of the Heinz company: "I think the fact that I'm in the Heinz family helps make for a better climate in labor negotiations" (Mueller and Philippon, 2011, p. 218). Hence they may be able to offer greater employment stability also because they can persuade their employees to accept wage reductions when adverse shocks occur. In other words, insofar as they face fewer frictions in ex-post wage bargaining, family firms can retain their employees even in bad times when this is efficient (in the sense that their marginal product still exceeds their reservation wage) by negotiating wage reductions. Under this "renegotiation hypothesis", family firms should be able to provide more employment insurance than non-family ones, but at the cost of less wage insurance.

State-owned firms are another class of firms that one can expect to be more inclined to provide insurance to their employees: when a state-run company experiences a drop in sales and profitability, it may be able to avoid layoffs by appealing for further funding from the public sector, counting on the fact that bureaucrats and politicians will want to avoid the adverse political fall-out from layoffs. Essentially, they are likely to provide more insurance to their employees that privately-owned firms by exploiting the public sector's "soft budget constraint".

A second class of reasons why one may observe different levels of insurance being provided by firms have to do with the extent of alternative social arrangements that provide valid substitutes, and therefore limit employees' *demand* for insurance from firms. Workers are less likely to demand insurance from firms in countries where social security arrangements, such as unemployment insurance or retraining of the unemployed, make firm-level insurance less valuable. They are also less likely to demand insurance against the loss of employment in countries and periods in which they expect to find relatively quickly a new job upon being fired, i.e. in tight labor markets.

In most of our empirical analysis, we rely on the difference between family and non-family firms as our supply-side determinant of workers' insurance. It is not obvious on *a-priori* grounds whether family firms should be better or worse than other firms at providing insurance to their employees: while they have a better "commitment technology" to provide such insurance, they may be unable to provide it, being less diversified and smaller than non-family firms, and therefore presumably less resilient to

downturns and more limited in their access to capital markets. In other words, whether they provide better employment insurance is an empirical issue. Regarding the demand of employment insurance, the main variable on which we rely to identify its variation across countries and over time is the replacement rate, namely, the ratio between the social security benefits paid to unemployed workers and their salary. Importantly, the interaction between firm-level ownership and the country-level unemployment insurance allows us to rule out alternative explanations that may explain the impact of family ownership.

We use two different data sets in our tests: (i) a firm-level data set with 6,298 firms from 41 countries, which allows us to exploit cross-country (as well as time-series) variation in social security arrangements and labor market characteristics; (ii) an Italian firm-worker matched data set, which contains information on firms' separation and hiring decisions, as well as on individual workers' wages and characteristics. In each data set, we measure shocks to firms as fluctuations of industry-level sales or the unanticipated component of the change in firm-level sales. We further decompose shocks in their temporary and permanent components, and assess employment and wage insurance by estimating the elasticity of employment changes (or, in the Italian data, separations and hires separately) to the shocks, as well as to their temporary and permanent components.

The evidence from the international dataset shows that in most countries family firms provide more employment insurance than non-family firms, and that their insurance provision is greater in countries and periods where the public sector provides less of it, so that presumably it is more valuable to workers. The latter result, establishing the substitutability between public and private employment insurance, is important because it allows us to disentangle the insurance motivation from other potential reasons for the provision of employment stability by family firms. For example, one can argue that family firms may provide more stable employment than non-family firms because they adopt different technologies from non-family firms, have a better match with their employees, or invest more intensively in their employees' human capital and therefore are keener to retain them. Since these explanations would apply to family firms in *all* countries, we should not expect these firm characteristics to vary with public-mandated employment insurance: hence they cannot explain why family firms feature more stable employment than non-family firms in countries with lower publicly-mandated employment insurance.

There is also some evidence that family firms provide less employment insurance in situations where landing a new job quickly is easy, the fraction of long-term unemployed to total unemployed workers being smaller. Instead, the degree of financial development appears neither to affect the typical firm's ability to provide employment insurance to workers nor to make a difference to the insurance provided by family firms compared to non-family ones. We also find that family firms are better able at providing employment insurance in response to transitory rather than permanent shocks, as predicted by Gamber (1988).

We also inquire whether firms differ in their provision of wage insurance. In both the cross-country and in the Italian data, we find that family firms provide *less* wage insurance than non-family ones. Since at the same time they offer greater employment insurance to their employees than non-family analogues, this evidence appears consistent with the "renegotiation hypothesis" outlined above, namely, with the idea that greater trust in industrial relationships enables family firms to offer greater job security in exchange for greater wage flexibility in response to sales shocks. Moreover, the employment security provided by the public sector appears to have no significant effect on the provision of wage insurance by firms, and more specifically by family firms.[5]

Besides accepting greater wage flexibility, family-firms' employees appears also willing to accept lower wage levels. In our cross-country data, family firms pay a 5-percent lower average wage, controlling for country, industry and time effects. This accords with the predictions of the implicit contract theory of Baily (1974) and Azariadis (1975) jointly with the "commitment hypothesis", namely, with the idea that family firms are more credible than non-family ones in their provision of insurance. However, as already noticed above, implicit contract theory alone cannot explain the evidence entirely: according to that theory, workers should accept a lower average wage in exchange for wage stability, whereas in our data they enjoy greater employment stability, but less wage stability than other workers.

We also explore to what extent the wage-level differential between family and non-family firms actually arises from a different skill composition of their labor force. This appears indeed to be the case in our more granular Italian data set, where the differential

[5]These results are obtained on a considerably smaller sample than those regarding employment insurance, since wage in our international data set data are unavailable for over 60 percent of the firms for which we have employment data.

is only 2 percent when we control for firms' and workers' observable characteristics, and disappears altogether when we include workers' fixed effects.

Beside the difference between family and non-family firms, we also consider other differences between firms that should affect their supply of insurance to workers in a more obvious direction: we compare (i) state-owned companies with privately-owned ones, and (ii) business groups with standalone companies. Using our cross-country data, we find that, in line with our priors, state-owned companies are more generous providers of insurance to their employees than privately-owned firms, and that so are business groups compared with standalone firms.

Previous studies on risk-sharing within firms focus on individual countries, so that – unlike our study – they cannot explore how country-level provision of employment insurance by the government influence risk-sharing and disentangle demand from supply considerations. As a result, these studies focus exclusively on how differences in firm characteristics (ownership, control or capital structure) on in the type of shocks hitting them affect their risk sharing with employees.

Several papers focus on the difference between family and non-family firms in France, where family firms appear to provide more employment insurance to their employees than non-family ones: Sraer and Thesmar (2007) and Bassanini et al. (2011) document that in heir-managed firms employment is less sensitive to industry sales shocks, average wages are lower and profits larger, in line with implicit contract theory. Employment insurance also seems to buy social peace: family firms have not only lower job turnover but less wage renegotiation (Bach and Serrano-Velarde, 2010), are less likely to face strikes and unionized workers, inflict sanctions and experience disputes ending in court (Müller and Philippon, 2007; Waxin, 2009). For Italy, D'Aurizio and Romano (2013) show that family firms reacted to the 2008 crisis by safeguarding more than non-family firms workplaces close to the firm's headquarters, compared to other plants. For U.S. listed companies, the evidence is weaker: in family-managed firms downsizing is less likely, but more severe; in family-owned firms, job cuts exceeding 6% of the workforce are less likely (Block, 2008).

Kim, Maug and Schneider (2011) investigate whether risk sharing within firms is affected by workers' role in corporate governance. Using establishment-level panel data for German companies, they inquire whether Germany's mandated 50% labor representation on supervisory boards is associated with greater employment and wage

insurance against industry shocks. They find that white-collar and skilled blue-collar workers of firms with parity codetermination are protected against layoffs and wage cuts, while no such protection is in place for unskilled workers. Moreover, only white collar workers pay a 3% insurance premium in the form of lower wages for this benefit.

There is also evidence that firms' ability to access credit affects their ability to provide risk-sharing benefits to their employees. Sharpe (1994) documents that employment in more levered U.S. firms responds more to fluctuations in aggregate output. Caggese and Cuñat (2008) build and calibrate a dynamic model showing that financially constrained firms tend to use temporary workers more intensively, and make them absorb a larger fraction of the total employment volatility than financially unconstrained firms do. These predictions are confirmed by their estimates, obtained using a panel for small and medium-size Italian manufacturing firms in 1995-2000.

Another strand of research investigates the wage insurance that firms offer against temporary and permanent shocks. Guiso, Pistaferri and Schivardi (2005) show that Italian workers' earnings are consistent with full insurance of transitory shocks to firm value added, and considerable insurance of permanent shocks: the standard deviation of wage growth shocks is 12%, while under no insurance the standard deviation would be 40%. Broadly similar results are reported for Portugal by Cardoso and Portela (2009), for Hungary by Kàtai, and for Germany by Guertzgen (2013).

The rest of the paper is as follows. Section 1 presents the data. Section 2 lays out our empirical strategy. Section 3 presents the evidence based on our international data set, while Section 4 presents those obtained from the Italian data. Section 5 concludes.

1. Empirical methodology

Our primary aim is to assess how the extent of risk-sharing within firms differs depends on (i) "a priori" relevant firm characteristics (e.g., family or non-family owned), (ii) some country-level characteristics, namely, the extent of insurance offered by social security arrangements, the severity of unemployment hardship and the degree of financial development. Firms may offer insurance to their employees by stabilizing their employment level and/or their wages when faced with changes in the demand for their output – for example, by not firing them nor requiring a wage cut when the industry or the firm faces a decline in sales. Our methodology is based on estimating the elasticity of

employment or wages to "shocks" in sales, and exploring how this elasticity changes depending on the factors described before – for instance, how it differs between family and non-family firms, and how it varies depending on social security arrangements, unemployment hardship and country-level financial development. In different specifications of our regressions, we rely on different definitions of a "shock" in sales: in most specifications, it is the percentage changes in the sales of the relevant industry; in others it is an idiosyncratic firm-level shock, measured as the unexpected component of the change in sales of the relevant firm. In other specifications, we break down the change in sales in its positive and negative components, or in its transitory and persistent ones.

Our methodology is best illustrated by considering one of the specifications of the employment regression that we use to investigate how the provision of employment insurance by family and non-family firms differs in our international sample:

$$n_{ijct} = \beta_1 \varepsilon_{ijct} + \beta_2 F_{it} + \beta_3 \varepsilon_{ijct} F_{it} + \beta_4 \varepsilon_{ijct} S_{ct} + \beta_5 F_{it} S_{ct} \varepsilon_{ijct} + \beta_6 S_{ct} + \gamma' X_{ijct-1} + \mu_{cj} + \mu_t + u_{ijct}, \quad (1)$$

where the subscripts *i*, *j*, *c* and *t* index firms, industries, countries and years respectively, n_{ijct} is the log of growth rate in the employment of firm *i* in year *t*, ε_{ijct} is a shock to the sales of firm *i* or of its industry *j* in year *t*, F_{it} is a family-firm dummy variable (equal to 1 for family firms, and 0 otherwise), S_{ct} is a measure of the replacement rate (taken to measure the effectiveness of the public employment insurance system) in country *c* and year *t*, and X_{ijct-1} is a vector of company-specific variables measured as of year $t-1$, namely firm size (measured as the log of market capitalization), asset tangibility (ratio of plant, property and equipment to total assets), profitability (return on total assets), and leverage (ratio of total debt to total assets). Finally, μ_{cj} is a country-industry effect, μ_t is a year effect, and u_{ijct} is the error term.

The coefficient β_1 measures the elasticity of employment to the sales shock, β_2 controls for the difference in the rate of employment growth between family and non-family firms, β_3 measures the difference in the elasticity of employment to shocks between family and non-family firms, β_4 captures the effect of public insurance on risk-sharing within firms, β_5 captures the differential effect of public insurance on the risk-sharing provided by family firms, and β_6 controls for the baseline effect of public

insurance on employment growth. Hence, $\beta_3 < 0$ would indicate that in family firms employment responds less to shocks than in non-family ones ($\beta_3 = -\beta_1$ being the case of full insurance by family firms), $\beta_4 > 0$ that better public insurance is associated with a greater response of employment to shocks (i.e. lower supply of employment insurance by firms), and $\beta_5 > 0$ that it is associated with a larger employment response in family firms than in non-family ones (i.e. lower supply of insurance by family firms).

In other specifications of the employment equation, we replace (or complement) the S_{ct} variable with a measure of labor market tightness and a measure of financial development. We expect that a tight labor market, where fired workers are unlikely to remain unemployed for long, should lower the demand for employment insurance directed to firms, and therefore increase the response of employment to shocks: hence, the interaction of labor market tightness with the shock (and possibly also that with the shock and the family firm dummy) should carry a positive coefficient. We are more agnostic concerning the coefficient of the double interaction between financial development and the shock ε_{ijct}, since financial development may enhance the supply of employment insurance by firms but also cater to the demand for insurance by workers: the coefficient should be negative if a more developed financial market increases mainly the supply of employment insurance by firms, by allowing them to better diversify the risk from insuring workers; it should positive if instead more developed capital markets mainly reduce the demand for employment insurance by workers, enabling them to shoulder the negative effects of unemployment either by borrowing or via private insurance. Finally, the coefficient of the triple interaction between financial development, the shock ε_{ijct} and the family-firm dummy should capture the differential effect of financial development on the insurance provided by family firms: a positive coefficient here would indicate that less developed financial markets are associated with a comparative disadvantage of family firms in the provision of insurance to their employees.

We use a similar approach to inquire whether firms differ in their propensity to stabilize wages, and whether this type of insurance varies across different types of companies and across countries featuring different levels of public employment insurance, labor market tightness and/or financial development. To do so, we estimate an equation analogous to (1), the only difference being that the dependent variable is the growth rate of the average real wage:

$$w_{ijct} = \delta_1 \varepsilon_{ijct} + \delta_2 F_{it} + \delta_3 \varepsilon_{ijct} F_{it} + \delta_4 \varepsilon_{ijct} S_{ct} + \delta_5 F_{it} S_{ct} \varepsilon_{ijct} + \delta_6 S_{ct} + \phi' X_{ijct-1} + \mu_{cj} + \mu_t + \eta_{ijct}. \quad (2)$$

Unfortunately, as already mentioned, we are able to estimate this regression on a considerably smaller sample than employment equation (1), as wage data are not available for over 60% of the firms for which employment data are available.

Our approach also allows us to test an important prediction of implicit contract theory, namely that the employment or wage insurance provided by companies to their employees should be "priced" in the wages that they pay, in the sense that companies that offer more stable employment or wages are able to pay less for their workers' services. We test this hypothesis in two ways. First, since the estimates of equation (1) and of its variants indicates that family firms offer greater employment security, we test whether the average wage paid by family firms is lower than that paid by non-family ones, controlling for various firm and country characteristics. Second, we test whether the firm-level average wage is positively correlated with the firm-level elasticity of employment to sales shocks (an inverse measure of employment insurance), estimated as the coefficient θ_{1i} in the following regression for each firm *i*:

$$n_{it} = \theta_{0i} + \theta_{1i} \varepsilon_{it} + \gamma_i' X_{it-1} + \mu_t + \xi_{it}, \quad (3)$$

where θ_{0i} is the firm-specific constant, ε_{it} is a measure of firm-specific unexpected sales shock, X_{ijct-1} is a vector of firm-specific variables measured as of year $t-1$, μ_t is a year effect, and ξ_{it} is the error term.

So far, for concreteness our methodology has been presented with reference to regressions that investigate the difference between family and non-family firms in the provision of employment and wage insurance. But we use the same regressions – i.e. specifications like (1) and (2) – also to compare state- and privately-owned firms, business groups and standalone companies, multinational and domestic companies: the only difference is that we replace the family-firm dummy variable F_{it} with dummy variables for business groups, state-owned firms or multinational firms, respectively.

1.1 Employment insurance: persistent and temporary shocks

As mentioned in the introduction, it is reasonable to expect firms to be better positioned to insure their employees in response to transitory rather than permanent (persistent) shocks.

This prediction was first tested and proved by Gamber (1988) with reference to wage insurance, and then confirmed with more sophisticated empirical methodologies by Guiso, Pistaferri and Schivardi (2005) for Italy, by Cardoso and Portela (2009) for Portugal, by Kàtai for Hungary, and by Guertzgen (2013) for Germany. However, to the best of our knowledge, this prediction has not been tested for employment insurance.

We investigate whether persistent and transitory shocks to sales are associated with a different degree of risk-sharing within firms, and also whether this different response varies across family and non-family firms. To do so, we adapt to the analysis of employment insurance the approach proposed by Guiso, Pistaferri and Schivardi (2005) to analyze wage insurance, and simplify some of their assumptions. For brevity, we explain how we obtain the persistent and permanent components of shocks, initially disregarding the cross-country component and also the distinction between family- and non-family firms. We will introduce these two dimensions of employment insurance later on.

We assume the following stochastic process for firm-level sales:

$$s_{ijt} = \mu_i + \mu_{cjt} + \lambda X_{ijt} + \varepsilon_{ijt}, \tag{4}$$

where s_{ijt} is the logarithm of sales of firm *i* belonging to industry *j* in year *t*, μ_i is a firm fixed effect, μ_{cjt} is a country-industry-year dummy, X_{ijt} are other controls and ε_{ijt} is an innovation to firm *i*'s sales, which we can decompose into a persistent and a transitory component as follows:

$$\varepsilon_{ijt} = \zeta_{ijt} + v_{ijt}, \tag{5}$$

$$\zeta_{ijt} = \zeta_{ijt-1} + u_{ijt}, \tag{6}$$

where ζ_{ijt} is the persistent component, modeled as a random walk, and v_{ijt} the transitory component of sales innovations. This is a simpler version of Guiso, Pistaferri and Schivardi (2005), where s_{ijt} and v_{ijt} are respectively modeled as AR(1) and MA(1) processes.

The process of employment is assumed to respond to persistent and transitory shocks with different sensitivities α and β:

$$n_{ijt} = \mu_i + \alpha\zeta_{ijt} + \beta v_{ijt} + \gamma W_{ijt} + \psi_{ijt}, \tag{7}$$

where μ_i is a firm fixed effect, W_{ijt} are other controls, and ψ_{ijt} is an idiosyncratic shock to employment uncorrelated with ζ_{ijt} and v_{ijt}.

To estimate the sensitivities α and β, we proceed in three steps. First, we compute the first differences of (4) and estimate the resulting sales growth regression:

$$\Delta s_{ijt} = \Delta\mu_{jct} + \lambda\Delta X_{ijt} + \Delta\varepsilon_{ijt}, \tag{8}$$

so as to recover an estimate of $\Delta\varepsilon_{ijt}$, without directly identifying the persistent and the transitory shocks. Second, we compute the first differences of (7) and estimate the resulting employment growth regression:

$$\Delta n_{ijt} = \gamma\Delta W_{ijt} + \alpha u_{ijt} + \beta\Delta v_{ijt} + \Delta\psi_{ijt} = \gamma\Delta W_{ijt} + \Delta\omega_{ijt}, \tag{9}$$

where we have used $\Delta\zeta_{ijt} = u_{ijt}$ from (6), and then have re-defined the error term as $\Delta\omega_{ijt} \equiv \alpha u_{ijt} + \beta\Delta v_{ijt} + \Delta\psi_{ijt}$.

Finally, since $\Delta\varepsilon_{ijt} = u_{ijt} + \Delta v_{ijt}$, we recover the coefficients α and β by estimating two separate IV regressions of $\Delta\omega_{ijt}$ on $\Delta\varepsilon_{ijt}$. Specifically, as shown by Guiso, Pistaferri and Schivardi (2005), a regression of $\Delta\omega_{ijt}$ on $\Delta\varepsilon_{ijt}$ with the latter instrumented by $\Delta\varepsilon_{ijt+1}$ and its powers identifies the temporary shock coefficient β, while a regression of $\Delta\omega_{ijt}$ on $\Delta\varepsilon_{ijt}$ with the latter instrumented by $\Delta\varepsilon_{ijt+1} + \Delta\varepsilon_{ijt} + \Delta\varepsilon_{ijt-1}$ and its powers identifies the persistent shock coefficient α.

To estimate a different coefficient for family firms, we just include in the regression the interaction between the family-firm dummy F_i, and among the instruments the interaction between the original instruments just described and the F_i dummy.

1.2 Empirical methodology for Italian data

The specifications used to carry out our tests on the Italian data are very similar to those shown in (1)-(3) and Section 1.1 for transitory and persistent shocks with few notable differences. First, since this is a country-specific data set, we cannot include a variable that measures the effectiveness of the public employment insurance. Second, as will be explained in Section 3, the Italian data provide information not only about total

employment growth at the firm level but also separately about separations and hires. Thus we also estimate specification (1) separately for separations and hires. This test allows us to derive more precise conclusions about employment insurance, because such insurance should be provided through fewer dismissals rather than more hires, but this effect may be lost when total employment growth rates are used. Third, the Italian data are at the worker-firm level, and provide a number of worker-level characteristics, including workers' qualifications. Thus we can estimate the wage equation (3) controlling for such workers' characteristics and including workers fixed effects.

2. Evidence from international data

To test the ability of firms to provide employment and wage insurance in different countries with different institutional arrangements of unemployment insurance, we bring together three types of data: (i) firm-level data for measures of employment, wages and sales and other firm characteristics such as total assets, leverage, asset tangibility and profitability; (ii) firm ownership data, that allows us to classify firms into family and non-family, state-owned and privately-owned, business groups and standalone firms, and (iii) measures of country-level public unemployment security, labor market tightness and financial development.

2.1 Sources and definitions

Employment, wage and financial data are drawn from Worldscope and Osiris (for non-U.S. firms) and Compustat (for U.S. firms), which contains historical data from the financial reports of publicly listed firms. We collect data for firms incorporated and listed in 41 countries over the period 1988-2011, applying two screens to the data: first, we remove financial institutions; second, we include firms only if employment data (total number of employees at the firm-level) are available for at least 7 consecutive years, thus allowing us to compute employment insurance over an extended period of time. This leaves us with 6,298 firms and 89,815 firm-year observations. However, wage data (total staff costs at the firm-level) for at least 5 consecutive years are available only for 2,485 of

these firms. Thus, while the employment regressions are based on data for 6,298 firms, wage regressions are based on data for only 2,485 firms.[6]

Ownership data come from Ellul et al. (2010): family firms are defined as those where a family blockholder is the ultimate blockholder and has at least 20% of the firm's cash flow rights. The same data source allows us to identify firms belonging to a business group (defined as those sharing the same ultimate blockholder), and state-owned companies (defined as those where the domestic government is the ultimate blockholder). While we use this definition for all our baseline tests, we check the robustness of our results by using different criteria to identify family firms: specifically, we (i) relax the definition of family firms by lowering the cash flow threshold to 5%, and (ii) tighten it by requiring the family blockholder to be present in the firm's management, on top of a 20% cash flow threshold.

Country-level data on government-mandated unemployment insurance come from various sources. First, from Aleksynska and Schindler (2011) we draw the gross replacement rate (GRR), calculated as the ratio of the unemployment insurance benefits received by a worker relative to his/her last gross earnings. This data source contains yearly GRR data for the first year of unemployment, for the second, and for the average of the two years. Importantly, this indicator of unemployment insurance has considerable variation over time, not just across countries, as will be seen below. In unreported regressions, we also use two other (time-invariant) measures of public employment protection drawn from Botero et al. (2004): one refers to social security legislation[7] and the other to employment protection legislation (EPL) against dismissal[8].

[6] We test the robustness of the employment insurance specifications on this smaller sample. The results are qualitatively very similar to those we report on the larger sample of 6,298 firms.

[7] The measure of the protection offered by social security legislation is calculated by Botero at al. (2004) as the average of four variables, each normalized between 0 to 1: (1) the number of months of contributions or employment required to qualify for unemployment benefits by law, redefined so that where higher values mean less contribution; (2) the percentage of the worker's monthly salary deducted by law to cover unemployment benefits, redefined so that higher values mean lower deductions; (3) the waiting period for unemployment benefits, redefined so that higher values mean lower waiting periods; and (4) the percentage of the net salary covered by the net unemployment benefits in case of a one-year unemployment spell.

[8] This measure is the average of the following seven dummy variables which equal one (1) if the employer must notify a third party before dismissing more than one worker; (2) if the employer needs the approval of a third party prior to dismissing more than one worker; (3) if the employer must notify a third party before dismissing one redundant worker; (4) if the employer needs the approval of a third party to dismiss one redundant worker; (5) if the employer must provide relocation or retraining alternatives for redundant employees prior to dismissal; (6) if there are priority rules applying to dismissal or lay-offs; and (7) if there are priority rules applying to re-employment.

Finally, we measure labor market tightness by the reciprocal of the share of long-term unemployed workers in total unemployment ("long-term" being defined as unemployment that persists for one year or more), drawn from the OECD (2010). Higher values of this variable correspond to lower unemployment duration, and therefore greater security for workers. While the first three measures capture the quality of the safety net provided by social security to fired workers, our measure of labor market tightness captures the likelihood of finding a new job quickly after being fired, and therefore the extent to which the state of the labor market itself mitigates unemployment hardship. Hence, it captures a different dimension of the demand for employment insurance compared to the previous measures. Since we do not have strong a-priori views about which dimension of country-level employment security matters most for the supply of insurance by firms, we shall allow for all four different measures in our specifications.

2.2 Descriptive statistics

Table 1 reports the number of firms for each of the 41 countries in our sample. As expected, there is a significant variation in the number of firms in each country, with the U.S., Japan, the United Kingdom, Germany, France and Australia being the countries with the larger number of firms.

[Insert Table 1]

Column 1 and 2 provide information on the number of non-family and family firms in each country showing a significant dispersion of each type of firm across countries. Countries like the United Kingdom, Canada, South Africa, Japan and Australia have a relatively low presence of family firms whereas countries like Argentina, Brazil, Germany, France, Hong Kong, Singapore and Taiwan have a larger presence of family firms. In some countries, such as Brazil, Israel, India, Chile and Hong Kong the number of listed family firms is larger than non-family firms. Columns 3 and 4 provide information about the average firm-level sales growth for non-family and family firms respectively. Broadly speaking, firms in emerging markets have higher annual sales growth than firms in developed countries. However, there is also significant dispersion in the sales growth of family firms and non-family firms: in some countries, the annual sales growth of family firms is larger than that of non-family firms (for example in countries such as Brazil, Singapore, Hong Kong and Czech Republic) while in others the opposite is

true (such as in India, Mexico, Canada and Italy). Columns 5 and 6 show the average total firm-level employment in non-family and family firms. In almost all countries family firms have fewer workers than non-family firms, consistently with the findings of the existing literature that shows that family firms tend to be smaller than non-family ones.[9]

Column 7 shows the average gross replacement rates for each of the countries in our sample. There are significant differences across countries: for example, while in Singapore, Mexico, Indonesia and Columbia the replacement rate is zero, in Canada it exceeds 0.50, in Norway, Portugal and Spain it is well over 0.6. In addition, replacement rates vary very significantly over time within many countries. For example, Japan's replacement rate was 0.29 until 1995, then increased up to 0.32 in 1999, and then dropped down to 0.223 in 2005. Taiwan had replacement rates equal to zero up to 1998 and then introduced unemployment insurance. Figure 1, which shows the time-series of the average gross replacement rates in different continents (Asia, Australia and New Zealand, Europe, North America, and South America), confirms that around the world there was significant time variability during our sample period.

[Insert Figure 1]

Finally, columns 8 and 9 show country-level measures of government-mandated unemployment benefits (column 8), drawn from Botero et al. (2004), and average unemployment duration, calculated as the share of unemployment that persists for one year or more, for OECD countries.[10] There are also significant differences across countries in each of these two measures as well, albeit lower than for the GRR measure. For example, long term unemployment in Mexico and South Korea out of total unemployment is around 2 percent, whereas in Italy and Belgium it is around 50%. These statistics show that there is sufficient wide variability across countries and over time to allow us to investigate the demand side of labor and wage insurance. Interestingly, the GRR measure is positively and significantly correlated with the social security legislation measure from Botero et al. (2004), while it is weakly correlated with the unemployment

[9] The median number of workers is smaller than the average statistic reported here for both family and non-family firms. Even when using medians we find that family firms have a smaller workforce compared to non-family firms.

[10] In column 9 of Table 1 we show the average share of long-term unemployed in total unemployment for OECD countries, and *not* the reciprocal of this measure, which we define as "labor market tightness" and use in our empirical analysis.

duration measure, indicating that these indicators capture different dimensions of the employment security offered by governments.

3. Employment insurance in family and non-family firms

In this section we investigate the regression results regarding the extent to which family and non-family firms provide employment insurance, controlling for the employment insurance provided by the social security system, the degree of labor market tightness, and the financial development of the relevant country.

3.1 Employment insurance: industry and firm-level shocks to sales

Table 2 shows the results from estimating various specifications of the employment growth equation (1), where the sales shock variable for each firm-year observation is the contemporaneous growth in sales in the corresponding industry (excluding the firm itself) and country. The regressions shown in columns 1 to 4 include country-industry fixed effects, while that shown in column 5 includes firm-level fixed effects.

[Insert Table 2]

The baseline elasticity of employment to industry sales (shown in the top row of the table) is positive and significant ($\beta_1 > 0$): it ranges between 8% and 11% depending on the specification. The rate of employment growth does not appear to differ significantly between family and non-family firms ($\beta_2 = 0$).

More interestingly, in family firms the response of employment to sales is considerably smaller than in non-family ones ($\beta_3 < 0$). In fact, their employment does not respond at all to industry sales shocks, as the coefficient of the interaction between the shock and the family-firm dummy (third row) completely offsets the baseline elasticity of employment to sales (first row): the hypothesis $\beta_3 = -\beta_1$ cannot be rejected in any of the specifications (1) to (5).

Turning to the effect of social security on the demand for employment insurance, the estimates in columns 2 to 5 show that better public insurance (measured by gross

replacement rates)[11] is not associated with a significantly different degree of employment insurance by non-family firms (the hypothesis that $\beta_4 = 0$ cannot be rejected), but is associated with a significant reduction in the provision of employment insurance by family firms ($\beta_5 > 0$).

Specifically, we start by testing the effect of the GRR measure on its own in column 2, and find that the coefficient estimate of the interaction between the industry shock, the family firm dummy and the GRR measure is statistically significant at the 5 percent confidence level and highly economically significant. In column 3, we replace the interaction variable between the shock, the family firm dummy and the GRR indicator with their interaction with labor market tightness (besides that between shocks and labor market tightness): the estimated coefficient indicates that family firms provide less employment insurance when the labor market is tight. Then, in column 4 we test the effect of the GRR measure jointly with labor market tightness: also in this specification, family firms in countries with high social security appear to provide less employment insurance but the significance of the coefficient estimate becomes smaller (the coefficient is significant only at the 10% confidence level). The coefficient of the interaction between the shock, the family firm dummy and labor market tightness is not significant, but carries a positive sign, implying that family firms in countries with tighter labor markets provide less employment insurance. Finally, in column 5 we investigate the effect of the social security system jointly with financial development. As in column 4, we still find that family firms in countries with generous social security provide less employment insurance, although the size and statistical significance of the coefficient estimate is lower than in column 2. The coefficient of the interaction between the shock, the family firm dummy and financial development is negative, implying that family firms in countries with high financial development provide more employment insurance. However, the coefficient is not precisely estimated. Column 6 shows that the result that family firms offer greater employment insurance than non-family ones is robust to the inclusion of fixed firm-level effects. All these results remain qualitatively unchanged when we implement robustness checks using different definitions of family firms: in fact, the results become statistically and economically more significant when we use a definition of

[11] In unreported regressions we obtain a similar result by measuring social security with the index computed by Botero et al. (2004).

family firms that combines both a cash flow rights threshold and the presence in the firm's management.

Finally, as one would expect, employment growth is significantly lower in larger companies and significantly higher in companies with a greater ROA: more mature companies grow less, while more profitable ones invest and grow more. Instead, leverage and asset tangibility (not reported in the table) are not significantly correlated with employment growth.

These results based on industry-level shocks however may offer a biased measure of the degree of employment insurance offered by firms, as they compound two different elements: first, how much insurance a firm offers when hit by a shock; second, the exposure of the firm to industry shocks. As argued by Michelacci and Schivardi (2012), family firms might self-select into low-risk and low-return industries, and possibly in less cyclically sensitive ones. Employment in family firms might therefore respond less to industry shocks because these firms are less exposed to them. In fact, when we regress firm sales growth on industry sales growth, including the same controls as in the regressions of Table 2, we find that the coefficient for non-family firms is 0.64, while the coefficient of the interaction between industry shocks and the family dummy is -0.29, significant at the 5 percent level. Although this still implies a lower employment risk in family firms, the economic mechanism behind it is very different from one in which the firm shelter workers from actual shocks it received.

To address this concern, Table 3 repeats the estimation with a different definition of the sales shock variable: rather than at the industry level, we now measure it at the firm level, to capture more closely idiosyncratic shocks to sales. Specifically, we estimate the sales shock as the residual from a first-stage predictive equation for the growth rate of sales. In this first-stage regression, the growth rate of sales of firm *i* in year *t* is regressed on its lagged value, the same set of firm-level control variables as in specification (1), country-industry effects and time effects. Due to the inclusion of the lagged dependent and of fixed effects, this predictive equation is estimated via the generalized method of moments (GMM) approach of Arellano and Bond (1991) to obtain consistent estimates. The residual from this regression is then included as the ε_{ijct} variable in the estimation of equation (1) and its variants. The results obtained from this second-stage estimation are consistent with those emerging from Table 2, the only difference being that in Table 3 the

significant coefficients are larger in absolute value and more precisely estimated than in Table 2: firm-level idiosyncratic shocks in sales appear to impact employment more severely than industry shocks, although the offset in family firms is equally complete (again, the hypothesis $\beta_3 = -\beta_1$ cannot be rejected).

The estimates in Table 3 also confirm the substitutability relationship between the public provision of employment insurance and its private provision by family firms. To illustrate this relationship, we re-estimate the regression in column (3) for each of the 41 countries in our sample (obviously dropping all country-specific explanatory variables), and for each we compute the coefficient ratio $-\beta_3 / \beta_1$, which measures the extent to which family firms stabilize employment relative to the typical firm in their country. (Technically, the ratio is the reduction in the estimated elasticity of employment to firm sales innovations associated with family firms, as a fraction of its value for all the firms in the same country.) In Figure 2 we plot this country-level measure of employment insurance provided by family firms (on the vertical axis) against the measure of the protection offered by social security legislation (on the horizontal axis) using the GRR measure. The substitutability relationship between the two forms of employment insurance is visually conveyed by the negative slope of the regression line in the figure.[12]

[Insert Figure 2]

3.2 Employment insurance: positive and negative shocks to sales

Clearly, workers are concerned with the danger of being fired when their employer experiences a drop in sales: hence, if indeed the coefficients of the interaction variables involving the family-firm dummy are to capture greater provision of employment insurance to their employees, their explanatory power should stem from the observations where there is a negative shock in sales. To investigate this point, in Table 4 the employment regressions of Table 2 are re-estimated separately for country-years in which there are negative sales shocks (Panel A) and for those in which these shocks are positive (Panel B).

[12] A similar result is obtained if we use the index from Botero et al. (2004) to measure social security legislation.

[Insert Table 4]

Comparing the estimates in the two panels, first of all even the baseline elasticity of employment to industry-level shocks appears to differ in response to negative and positive shocks: on average, firms tend to adjust employment less to drops than to increases in sales, which suggests that on average they try to provide some degree of employment insurance – or alternatively engage in some labor hoarding to save on the cost of re-hiring workers that may be needed when their sales recover.

Even more notably, the extent to which family firms engage in stabilizing employment is about twice as large in response to drops in sales as in response to positive ones. And also the degree of substitutability between their supply of employment insurance and its public provision by the social security system is much more evident in response to drops than to surges in industry sales: the estimate of the relevant coefficient in Panel A is between 5.5 and 6 times as large as in Panel B, depending on the specification.

3.3 Employment insurance: transitory and persistent shocks to sales

Gamber (1988) predicts that firms protect workers more against transitory shocks than persistent ones. So in Table 5 we investigate whether persistent and transitory shocks to sales are associated with different degrees of risk-sharing within firms, whether this different response varies across family and non-family firms, and whether there is substitutability between employment insurance provided by family firms and that supplied by country-level social security systems.

[Insert Table 5]

Panel A of Table 5 shows the estimates obtained from the IV regression where transitory shocks are identified, and Panel B those obtained from the IV regression where persistent shocks are identified as explained in Section 1.1. As expected, generally firms insure workers more against transitory than against persistent shocks, as shown by the fact that the coefficients in the top row of Panel A are smaller than the corresponding coefficients in the top row of panel B.

In particular, family firms offer complete insurance to their employees against transitory shocks (the coefficients in the second row of Panel A almost completely offsetting those in the top row), but insure only around 50% to 56% of the persistent

shocks (computing the ratio between the absolute value of the coefficients in the second row of Panel B and the corresponding coefficients in the top row of that panel). Moreover, in the latter case the estimates are quite imprecise: in the first two specifications, the coefficients in the second row of Panel B are significant only at the 10% level, and in the other two they are not significantly different from zero.

Consistently with the overall picture, there is substitutability between the employment insurance provided by family firms and by social security against transitory shocks, but there is none with reference to persistent shocks: family firms do not reduce their insurance against these shocks in response to lower public provision of such insurance, because they hardly supply any of it in the first place!

3.4 Employment insurance or labor hoarding?

Throughout this paper, we have interpreted the unresponsiveness of employment to sales shocks in family firms as a symptom of their greater willingness and/or superior ability to provide employment insurance to their employees. But there is a competing explanation, namely that the business model of family firms leads them to employ more skilled workers or to invest more intensively in their employees' human capital (via on-the-job training), so that it may be costly for them to dismiss their employees in a downturn and then attempt to rehire them in the subsequent upturn.

However, this competing explanation cannot be easily reconciled with our finding (documented below in Section 3.6) that family firms pay their employees less than non-family firms: since typically high-skill workers are paid more than lower skilled ones, this labor-hoarding explanation would imply that family firms should pay their employees more, not less, than their non-family counterparts.

Moreover, this explanation would imply that firms provide greater employment stability in industries where workers' skills are typically higher than average. To investigate this implication of the labor-hoarding view, we use the same specifications used in Tables 2 and 3 but introduce three new variables: first, a high-tech industry dummy variable that equals one if the firm operates in the technology sector and zero otherwise, an interaction between the family firm dummy and this high-tech dummy, and an interaction between the shock (industry-level or idiosyncratic), the family firm dummy and the high-tech dummy. The coefficient of interest for our analysis is the latter. We find that, whereas the coefficient of the interaction term between shocks and the family-firm

dummy becomes economically smaller but retains its statistical significance at the 5% level, the coefficient for the interaction between the shock, the family firm dummy and the industry dummy is never significant. This results suggests that family firms do not supply a higher level of employment insurance in industries where workers' skills is higher than average.

A further piece of evidence in favor of the risk-sharing interpretation of our results comes from the analysis of distressed family firms, as the supply of employment insurance should more difficult for family firms close to financial distress. To test this hypothesis we use the *z*-score to measure distance from financial distress. We use the same specifications as in Tables 2 and 3 but introduce three new variables: first, the firm-level *z*-score, an interaction between the family firm dummy and the *z*-score, and an interaction between the shock (industry-level or idiosyncratic), the family firm dummy and the *z*-score. The estimates (nor reported for brevity) indicate that the coefficient of the interaction between shocks and family-firm dummy becomes smaller, though retaining keeping statistical significance at the 5% confidence level, but the coefficient of the interaction between the shock, the family-firm dummy and the *z*-score is negative and significant at the 10% confidence level. This results shows that family firms close to financial distress are not likely to supply employment insurance to their workers.

3.5 Wage insurance

In Table 6, we investigate the provision of wage insurance in the subsample of companies for which at least 5 consecutive years of wage data are available, estimating equation (2) and variants of it. The dependent variable is the real average wage in the corresponding firm-year. On the whole, the results for wage insurance are quite different from those shown in the previous tables for employment insurance.

[Insert Table 6]

First, the coefficient estimates in the top row of Table 6 are considerably smaller than those shown in the top row of Table 2, suggesting the presence of real wage stickiness: when faced by a sales shock in their industry, apparently firms tend to adjust more the number of their employees than their real wage.

Second, rather than providing better wage insurance than non-family ones, family firms appear to feature wider real wage fluctuations: the coefficients of the third row are positive and significantly different from zero, at the 5% or at the 10% level depending on the specification. In line with the "renegotiation hypothesis" described in the introduction, family firms appear to manage to obtain wage concessions from their employees in response to drops in sales and are ready to raise them in response to increases in sales, and owing to this greater wage flexibility they are able to save their employees' jobs in downturns.

Finally, almost all interactions with country-level variables appear with insignificant coefficients in Table 6: neither the employment insurance provided by social security nor the degree of financial development appears to affect significantly the firm-level provision of wage insurance.

3.6 Is employment insurance priced by wages?

A central prediction of implicit contract theory is that the insurance provided by firms to their employees should be "priced", namely that in exchange for more stable employment and/or wages, firms should be able to pay lower real wages. Using French data, Sraer and Thesmar (2007) and Bassanini et al. (2011) find that, consistently with this prediction, family firms not only stabilize employment but also pay lower wages. However, this prediction has not been tested for other countries, to the best of our knowledge.

In Table 7, we show that that the prediction that family firms pay lower wages, controlling for other factors, holds more generally around the world. The table shows regressions of the real average wage paid by a firm in a given year on the family-firm dummy and its interactions with public unemployment security and financial development, on the usual set of firm-level controls, and country-industry fixed effects. In the specification of column 4, instead, we include firm-level fixed effects, and therefore we drop the family-firm dummy to avoid perfect collinearity.

The coefficient of the family-firm dummy is negative and significant, and implies that the average real wage paid by family firms is approximately 5% lower than the average wage in the sample. The coefficient of the interaction of this dummy with the unemployment security indicates that this effect is considerably smaller when the social security system provides a good protection against unemployment, which is perfectly

consistent with our earlier finding that in this case family firms refrain from providing much employment insurance themselves: they insure their workers less, hence they get a lower discount on the wage bill that they pay.

[Insert Table 7]

In general, in our sample firms that provide less employment insurance pay higher real wages: the finding is not limited to the comparison between family and non-family firms. This is illustrated by Figure 3, which shows a cross-sectional plot of the elasticity of employment to firm-level sale shocks against the average real wage that they pay. More precisely, the measure reported on the horizontal axis is a firm-level estimate of the elasticity of employment to the unexpected component of firm-level sales, controlling for country-industry and time fixed effects and for firm-level variables, while the variable shown on the vertical axis is the residual of a cross-sectional regression of the average real wage on country, time and industry fixed effects (in order to control for the country-, time- and industry-related variability in the level of real wages). The relationship is clearly positive, indicating that firms whose employment responds more to shocks in their sales must compensate their employees with higher real wages. The fitted regression line shown in the figure is obtained by regressing the firm-level wage regression residuals (measured on the vertical axis) on a constant and on the firm-level coefficient of employment sensitivity to industry shocks (measured on the horizontal axis). The t-statistic of the slope coefficient estimate of this regression is 28.38.

[Insert Figure 3]

3.7 Employment insurance: are state-owned firms or business groups different?

Family ownership is only one of the firm characteristics that may be expected to be associated with greater risk sharing with employees. In this section we consider two other firm characteristics that may play a similar role.

3.7.1 State-owned vs. privately-owned firms

State ownership is a firm characteristic that on *a-priori* grounds should be associated with more generous provision of employment insurance against adverse shocks, compared with

privately-owned firms. Bureaucrats may feel protective and responsible for state-owned firms, even when these are loss-making, as argued by the literature on the soft-budget constraint syndrome (see Kornai, Maskin and Roland, 2003, for a survey). Moreover, elected politicians may want to support employment in state-owned companies even in the face of adverse sales or productivity shocks, by providing subsidies to help them overcome their distress: saving jobs increases their popularity and political influence, and improves their probability of re-election.

We test the prediction that state-owned firms provide more stable employment than privately-owned ones by re-estimating the specifications of Table 2 while replacing the family-firm dummy by a state-owned-firm dummy, which equals 1 for companies where the largest blockholder is the government, and 0 otherwise. Not only the results conform to this prediction, but they indicate that state-owned companies stabilize employment completely: the coefficients in the third row of the table completely offset those in the first row, exactly as for family firms in Table 2.

Differently from family firms, state-owned firms do not reduce their provision of employment insurance in countries where workers already enjoy good protection from the social security system. This dovetails with the idea that state-owned provide such insurance for a completely different reason from that motivating family firms: bureaucrats and politicians do so because of political reasons, which are insensitive to the demand for security expressed by their employees, and therefore by the social security benefits that would be paid to laid-off workers; in contrast, family firms stabilize employment only when their employees have little social security protection, and therefore are ready to bargain with the firm to obtain job security.

[Insert Table 8]

3.7.2 Business groups vs. standalone firms

By diversifying across industry boundaries, a firm can offer better employment insurance to its employees, either by transferring financial resources across industry segments via its internal capital market or by transferring workers via its internal labor market.

Internal capital markets enable diversified business groups to reallocate financial resources from profitable industrial segments to segments facing a drop in sales and

profitability. Indeed, several studies highlight that within business groups the investment spending of each business segment is less sensitive to the industry Tobin's *Q* than that of standalone firms in the same industry, and conclude that business groups engage in value-decreasing cross-subsidization of weak divisions at the expense of those with good investment opportunities (Ozbas and Scharfstein, 2010; Lamont, 1997; Rajan, Servaes and Zingales, 2000, among others). Consistently with such "corporate socialism", one can expect each segment of a diversified business group to feature lower fluctuations in employment in response to shocks in sales than a comparable standalone undiversified firm in the same industry.

But, beside capital, a diversified business group can also move labor across industry boundaries. There are two reasons why it should be well positioned to do so, as highlighted by Tate and Yang (2012). First, a diversified business group has the incentive to equip its employees with a quite diverse set of skills in order to be able to deploy them in the group's different industrial segments, should the need arise. Second, in the presence of labor market frictions, diversified business groups can respond to asymmetric industry-level shocks more efficiently than undiversified standalone firms, by shifting its employees within the group from declining industries to expanding ones. Tate and Yang (2012) test these predictions using worker-firm matched data from the U.S. Census Bureau, and find that diversified firms have more active internal labor markets, through which they redeploy workers from declining to expanding industries. This redeployment is efficient, as it allows their employees to be more productive than those of focused firms of the same size, age, and industry.

Hence the ability of business groups to redeploy both capital and labor internally implies that, upon being hit by the same shocks, they should provide greater employment stability to their employees than standalone companies. But one can distinguish between the employment stabilization that a conglomerate achieves via its internal capital market and via its internal labor market: in the first case, employment stabilization is achieved for each conglomerate's constituent firm, while in the second it is achieved only at the group level. Since our data are at the firm, rather than at the group level, we assess only whether business groups stabilize employment via their internal capital markets. In this sense, our results are to be taken as a lower bound to the total employment insurance offered by business group compared to standalone firms.

We estimate specifications similar to those Table 2 where the family-firm dummy is replaced by a business-group dummy, which equals 1 if the firm is part of a business group (i.e., it is a firm that shares a blockholder with at least another firm) and 0 otherwise. The evidence in Table 9 shows that firms belonging to a business group provide more employment insurance than standalone firms.

[Insert Table 9]

4. Employment and wage insurance in Italian data

The cross-country data used in the previous section allowed us to investigate the degree of employment and wage insurance provided by firms with different ownership structure and the extent to which it is affected by country-level characteristics, such as the availability of public unemployment insurance, labor market tightness and financial development. However, our cross-country data suffer from two limitations. First, they provide firm-level net employment changes, and do not distinguish between separations and hires. But two firms with the same net employment changes might have very different hiring and dismissal policies: for instance, no hires and no separations in one, and the same number of hires and separations in the other. The first may thus offer perfect insurance against employment shocks, while the second does not, yet in our cross country data they would appear as identical, leading to a potential overstatement of the degree of employment insurance. Second, our cross-country wage data are average labor costs computed from companies' income statements, which do not allow us to control for the composition of the labor force. This is a particularly serious shortcoming in the wage level regressions where we investigate whether employment insurance is priced in wages, since in those regressions we cannot control for individual workers' characteristics that may affect their wages. For instance, family firms might employ lower ability workers, which might explain the wage discount that they obtain.[13]

Both of these issues can be overcome by resorting to matched firm-employee data. In this section we rely on this type of data for Italian firms and workers. The firm-level data are drawn from the Bank of Italy's annual survey of manufacturing firms (INVIND), an open panel of around 1,200 firms per year, which is representative of manufacturing firms with at least 50 employees. It contains detailed information on firms' characteristics,

[13] Bandiera et al. (2009) find evidence that Italian family firms hires managers with lower average ability.

including industrial sector, year of creation, number of employees, value of shipments, value of exports and investment. The data span the period 1984-2009 for a total of 3,763 firms. The survey contains several questions regarding the controlling shareholder. The most relevant for our purpose is a question inquiring about the nature of the controlling shareholder, from which we construct a dummy variable that is equal to 1 for firms reporting to be controlled by and individual or family; the other categories are conglomerate (firms belonging to an industrial conglomerate), institution, such as banks and insurance companies, and foreign owners. Approximately 40% of firms are classified as "family". We drop the few government-controlled firms, as they are likely to follow employment policies dictated by political objectives. We completed the dataset with balance-sheet data collected by the Company Accounts Data Service (CADS), from which we construct the financial indicators (leverage, ROA, and asset tangibility).

Starting in 1995, the data also contain each firm's self-reported prediction of next year's sales, so that idiosyncratic shocks to sales can be directly computed as the deviation of actual firm sales (in logs) from the value predicted by the same firm as of the previous year: this definition captures the unforeseen component of sales. For the year before 1995, we use an imputation procedure. We model firms' process of expectation formation in the 1995-2010 subsample by regressing predicted log sales on the previous year's actual log sales, the firm's self-reported expected variation in production capacity, expected investments, and year, sector, and area dummies (firms being classified in 10 industrial sectors and 4 macro-areas: North-West, North-East, Center and South-*cum*-Islands). We then use the estimated coefficients from this regression to impute the predicted value of expected sales for the years before 1995.

Individual workers' records come from the Social Security Institute (INPS), which was asked to provide the complete work histories of *all* workers ever employed in a firm present in the INVIND database between 1981 and 1997. The data on workers include age, gender, area where the employee works, occupational status (blue collar, white collar and executives), annual gross earnings, number of weeks worked and the firm identifier. We have approximately 3 million observations for almost 800,000 workers. Average age is 39.7 years, 77 percent are male, 67 percent are blue collar and 31 percent white collar. The matched dataset covers a shorter time span than the firm data only (1984-97 vs. 1984-

200). Therefore, the firm-level regressions are estimated on the whole 1984-2009 period, while those based on workers' records are estimated on the 1984-97 sub-period.[14]

As this data set is for Italian firms with more than 50 employees, there are no cross-sectional differences in the provision of public unemployment insurance: in Italy the so-called *Cassa Integrazione Guadagni* (CIG) applies uniformly to distressed firms with more than 20 employees, providing an unemployment subsidy in case of temporary closure normally up to a 12-month period. Hence, unlike cross-country data, the Italian data do not allow us to control for differences in public provision of employment security.

4.1 Employment regressions

Table 10 reports the results for employment growth using industry shocks to sales in the first three columns and idiosyncratic shocks to sales in the last three.

[Insert Table 10]

The regressions include a family firm dummy, the logarithm of lagged total assets, return on assets and asset tangibility, plus year, sector, and area dummies. As in the estimates based on cross-country data reported in the previous sections, in family firms employment growth is far less sensitive to industry shocks than in non-family firms, even though the point estimate of the offset is slightly smaller than that estimated on cross country data. In the second and third columns, we re-estimate the regression separately on transitory and persistent shocks in industry sales, their decomposition being effected in the same way as in the cross-country data. Employment appears to be insulated from temporary shocks to sales in all firms, not just in family ones, while it is largely insulated from persistent shocks only in family firms. This result is quite different from that obtained on cross-country data, where family firms give insurance against transitory shocks, but not against persistent ones, and non-family firms give no insurance against either type of shock.

As argued above in Section 3.1, the results based on industry-level shocks may overstate the degree of employment insurance offered by family firms. In fact, if we regress firm sales growth on industry sales growth, including the same controls as in the regressions of Table 10, we find that the coefficient for non-family firms is 0.45, while the coefficient of the interaction between industry shocks and the family dummy is -0.18,

[14] We refer the interested reader to Pozzi and Schivardi (2012) for a detailed description of the firm level dataset and to Iranzo, Schivardi and Tosetti (2008) for the matched employer-employee dataset.

significant at the 1-percent level. The estimates in the last three columns of Table 10 address this concern, because they condition on the sales shocks hitting individual firms. Indeed here there is no longer evidence of a differential response of family firms to idiosyncratic shocks: all firms appear to offer insurance against temporary shocks, and no insurance against persistent ones.

However, the picture changes further when we distinguish between the response of separations and hires to idiosyncratic shocks. The first three columns of Table 11 (whose regressions include the same controls as those of Table 10) show the effect of idiosyncratic shocks on separations, and the last three their effects on hires.

[Insert Table 11]

Separations are negatively related to firm-level shocks in sales, meaning that a drop in the firm's sales results in more separations, but in family firms this effect is almost completely absent. In fact, we fail to reject the hypothesis that the response to shocks is zero in family firms. When we distinguish between the transitory and the persistent effect of sales shocks on separations, we find again for all firms transitory shocks are completely offset, while persistent ones are offset only in family firms. Conversely, hires respond positively to sales shocks, as one would expect. Interesting, there is some evidence that family firms act more on hires than nonfamily firms. The coefficient of the interaction between the family firm dummy and shocks is positive, although not statistically different from zero (p-value of 17 percent). The difference is statistically significant for persistent shocks, which implies that family firms reduce their hires more when hit by persistent drops in sales, and conversely hire more when they enjoy a sustained increase in sales.

Hence, the overall picture is one in which family firms provide more job security, even in the face of persistent drops in sales, as separations are less sensitive to shocks. But as a result they end up having to adjust employment mostly by operating on hiring: following a negative shock, they increase separations less and decrease hires more than non-family firms. They can avoid firing their employees in the face of a persistent drop in sales precisely by reducing new hires by more.

4.2 Wage regressions

We now turn to the regressions based on individual workers' wages. To account for the fact that the regressor only changes at the firm-year level we cluster the standard errors

accordingly (estimates are much more significant if we use the robust Huber-White robust standard error correction). The explanatory variables of these regressions include firm-level idiosyncratic shocks to sales, the same firm-level controls and dummy variables as in Tables 10 and 11, plus some worker-level controls: the employee's age, squared value of age, gender, and dummies for occupational status.

[Insert Table 12]

In Column 1 of Table 12 we use the sectorial shock. We find that wages respond to shocks in non-family firms, as in the cross-country data. The coefficient on the interaction with the family firm dummy is negative but not statistically different from zero. This result is in line with the idea that family firms are less exposed to aggregate shocks. Column 2 shows that that individual workers' wage growth is positively related to idiosyncratic shocks to sales, but that their response is *stronger* in family firms, consistently with what we found in cross-country data. Moreover, the estimates shown in columns 3 and 4 indicate that the differential wage response of family firms applies to transitory sales shocks, whereas for persistent ones both types of firms react in the same fashion. As in cross-country data, family firms appear to moderate the response of employment – more specifically separations – to sales shocks at the cost of increasing the corresponding response of their employees' salaries.

Finally, in Table 13 we address the issue of the price of insurance by estimating real wage level regressions, controlling for firms' and workers' individual characteristics. In particular, we can include a worker fixed effect, which perfectly accounts for any fixed unobserved heterogeneity in workers' productivity.

[Insert Table 13]

When one controls only for sector, industry and geographical area, one finds that the real wage paid by family firms is 16.7 percent lower than that paid by non-family firms (column 1); but interestingly when one controls for the observable characteristics of workers (column 2), firms (column 3) or both (column 4), the difference decreases considerably – down to 2 percent when one controls for both firms' and workers' observable characteristics. And it disappears altogether when also workers' fixed effects are included (column 5). This indicates that, at least in the Italian case, the wage gap is

actually driven by firms' and workers' characteristics, rather than differences in wages due to the price of insurance.

4.3 Summary and comparison with cross-country results

The overall picture that emerges from this Italian panel data set is one in which employment insurance is provided, especially by family firms, and in exchange the latter do not obtain lower wages, but offer less wage insurance: in family firms hit by a drop in sales, employees appear more willing to accept wage cuts – compared to those of non-family ones – but in exchange they face a lower probability of being fired.

When set against the backdrop of the international evidence of the previous sections, this evidence for Italy reveals consistencies but also elements of contrast. Both data sets are consistent with the hypothesis that firms provide some employment insurance, and that family firms offer more of it, even though with idiosyncratic shocks in the Italian data set this result only emerges when distinguishing between hires and separations. Another common finding is that firms provide no wage insurance, and that actually family firms provide less of it than non-family ones.

However, the two data sets produce different results about the response of employment to persistent and transitory shocks: in cross-country data, both types of shock influence employment, and only family firms appear to completely insure their employees against transitory ones, but not against persistent ones; instead, in the Italian data, family firms appear to insure their employees against persistent shocks, by not changing separations while making hires more responsive to shocks, while non-family firms do not.

The most striking difference arises in the regressions for real wage levels: in both data sets, family firms pay significantly lower wages, but the Italian data show that once we control for firm and workers characteristics the difference shrinks very considerably or disappears. So employment composition does make a difference. This provides an important note of caution about the results that we obtain on cross-country data, where regrettably data on individual workers' compensation and characteristics are unavailable: the wage discount found there for family firms could be, at least partly, driven by composition effects.

5. Conclusions

This paper investigates investigate the extent and determinants of employment and wage insurance that firms offer to their employees, by looking at characteristics of firms that provide more insurance to them and at country characteristics that affect workers' need for insurance, chiefly the provision of unemployment insurance by the social security system.

We use two different data sets to investigate employment and wage insurance. The evidence from our international panel data indicates that family firms provide more employment protection, especially in the face of transitory drops in sales, but less wage stability than non-family ones. Moreover, they supply less employment protection in countries where this protection is more generously provided by the social security system. Finally, the employment protection provided by family firms is priced: they pay a 5% lower average wage, controlling for country, industry and time effects. State-owned firms also provide more employment stability than privately owned ones, and so do business groups in comparison with standalone companies.

The evidence emerging from the Italian panel data is consistent with the evidence produced by the international dataset on several scores: in family firms hit by a drop in sales, employees appear more willing to accept wage cuts – compared to those of non-family ones – but they face a lower probability of being fired. Importantly, in the Italian data, family firms appear to insure their employees against persistent shocks, by not changing separations while making hiring more responsive to shocks, while non-family firms do not insure them against such shocks. The Italian data also reveal that the real wage discount featured by family firms shrinks considerably or disappears altogether when one controls for firm and workers characteristics.

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Figure 1. Time Series of Gross Replacement Rates: Averages by Continents

The figure shows the time series of average gross replacement rates in the countries included in our sample, grouped by continents, over the period 1988-2005. Gross replacement rates are calculated as the ratio of the unemployment insurance benefits received by a worker in the first year of unemployment relative to the worker's last gross earning.

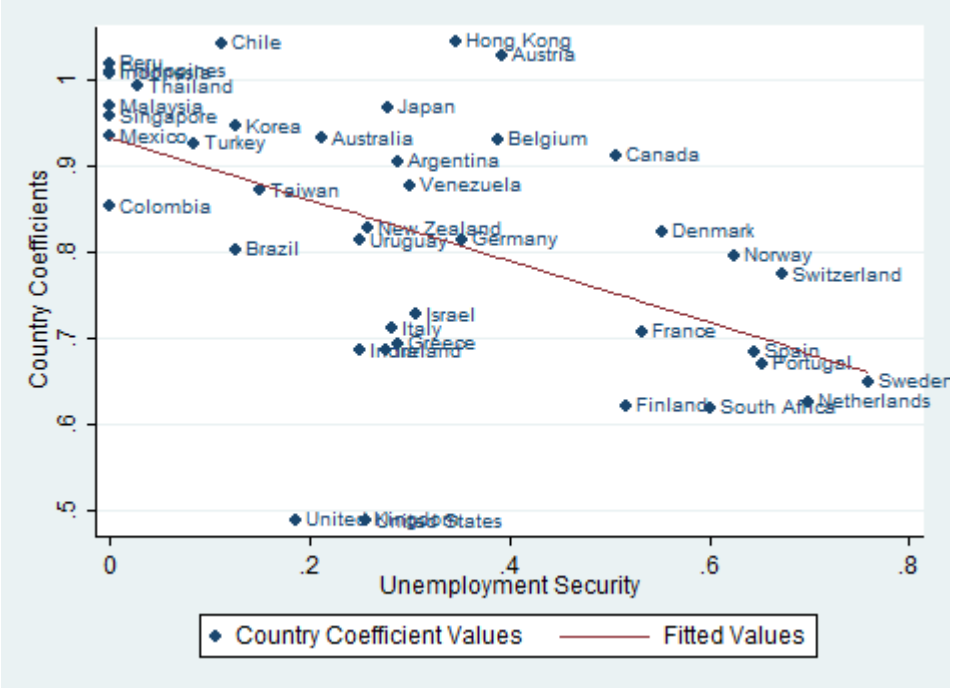

Figure 2. Employment Insurance in Family Firms and Public Provision of Unemployment Security

The variable shown on the horizontal axis is the measure of the generosity of the unemployment benefit system in each country measured by the gross replacement rate (GRR), calculated as the ratio of the unemployment insurance benefits received by a worker in the first year of unemployment relative to the worker's last gross earning described in Section 2.1. The measure reported on the vertical axis is a country-level measure of employment insurance provided by family firms relative to non-family ones, estimated as the percentage reduction that family firms induce in the elasticity of employment to the unexpected component of firm-level sales.

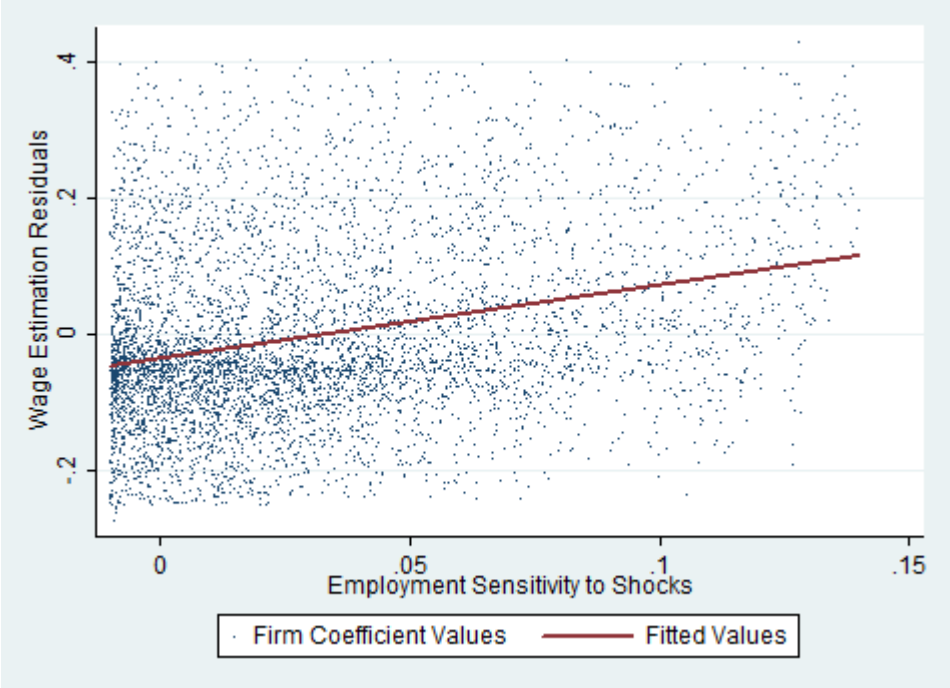

Figure 3. Employment Sensitivity to Firm-Level Sale Shocks and Average Real Wage

The measure reported on the horizontal axis is a firm-level estimate of the elasticity of employment to the unexpected component of firm-level sales, controlling for country-industry and time fixed effects and for firm-level variables. The variable shown on the vertical axis is the residual of a cross-sectional regression of the average real wage on fixed country, time and industry fixed effects.

Table 1. Descriptive Statistics

Column 1 reports the number of Non-Family Firms in each country in our sample. Column 2 reports the number of Family Firms in each country in our sample. Columns 3 and 4 report the average annual sales growth of Non-Family Firms and Family Firms respectively over the sample period from 1988 to 2011. Columns 5 and 6 report the average total employment at the firm-level of Non-Family Firms and Family Firms respectively over the sample period from 1988 to 2011. Column 7 reports the unemployment insurance benefits obtained from Aleksynska and Schindler (2011). This measure captures the generosity of the unemployment benefit system in each country measured by the gross replacement rate (GRR), calculated as the ratio of the unemployment insurance benefits received by a worker in the first year of unemployment relative to the worker's last gross earning. Column 8 reports the index of unemployment benefits from Botero et al. (2004) and is calculated as the average of the following four normalized variables: (1) the number of months of contributions or employment required to qualify for unemployment benefits by law; (2) the percentage of the worker's monthly salary deducted by law to cover unemployment benefits; (3) the waiting period for unemployment benefits; and (4) the percentage of the net salary covered by the net unemployment benefits in case of a one-year unemployment spell. Column 9 reports the fraction of long term unemployment (that persists for one year or longer) in total unemployment for the OECD countries.

	Number of Non-Family Firms	**Number of Family Firms**	**Sales Growth of Non-Family Firms**	**Sales Growth of Family Firms**	**Employment of Non-Family Firms**	**Employment of Family Firms**	**Gross Replacement Rates**	**Unemployment Benefit Index**	**Fraction of Long Term Unemployed**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
Argentina	9	18	0.08	0.10	3,859	2,109	0.2877	0.8372	-
Australia	227	92	0.09	0.11	5,240	3,127	0.2122	0.8419	0.2122
Austria	32	28	0.10	0.09	4,843	2,881	0.3928	0.6618	0.2448
Belgium	29	22	0.08	0.10	5,073	3,048	0.3877	0.7990	0.4889
Brazil	28	59	0.10	0.12	9,135	4,557	0.1252	0.5634	-
Canada	162	51	0.07	0.06	8,671	4,781	0.5059	0.7035	0.0984
Chile	9	12	0.12	0.13	3,601	2,209	0.1120	0.7818	-
Colombia	7	15	0.11	0.14	3,102	1,922	0.0000	0.9972	-
Czech Republic	10	12	0.11	0.14	3,218	1,926	0.2590	0.7513	0.4845
Denmark	30	24	0.08	0.07	4,929	2,186	0.5527	0.7850	0.1926
Finland	54	46	0.09	0.10	6,011	3,277	0.5173	0.8060	0.2567
France	207	204	0.10	0.07	12,155	8,768	0.5318	0.8793	0.3980
Germany	249	220	0.09	0.06	12,862	8,942	0.3526	0.7941	0.4811
Greece	8	19	0.04	0.05	3,214	2,209	0.2874	0.7385	0.4405
Hong Kong	29	85	0.12	0.15	9,078	6,085	0.3453	0.6910	-
India	45	81	0.14	0.13	9,217	6,149	0.2500	0.0000	-
Indonesia	9	21	0.08	0.10	3,218	3,207	0.0000	0.0000	-
Ireland	45	11	0.07	0.06	5,045	2,110	0.2751	0.8123	0.3752
Israel	37	42	0.09	0.08	4,379	2,815	0.3070	0.8613	0.2733

Italy	51	85	0.07	0.06	9,729	7,522	0.2819	0.7432	0.5142
Japan	448	195	0.09	0.08	11,006	4,335	0.2781	0.7470	0.3825
Malaysia	15	28	0.07	0.05	3,745	2,497	0.0000	0.0000	-
Mexico	15	34	0.09	0.05	9,441	8,627	0.0000	0.0000	0.0219
Netherlands	32	23	0.08	0.06	10,624	9,287	0.7000	0.6855	0.3498
New Zealand	16	8	0.11	0.07	2,724	1,244	0.2589	0.5629	0.1316
Norway	74	31	0.09	0.09	3,598	1,655	0.6240	0.7958	0.0909
Peru	6	11	0.08	0.09	1,605	982	0.0000	0.0000	-
Philippines	28	38	0.09	0.07	3,072	1,805	0.0000	0.0000	-
Portugal	22	28	0.07	0.05	3,833	1,788	0.6528	0.9050	0.4279
Singapore	21	34	0.14	0.15	7,314	6,211	0.0000	0.0000	-
South Africa	20	11	0.12	0.09	6,221	2,519	0.6000	0.7198	-
South Korea	54	135	0.12	0.13	7,438	6,082	0.1250	0.7726	0.0205
Spain	163	147	0.10	0.07	9,771	5,209	0.6439	0.8073	0.2941
Sweden	84	58	0.09	0.06	10,283	7,081	0.7589	0.8556	0.1962
Switzerland	74	51	0.10	0.07	11,409	7,108	0.6726	0.9082	0.2850
Taiwan	32	54	0.14	0.12	5,740	4,911	0.1500	0.8204	-
Thailand	24	71	0.10	0.13	4,976	3,192	0.0278	0.0000	-
Turkey	12	30	0.09	0.12	4,287	2,210	0.0843	0.0000	0.2652
United Kingdom	632	104	0.07	0.09	8,407	1,922	0.1854	0.7643	0.2767
United States	887	105	0.06	0.07	14,195	1,107	0.2569	0.6898	0.1142
Uruguay	5	14	0.08	0.10	1,091	822	0.2500	0.7842	-

Table 2. Employment Insurance in Family and non-Family Firms in Response to Shocks in Industry Sales: International Data

This table presents the estimates of a pooled regression model for 6,298 firms from 41 countries over the period from 1988 to 2011. The dependent variable is the yearly change in log of total employment of firm *i* in year *t*. The independent variables are as follows: Δ Industry Sales is the yearly change of log sales of each industry *j* in year *t* excluding the log sales of firm *i* from the calculation; Family Firm is a dummy that takes the value of 1 if the firm *i*'s ultimate blockholder is a family blockholder and 0 otherwise; Unemployment Security is the level of unemployment benefits in each country measured by the gross replacement rate (GRR), calculated as the ratio of the unemployment insurance benefits received by a worker in the first year of unemployment relative to the worker's last gross earning; Labor Market Tightness is measured as the reciprocal of the ratio of long term unemployment (which persists for one year or longer) to total unemployment (obtained only for the OECD countries); Financial Development is the ratio of stock market capitalization to GDP; Firm Size is the log of market capitalization of each firm *i* in year *t-1*; Return on Assets is the return on total assets of each firm *i* in year *t-1*; Other Firm-level Control Variables are Asset Tangibility (the ratio of Plant, Property and Equipment to Total Assets of each firm *i* in year *t-1*) and Leverage (the ratio of total debt to total assets of each firm *i* in year *t-1*). T-statistics are reported in parenthesis. Asterisks (*, ** and ***) indicate statistical significance (at the 10%, 5% and 1% level, respectively).

	(1)	(2)	(3)	(4)	(5)	(6)
Δ Industry Sales	0.1083**	0.0906**	0.0809**	0.0722**	0.0804**	0.0863**
	(2.58)	(2.27)	(2.40)	(2.10)	(2.19)	(2.39)
Family Firms	0.0253	0.0174	0.0117	0.0101	0.0114	-
	(1.27)	(1.21)	(1.15)	(1.07)	(1.18)	
Δ Industry Sales × Family Firms	-0.0991***	-0.0898**	-0.0729**	-0.0659**	-0.0799**	-0.0750**
	(-2.81)	(-2.49)	(-2.31)	(-2.20)	(-2.31)	(-2.40)
Δ Industry Sales × Unemployment Security		0.0314		0.0415	0.0287	0.0259
		(1.46)		(1.44)	(1.32)	(1.24)
Δ Industry Sales × Family Firms × Unemployment Security		0.1928**		0.1399*	0.1754*	0.1604*
		(2.10)		(1.80)	(1.92)	(1.88)
Δ Industry Sales × Labor Market Tightness			0.0056	0.0030		
			(1.49)	(1.09)		
Δ Industry Sales × Family Firms × Labor Market Tightness			0.0189*	0.0049		
			(1.85)	(1.28)		
Δ Industry Sales × Financial Development					0.0005	
					(0.92)	
Δ Industry Sales × Family Firms × Financial Development					-0.0004	
					(-1.04)	
Unemployment Security		0.0105	0.0208	0.0197	0.0098	-0.0091
		(1.08)	(1.40)	(1.32)	(1.02)	(-0.57)
Firm Size	-0.0009**	-0.0008**	-0.0007**	-0.0007**	-0.0008**	-0.0009**
	(-3.58)	(-3.49)	(2.60)	(-2.59)	(-3.47)	(-3.19)
Return on Assets	0.0029***	0.0028***	0.0035***	0.0032***	0.0027***	0.0035***
	(3.08)	(2.98)	(3.09)	(3.02)	(2.91)	(3.10)
Other Firm-level Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Country-Industry	Country-Industry	Country-Industry	Country-Industry	Country-Industry	Firm
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.45	0.49	0.35	0.37	0.50	0.56
Number of Observations	89,815	89,815	75,804	75,804	89,815	89,815

Table 3. Employment Insurance in Family and non-Family Firms in Response to Shocks in Firm-Level Sales: International Data

This table presents the estimates of a pooled regression model for 6,298 firms from 41 countries over the period from 1988 to 2011. The dependent variable is the yearly change in log of total employment of firm *i* in year *t*. The independent variables are as follows: Idiosyncratic Shock is the residual from a first-stage GMM regression estimated with the Arellano-Bond method that explains the first difference of the log of sales of firm *i* in year *t*; Family Firm is a dummy that takes the value of 1 if the firm *i*'s ultimate blockholder is a family blockholder and 0 otherwise; Unemployment Security is the level of unemployment benefits in each country measured by the gross replacement rate (GRR), calculated as the ratio of the unemployment insurance benefits received by a worker in the first year of unemployment relative to the worker's last gross earning; Labor Market Tightness is measured as the reciprocal of the ratio of long term unemployment (which persists for one year or longer) over total unemployment (obtained only for the OECD countries); Financial Development is the ratio of stock market capitalization to GDP; Firm Size is the log of market capitalization of each firm *i* in year *t-1*; Return on Assets is the return on total assets of each firm *i* in year *t-1*; Other Firm-level Control Variables are Asset Tangibility (ratio of Plant, Property and Equipment to Total Assets of firm *i* in year *t-1*) and Leverage (ratio of total debt to total assets of firm *i* in year *t-1*). T-statistics are reported in parenthesis. Asterisks (*, ** and ***) indicate statistical significance (at the 10%, 5% and 1% level, respectively).

	(1)	(2)	(3)	(4)	(5)	(6)
Idiosyncratic Shock	0.1450*** (3.18)	0.1315** (2.51)	0.1380** (2.64)	0.1129** (2.19)	0.1286** (2.35)	0.1464** (2.60)
Family Firms	0.0199 (1.40)	0.0134 (1.15)	0.0095 (0.87)	0.0092 (0.89)	0.0148 (1.09)	-
Idiosyncratic Shock × Family Firms	-0.1582*** (-2.82)	-0.1283** (-2.60)	-0.1126** (-2.57)	-0.0981** (-2.30)	-0.1139** (-2.45)	-0.1242** (2.59)
Idiosyncratic Shock × Unemployment Security		0.0524 (1.39)		0.0418 (1.22)	0.0390 (1.29)	0.0365 (1.20)
Idiosyncratic Shock × Family Firms × Unemployment Security		0.1933** (2.39)		0.15830* (1.89)	0.1498** (2.04)	0.13972* (1.87)
Δ Industry Sales × Labor Market Tightness			-0.0043 (1.15)	-0.0038 (1.02)		
Δ Industry Sales × Family Firms × Labor Market Tightness			0.0197* (1.90)	0.0106 (1.50)		
Δ Industry Sales × Financial Development					0.0005 (0.91)	
Δ Industry Sales × Family Firms × Financial Development					-0.0004 (-1.10)	
Unemployment Security		0.0211 (1.47)	0.0278 (1.38)	0.0265 (1.21)	0.0254 (1.30)	0.0102 (0.72)
Firm Size	-0.0011*** (-3.79)	-0.0010*** (-3.71)	-0.0012** (2.59)	-0.0012** (-2.58)	-0.0009** (-3.60)	-0.0011** (-2.92)
Return on Assets	0.0039*** (3.37)	0.0037*** (3.29)	0.0042*** (3.22)	0.0040*** (3.19)	0.0034*** (3.04)	0.0040*** (3.51)
Other Firm-level Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Country-Industry	Country-Industry	Country-Industry	Country-Industry	Country-Industry	Firm
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.18	0.20	0.14	0.14	0.21	0.27
Number of Observations	89,815	89,815	75,804	75,804	89,815	89,815

Table 4. Employment Insurance in Family and non-Family Firms in Response to Positive and Negative Shocks in Industry Sales: International Data

This table presents the estimates of a pooled regression model for 6,298 firms from 41 countries over the period from 1988 to 2011. The dependent variable is the yearly change in log of total employment of firm *i* in year *t*. In Panel A we show the results of the pooled regressions for years with negative industry-level shocks defined as the years when industry-level annual sales growth is negative. In Panel B we show the results of the pooled regressions for years with positive industry-level shocks defined as the years when industry-level annual sales growth is positive. The independent variables are as follows: Δ Industry Sales is the yearly change of log sales of each industry *j* in year *t* excluding the sales growth of firm *i* from the calculation; Family Firm is a dummy that takes the value of 1 if the firm *i*'s ultimate blockholder is a family blockholder and 0 otherwise; Unemployment Security is the level of unemployment benefits in each country measured by the gross replacement rate (GRR), calculated as the ratio of the unemployment insurance benefits received by a worker in the first year of unemployment relative to the worker's last gross earning; Financial Development is the ratio of stock market capitalization to GDP. Firm-level control variables are the following: Firm Size measured as the log of market capitalization of each firm *i* in year *t-1*; Asset Tangibility measured as the ratio of Plant, Property and Equipment to Total Assets of each firm *i* in year *t-1*; Return on Assets measured as the return on total assets of each firm *i* in year *t-1*; and Leverage measured as the ratio of total debt to total assets of each firm *i* in year *t-1*. T-statistics are reported in parenthesis. Asterisks (*, ** and ***) indicate statistical significance (at the 10%, 5% and 1% level, respectively).

	(1)	(2)	(3)	(4)
Panel A: Negative Shocks				
Δ Industry Sales	0.1065*** (2.76)	0.0995** (2.51)	0.0949** (2.44)	0.1136*** (2.79)
Family Firms	0.1029 (1.41)	0.0912 (1.30)	0.0881 (1.19)	-
Δ Industry Sales × Family Firms	-0.1358*** (-3.29)	-0.1249*** (-2.90)	-0.1148** (-2.47)	-0.1507** (-2.64)
Δ Industry Sales × Unemployment Security		0.0130 (1.55)	0.0123 (1.48)	0.0144 (1.53)
Δ Industry Sales × Family Firms × Unemployment Security		0.1113** (2.21)	0.1045** (2.01)	0.1322* (2.20)
Δ Industry Sales × Financial Development			0.0004 (0.89)	
Δ Industry Sales × Family Firms × Financial Development			-0.0003 (-1.14)	
Unemployment Security	0.0392** (2.19)	0.0350* (1.87)	0.0307* (1.75)	-0.0180 (-1.12)
Firm-level Control Variables	Yes	Yes	Yes	Yes
Fixed Effects	Country-Industry	Country-Industry	Country-Industry	Firm
Year Fixed Effects	Yes	Yes	Yes	Yes
R^2	0.28	0.29	0.30	0.32
Number of Observations	27,706	27,706	27,706	27,706

Table continues on next page

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Panel B: Positive Shocks

Δ Industry Sales	0.1538**	0.1438**	0.1370**	0.1642**
	(2.44)	(2.28)	(2.10)	(2.59)
Family Firms	0.0476	0.0437	0.0394	-
	(1.08)	(0.91)	(0.82)	
Δ Industry Sales × Family Firms	-0.0728**	-0.0619*	-0.0583*	-0.0567*
	(-2.42)	(-1.82)	(-1.70)	(-1.89)
Δ Industry Sales × Unemployment Security		0.0146	0.0138	0.0161
		(1.41)	(1.26)	(1.50)
Δ Industry Sales × Family Firms × Unemployment Security		0.0186**	0.0191*	0.0221*
		(2.05)	(1.88)	(1.75)
Δ Industry Sales × Financial Development			0.0002	
			(0.88)	
Δ Industry Sales × Family Firms × Financial Development			-0.0003	
			(-1.09)	
Unemployment Security	0.0211*	0.0140	0.0105	-0.0109
	(1.72)	(1.39)	(1.25)	(-1.09)
Firm-level Control Variables	Yes	Yes	Yes	Yes
Fixed Effects	Country-Industry	Country-Industry	Country-Industry	Firm
Year Fixed Effects	Yes	Yes	Yes	Yes
R^2	0.16	0.16	0.18	0.20
Number of Observations	62,109	62,109	62,109	62,109

Table 5. Employment Insurance in Family and non-Family Firms in Response to Transitory and Persistent Shocks in Industry Sales: International Data

This table presents the estimates of the sensitivity of employment to persistent and temporary shocks in sales for 6,298 firms from 41 countries over the period from 1988 to 2011. The dependent variable is the yearly change in log of total employment of firm *i* in year *t*. The coefficient estimates are obtained by via two separate IV regressions, which identify the sensitivity to transitory shocks (Panel A) and to persistent ones (Panel B) respectively. Details about the specification of these two IV regressions are presented in the text. The independent variables are as follows: Transitory Shock is the transitory component of the sales of firm *i*; Persistent Shock is the persistent component of the sales of firm *i*; Family Firm is a dummy that takes the value of 1 if the firm *i*'s ultimate blockholder is a family blockholder and 0 otherwise; Unemployment Security is the level of unemployment benefits in each country measured by the gross replacement rate (GRR), calculated as the ratio of the unemployment insurance benefits received by a worker in the first year of unemployment relative to the worker's last gross earning; Firm Size is the log of market capitalization of each firm *i* in year *t-1*; Asset Tangibility is the ratio of Plant, Property and Equipment to Total Assets of each firm *i* in year *t-1*; Return on Assets is the return on total assets of each firm *i* in year *t-1*; Leverage is the ratio of total debt to total assets of each firm *i* in year *t-1*. T-statistics are reported in parenthesis. Asterisks (*, ** and ***) indicate statistical significance (at the 10%, 5% and 1% level, respectively).

	(1)	(2)	(3)
Panel A: Transitory Shocks			
Transitory Shock	0.1851*** (2.89)	0.1624** (2.51)	0.1411** (2.44)
Transitory Shock × Family Firms	-0.1642*** (-3.40)	-0.1480*** (-2.78)	-0.1390** (-2.28)
Transitory Shock × Unemployment Security			0.0354 (1.18)
Transitory Shock × Family Firms × Unemployment Security			0.0980** (2.49)
Unemployment Security	0.0488** (2.39)	0.0340** (2.07)	0.0285* (1.90)
Firm-level Control Variables	No	Yes	Yes
Fixed Effects	Country-Industry-Year	Country-Industry-Year	Country-Industry-Year
F-test (p value)	<0.001	<0.001	<0.001
Panel B: Persistent Shocks			
Persistent Shock	0.2173*** (3.25)	0.2077*** (2.98)	0.1941** (2.64)
Persistent Shock × Family Firms	-0.1228* (-1.91)	-0.1106* (-1.74)	-0.1001 (-1.37)
Persistent Shock × Unemployment Security			0.0219 (1.39)
Persistent Shock × Family Firms × Unemployment Security			0.0260 (1.05)
Unemployment Security	0.0310** (2.11)	0.0207* (1.88)	0.0154* (1.71)
Firm-level Control Variables	No	Yes	Yes
Fixed Effects	Country-Industry-Year	Country-Industry-Year	Country-Industry-Year
F-test (p value)	<0.001	<0.001	<0.001
Number of Observations	89,815	89,815	89,815

Table 6. Wage Insurance in Family and non-Family Firms in Response to Shocks in Industry Sales: International Data

This table presents the estimates of a pooled regression model for 2,485 firms from 41 countries over the period from 1988 to 2011. The dependent variable is the yearly change in log of the real average wage of firm *i* in year *t*. The independent variables are as follows: Δ Industry Sales is the yearly change of log sales of each industry *j* in year *t* excluding the log sales of firm *i* from the calculation; Family Firm is a dummy that takes the value of 1 if the firm *i*'s ultimate blockholder is a family blockholder and 0 otherwise; Unemployment Security is the level of unemployment benefits in each country measured by the gross replacement rate (GRR), calculated as the ratio of the unemployment insurance benefits received by a worker in the first year of unemployment relative to the worker's last gross earning; Firm Size is the log of market capitalization of each firm *i* in year *t-1*; Asset Tangibility is the ratio of Plant, Property and Equipment to Total Assets of each firm *i* in year *t-1*; Return on Assets is the return on total assets of each firm *i* in year *t-1*; Leverage is the ratio of total debt to total assets of each firm *i* in year *t-1*. T-statistics are reported in parenthesis. Asterisks (*, ** and ***) indicate statistical significance (at the 10%, 5% and 1% level, respectively).

	(1)	(2)	(3)	(4)	(5)
Δ Industry Sales	0.0426***	0.0391***	0.0340**	0.0295**	0.0427**
	(3.12)	(2.82)	(2.53)	(2.44)	(2.65)
Family Firms	-0.0104*	-0.0095*	-0.0051	-0.0048	
	(-1.90)	(-1.70)	(-1.52)	(-1.24)	-
Δ Industry Sales × Family Firms		0.0182**	0.0109*	0.0098*	0.0233**
		(2.61)	(1.92)	(1.80)	(2.35)
Δ Industry Sales × Unemployment Security			-0.0186*	-0.0178	-0.0212
			(-1.70)	(1.60)	(1.57)
Δ Industry Sales × Family Firms × Unemployment Security			0.0580*	0.0555	0.0662
			(1.74)	(1.62)	(1.50)
Δ Industry Sales × Financial Development				-0.0002	
				(-1.05)	
Δ Industry Sales × Family Firms × Financial Development				0.0002	
				(0.91)	
Unemployment Security	0.0119	0.0103	0.0097	0.0082	0.0097
	(1.44)	(1.29)	(1.15)	(0.89)	(1.00)
Firm Size	-0.0002**	-0.0002**	-0.0002**	-0.0002**	-0.0002***
	(-3.60)	(-3.54)	(-3.51)	(-3.49)	(-3.81)
Asset Tangibility	-0.0101	-0.0098	-0.0093	-0.0089	-0.0106
	(-1.19)	(-1.10)	(-1.09)	(-1.07)	(-0.91)
Return on Assets	-0.0001*	-0.0001*	-0.0001*	-0.0001*	-0.0001*
	(-1.88)	(-1.85)	(-1.77)	(-1.75)	(-1.83)
Leverage	0.0151*	0.0147*	0.0139*	0.0133*	0.0159
	(1.70)	(1.68)	(1.68)	(1.65)	(1.46)
Fixed Effects	Country-Industry	Country-Industry	Country-Industry	Country-Industry	Firm
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
R^2	0.10	0.12	0.12	0.14	0.12
Number of Observations	25,409	25,409	25,409	25,409	25,409

Table 7. Price of Employment Insurance in Family Firms: International Data

This table presents the estimates of a pooled regression model for 2,485 firms from 41 countries over the period from 1988 to 2011. The dependent variable is the log of the real average wage of firm *i* in year *t*. The independent variables are as follows: Family Firm is a dummy that takes the value of 1 if the firm *i*'s ultimate blockholder is a family blockholder and 0 otherwise; Unemployment Security is the level of unemployment benefits in each country measured by the gross replacement rate (GRR), calculated as the ratio of the unemployment insurance benefits received by a worker in the first year of unemployment relative to the worker's last gross earning; Financial Development is the ratio of stock market capitalization to GDP; Firm Size is the log of market capitalization of each firm *i* in year *t-1*; Asset Tangibility is the ratio of Plant, Property and Equipment to Total Assets of each firm *i* in year *t-1*; Return on Assets is the return on total assets of each firm *i* in year *t-1*; Leverage is the ratio of total debt to total assets of each firm *i* in year *t-1*. T-statistics are reported in parenthesis. Asterisks (*, ** and ***) indicate statistical significance (at the 10%, 5% and 1% level, respectively).

	(1)	(2)	(3)	(4)
Family Firms	-0.0921** (-2.45)	-0.0541** (-2.28)	-0.0380** (-2.04)	-
Unemployment Security × Family Firms	0.0047** (2.18)	0.0049** (2.05)	0.0041* (1.89)	0.0058** (2.28)
Financial Development × Family Firms			0.0030 (0.92)	
Unemployment Security	0.0091 (1.01)	0.0087 (0.93)	0.0072 (0.85)	0.0170 (1.34)
Firm Size		0.0443** (2.41)	0.0410** (2.40)	0.0296** (2.51)
Asset Tangibility		0.0093* (1.87)	0.0090* (1.82)	0.01030* (1.70)
Return on Assets		0.0773*** (3.01)	0.0720*** (2.90)	0.0721*** (2.86)
Leverage		-0.0517 (1.22)	-0.0501 (1.15)	-0.0627 (1.25)
Fixed Effects	Country-Industry	Country-Industry	Country-Industry	Firm
Year Fixed Effects	Yes	Yes	Yes	Yes
R^2	0.08	0.09	0.11	0.14
Number of Observations	25,409	25,409	25,409	25,409

Table 8. Employment Insurance in State-Owned and Privately-Owned Firms in Response to Shocks in Industry Sales: International Data

This table presents the estimates of a pooled regression model for 6,298 firms from 41 countries over the period from 1988 to 2011. The dependent variable is the yearly change in log of total employment of firm *i* in year *t*. The independent variables are as follows: Δ Industry Sales is the yearly change of log sales of each industry *j* in year *t* excluding the sales growth of firm *i* from the calculation; State-owned Firms is a dummy that takes the value of 1 if the firm *i*'s ultimate blockholder is the State and 0 otherwise; Unemployment Security is the level of unemployment benefits in each country measured by the gross replacement rate (GRR), calculated as the ratio of the unemployment insurance benefits received by a worker in the first year of unemployment relative to the worker's last gross earning; Financial Development is the ratio of stock market capitalization to GDP; Firm Size is the log of market capitalization of each firm *i* in year *t-1*; Asset Tangibility is the ratio of Plant, Property and Equipment to Total Assets of each firm *i* in year *t-1*; Return on Assets is the return on total assets of each firm *i* in year *t-1*; and Leverage is the ratio of total debt to total assets of each firm *i* in year *t-1*. T-statistics are reported in parenthesis. Asterisks (*, ** and ***) indicate statistical significance (at the 10%, 5% and 1% level, respectively).

	(1)	**(2)**	**(3)**	**(4)**
Δ Industry Sales	0.1019** (2.58)	0.0939** (2.51)	0.1086** (2.49)	0.1201*** (2.71)
State-owned Firms	0.0381 (1.50)	0.0201 (1.19)	0.0181 (1.47)	-
Δ Industry Sales × State-owned Firms	-0.0960** (-2.48)	-0.0837** (-2.10)	-0.0743* (-1.91)	-0.1060* (1.88)
Δ Industry Sales × Unemployment Security		0.0334 (1.49)	0.0316 (1.50)	0.0370 (1.57)
Δ Industry Sales × State-owned Firms × Unemployment Security		0.0464 (1.28)	0.0477 (1.06)	0.0552 (1.40)
Δ Industry Sales × Financial Development			0.0005 (0.96)	
Δ Industry Sales × State-owned Firms × Financial Development			-0.0003 (-1.11)	
Unemployment Security	0.0139 (1.15)	0.0110 (1.07)	0.0087 (0.92)	-0.0081 (-0.75)
Firm Size	-0.0009*** (-3.82)	-0.0009*** (-3.77)	-0.0008*** (-3.75)	-0.0009*** (-3.04)
Asset Tangibility	0.0028 (1.26)	0.0028 (1.22)	0.0027 (1.21)	0.0033 (1.09)
Return on Assets	0.0030*** (3.19)	0.0029*** (3.18)	0.0028*** (3.15)	0.0036*** (3.09)
Leverage	-0.0221 (-1.01)	-0.0237 (-0.97)	-0.0232 (-0.95)	-0.0283 (-1.10)
Fixed Effects	Country-Industry	Country-Industry	Country-Industry	Firm
Year Fixed Effects	Yes	Yes	Yes	Yes
R^2	0.25	0.26	0.28	0.30
Number of Observations	89,815	89,815	89,815	89,815

Table 9. Employment Insurance in Business Groups and Standalone Companies in Response to Shocks in Industry Sales: International Data

This table presents the estimates of a pooled regression model for 6,298 firms from 41 countries over the period from 1988 to 2011. The dependent variable is the yearly change in log of total employment of firm *i* in year *t*. The independent variables are as follows: Δ Industry Sales is the yearly change of log sales of each industry *j* in year *t* excluding the sales growth of firm *i* from the calculation; Business Groups is a dummy that takes the value of 1 if the firm *i* forms part of a business group and 0 otherwise; Unemployment Security is the level of unemployment benefits in each country measured by the gross replacement rate (GRR), calculated as the ratio of the unemployment insurance benefits received by a worker in the first year of unemployment relative to the worker's last gross earning; Financial Development is the ratio of stock market capitalization to GDP; Firm Size is the log of market capitalization of each firm *i* in year *t-1*; Asset Tangibility is the ratio of Plant, Property and Equipment to Total Assets of each firm *i* in year *t-1*; Return on Assets is the return on total assets of each firm *i* in year *t-1*; Leverage is the ratio of total debt to total assets of each firm *i* in year *t-1*. T-statistics are reported in parenthesis. Asterisks (*, ** and ***) indicate statistical significance (at the 10%, 5% and 1% level, respectively).

	(1)	(2)	(3)	(4)
Δ Industry Sales	0.1142**	0.1061**	0.0907**	0.1226**
	(2.56)	(2.41)	(2.37)	(2.30)
Business Group	0.0309	0.0218	0.0127	-
	(1.60)	(1.47)	(1.24)	
Δ Industry Sales × Business Group	-0.0789**	-0.0648**	-0.0521*	-0.0526*
	(-2.47)	(-2.00)	(-1.91)	(-1.75)
Δ Industry Sales × Unemployment Security		0.0340	0.0322	0.0377
		(1.48)	(1.40)	(1.57)
Δ Industry Sales × Business Group × Unemployment Security		0.0557	0.0572	0.0662
		(1.60)	(1.61)	(1.48)
Δ Industry Sales × Financial Development			0.0005	
			(0.91)	
Δ Industry Sales × Business Group × Financial Development			-0.0003	
			(-1.10)	
Unemployment Security	0.0210	0.0192	0.0161	-0.0125
	(1.58)	(1.40)	(1.20)	(-1.15)
Firm Size	-0.0009***	-0.0009***	-0.0009***	-0.0010***
	(-3.80)	(-3.81)	(-3.75)	(-2.99)
Asset Tangibility	0.0029	0.0028	0.0027	0.0033
	(1.21)	(1.19)	(1.12)	(1.05)
Return on Assets	0.0031***	0.0029***	0.0028***	0.0036***
	(3.27)	(3.25)	(3.16)	(3.04)
Leverage	-0.0226	-0.0242	-0.0236	-0.0289
	(-1.01)	(-0.97)	(-0.95)	(-0.91)
Fixed Effects	Country-Industry	Country-Industry	Country-Industry	Firm
Year Fixed Effects	Yes	Yes	Yes	Yes
R^2	0.31	0.32	0.34	0.37
Number of Observations	89,815	89,815	89,815	89,815

Table 10. Employment Insurance in Family and non-Family Firms in Response to Industry-level and Firm-level Shocks: Italian Data

This table presents the estimates of a pooled regression model for 3,763 Italian firms over the period from 1984 to 2009. The dependent variable is the yearly change in log of total employment of firm *i* in year *t*. The independent variables are as follows: Shocks in Columns 1-3 are defined at the industry level and measured as the yearly change of log sales of each industry *j* in year *t* excluding the log sales of firm *i* from the calculation whereas in Columns 4-6 are defined at the firm level and directly computed as the deviation of actual firm sales (in logs) from the value predicted by the same firm as of the previous year to capture the unforeseen component of sales; Family Firm is a dummy that takes the value of 1 if the firm *i*'s controlling owner is a family blockholder and 0 otherwise (information obtained from the answer given by each firm to the survey question "What is the nature of the controlling shareholder?" from which we construct a dummy variable that is equal to 1 for firms reporting to be controlled by an individual or family); Firm Size is the log of total assets of each firm *i* in year *t-1*; Return on Assets is the return on total assets of each firm *i* in year *t-1*; Asset Tangibility is the ratio of Plant, Property and Equipment to Total Assets of each firm *i* in year *t-1* and Leverage is the ratio of total debt to total assets of each firm *i* in year *t-1*. In Column 1 (4) we report the results from the specification that uses the total industry-level (firm-level) shock; in Column 2 (5) we report the results from the specification that uses the transitory component of the industry-level (firm-level) shock; in Column 3 (6) we report the results from the specification that uses the permanent component of the industry-level (firm-level) shock. T-statistics are reported in parenthesis. Asterisks (*, ** and ***) indicate statistical significance (at the 10%, 5% and 1% level, respectively).

	Industry-level Shocks			**Firm-level Shocks**		
	Total Shock (1)	**Transitory Component (2)**	**Permanent Component (3)**	**Total Shock (4)**	**Transitory Component (5)**	**Permanent Component (6)**
Shocks	0.096***	0.051	0.189***	0.075***	0.013	0.159***
	(4.66)	(1.50)	(4.46)	(9.40)	(1.38)	(17.29)
Family Firms	0.007***	0.006***	0.008***	0.007***	0.006***	0.006***
	(4.82)	(3.85)	(4.65)	(-4.33)	(3.49)	(3.68)
Shocks × Family Firms	-0.064**	-0.034	-0.130***	0.009	-0.021	0.023
	(-2.39)	(-0.82)	(-3.34)	(0.51)	(-1.29)	(1.60)
Firm Size	-0.001	-0.001**	-0.001**	-0.001	-0.001	-0.001
	(-1.58)	(-2.04)	(-2.26)	(-1.31)	(-1.46)	(-1.13)
Return on Assets	0.123**	0.111***	0.109***	0.112**	0.104***	0.081***
	(2.48)	(17.61)	(17.31)	(2.42)	(-2.01)	(12.08)
Leverage	-0.007	-0.004	-0.003	-0.005	-0.005	-0.003
	(-0.94)	(-0.96)	(-0.84)	(-0.71)	(-1.11)	(-0.55)
Asset Tangibility	-0.000	-0.000*	-0.000*	-0.000	-0.000**	-0.000***
	(-1.05)	(-1.88)	(-1.82)	(-1.52)	(-2.01)	(-3.00)
Fixed Effects	Industry and Region	Industry and Region	Industry and Region	Industry and Region	Industry and Region	Industry and Region
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.07	0.07	0.07	0.10	0.06	0.06
Number of Observations	14,586	12,606	12,469	13,664	11,529	9,157

Table 11. Separations and Hiring in Family and non-Family Firms in Response to Firm-level Shocks: Italian Data

This table presents the estimates of a pooled regression model for 3,763 Italian firms over the period from 1984 to 2009. The dependent variable in Columns 1-3 is the number of separations of firm *i* in year *t* divided by total employment of firm *i* in year *t-1* while in Columns 4-6 is the number of hires *i* in year *t* divided by total employment of firm *i* in year *t-1*. The independent variables are as follows: Shocks in Columns 1 and 4 are defined at the firm level and it is directly computed as the deviation of actual firm sales (in logs) from the value predicted by the same firm as of the previous year to capture the unforeseen component of sales, shocks in Columns 2 and 5 are measured as the transitory component of the firm-level shock described above and shocks in Columns 3 and 6 are measured as the permanent component of the firm-level shock described above; Family Firm is a dummy that takes the value of 1 if the firm *i*'s controlling owner is a family blockholder and 0 otherwise (information obtained from the answer given by each firm to the survey question "What is the nature of the controlling shareholder?" from which we construct a dummy variable that is equal to 1 for firms reporting to be controlled by an individual or family); Firm Size is the log of total assets of each firm *i* in year *t-1*; Return on Assets is the return on total assets of each firm *i* in year *t-1*; Asset Tangibility is the ratio of Plant, Property and Equipment to Total Assets of each firm *i* in year *t-1* and Leverage is the ratio of total debt to total assets of each firm *i* in year *t-1*. T-statistics are reported in parenthesis. Asterisks (*, ** and ***) indicate statistical significance (at the 10%, 5% and 1% level, respectively).

	Total Firm-level Separations			**Total Firm-level Hirings**		
	Total Shock	**Transitory Component**	**Persistent Component**	**Total Shock**	**Transitory Component**	**Persistent Component**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Shocks	-0.021***	-0.006	-0.042***	0.068***	0.011	0.148***
	(-3.64)	(-0.56)	(-3.86)	(8.54)	(0.81)	(11.08)*
Family Firms	-0.004**	-0.004**	-0.005**	0.005**	0.003	0.004
	(-2.01)	(-2.12)	(-2.16)	(2.19)	(1.12)	(1.56)
Shocks × Family Firms	0.017*	0.008	0.045***	0.025	-0.033	0.049**
	(1.62)	(0.41)	(2.65)	(1.36)	(-1.39)	(2.30)
Firm Size	-0.003***	-0.003***	-0.003***	-0.004***	-0.004***	-0.004***
	(-4.56)	(-4.08)	(-3.28)	(-5.07)	(-4.97)	(-3.68)
Return on Assets	-0.016	-0.009	-0.001	0.114***	0.107***	0.085***
	(-1.21)	(-1.17)	(-0.16)	(2.73)	(11.16)	(8.64)
Leverage	0.023***	0.024***	0.028***	0.018**	0.019***	0.020***
	(4.63)	(4.76)	(5.16)	(2.19)	(3.03)	(2.86)
Asset Tangibility	-0.000	-0.000**	-0.000	-0.001	-0.001***	-0.001***
	(-1.28)	(-2.14)	(-1.39)	(-1.37)	(-3.26)	(-3.56)
Fixed Effects	Industry and Region	Industry and Region	Industry and Region	Industry and Region	Industry and Region	Industry and Region
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.04	0.05	0.04	0.09	0.07	0.07
Number of Observations	13,767	11,588	9,193	13,786	11,604	9,207

Table 12. Wage Insurance in Family and non-Family Firms in Response to Industry-level and Firm-level Shocks: Italian Data

This table presents the estimates of a pooled regression model for 3,763 Italian firms and almost 800,000 workers over the period from 1984 to 1997. The dependent variable is the yearly change in log of the real average wage of firm *i* in year *t*. The independent variables are as follows: Shocks in Column 1 are defined at the industry level and measured as the yearly change of log sales of each industry *j* in year *t* excluding the log sales of firm *i* from the calculation, in Column 2 shocks are defined at the firm level and are directly computed as the deviation of actual firm sales (in logs) from the value predicted by the same firm as of the previous year to capture the unforeseen component of sales, shocks in Column 3 are measured as the transitory component of the firm-level shock described above and shocks in Columns 4 are measured as the persistent component of the firm-level shock described above; Family Firm is a dummy that takes the value of 1 if the firm *i*'s controlling owner is a family blockholder and 0 otherwise; Firm Size is the log of total assets of each firm *i* in year *t-1*; Return on Assets is the return on total assets of each firm *i* in year *t-1*; Asset Tangibility is the ratio of Plant, Property and Equipment to Total Assets of each firm *i* in year *t-1* and Leverage is the ratio of total debt to total assets of each firm *i* in year *t-1*; Workers' Age (Squared) is the age (squared value of age) of each worker *k* in year *t*; Workers' Gender is a dummy variable that takes the value of 1 if worker *k* is male and zero otherwise; White Collar Worker is a dummy variable that takes the value of 1 if worker *k* is classified as white collar and zero otherwise; Executive is a dummy variable that takes the value of 1 if worker *k* has an executive job and zero otherwise. T-statistics are reported in parenthesis. Asterisks (*, ** and ***) indicate statistical significance (at the 10%, 5% and 1% level, respectively).

	Industry-level Shock	**Firm-level Shock**	**Firm-level Shock**	**Firm-level Shock**
	Total	**Total**	**Transitory**	**Persistent**
	(1)	**(2)**	**(3)**	**(4)**
Shocks	0.068**	0.037***	-0.001	0.057***
	(2.38)	(4.71)	(-0.13)	(2.68)
Family Firms	-0.000	-0.001	-0.001	-0.001
	(-0.13)	(-0.50)	(-0.40)	(-0.6)
Shocks × Family Firms	-0.039	0.024**	0.042***	0.025
	(-1.44)	(1.98)	(2.85)	(0.94)
Firm Size	0.000	-0.000	-0.000	0.000
	(0.22)	(-0.42)	(-0.36)	(0.36)
Return on Assets	0.011	0.010	0.016	0.007
	(1.11)	(1.00)	(1.40)	(0.58)
Leverage	-0.005	-0.001	-0.004	-0.009
	(-0.89)	(-0.11)	(-0.60)	(-1.04)
Asset Tangibility	0.000	0.001	0.001	0.002*
	(0.39)	(1.45)	(1.40)	(1.78)
Workers' Age	-0.005***	-0.005***	-0.005***	-0.005***
	(-22.95)	(-20.15)	(-18.23)	(-16.77)
Workers' Age Squared	0.000***	0.000***	0.000***	0.000***
	(20.98)	(18.16)	(16.24)	(14.88)
Workers' Gender	0.009***	0.010***	0.011***	0.011***
	(12.27)	(11.97)	(11.47)	(9.50)
White Collar	0.016***	0.016***	0.016***	0.016***
	(17.14)	(15.42)	(13.97)	(12.13)
Executive	0.037***	0.036***	0.035***	0.033***
	(20.66)	(17.51)	(15.12)	(12.56)
Fixed Effects	Industry and Region	Industry and Region	Industry and Region	Industry and Region
Year Fixed Effects	Yes	Yes	Yes	Yes
R^2	0.05	0.05	0.05	0.05
Number of Observations	1,997,520	1,583,719	1,347,521	1,040,027

Table 13. Price of Employment Insurance in Family Firms: Italian Data

This table presents the estimates of a pooled regression model for 3,763 Italian firms and almost 800,000 workers over the period from 1984 to 1997. The dependent variable is the yearly change in log of the real average wage of firm *i* in year *t*. The independent variables are as follows: Family Firm is a dummy that takes the value of 1 if the firm *i*'s controlling owner is a family blockholder and 0 otherwise (information obtained from the answer given by each firm to the survey question "What is the nature of the controlling shareholder?" from which we construct a dummy variable that is equal to 1 for firms reporting to be controlled by an individual or family); Firm Size is the log of total assets of each firm *i* in year *t-1*; Return on Assets is the return on total assets of each firm *i* in year *t-1*; Asset Tangibility is the ratio of Plant, Property and Equipment to Total Assets of each firm *i* in year *t-1* and Leverage is the ratio of total debt to total assets of each firm *i* in year *t-1*; Workers' Age (Squared) is the age (squared value of age) of each worker *k* in year *t*; Workers' Gender is a dummy variable that takes the value of 1 if worker *k* is male and zero otherwise; White Collar Worker is a dummy variable that takes the value of 1 if worker *k* is classified as white collar and zero otherwise; Executive is a dummy variable that takes the value of 1 if worker *k* has an executive job and zero otherwise. T-statistics are reported in parenthesis. Asterisks (*, ** and ***) indicate statistical significance (at the 10%, 5% and 1% level, respectively).

	(1)	(2)	(3)	(4)	(5)
Family Firms	-0.166***	-0.036***	-0.026***	-0.020***	0.002
	(-24.10)	(-8.58)	(-4.38)	(-4.87)	(0.39)
Workers' Age		0.029***		0.029***	0.033***
		(59.14)		(59.59)	(25.89)
Workers' Age Squared		-0.000***		-0.000***	-0.000***
		(-48.39)		(48.73)	(-19.13)
Workers' Gender		0.184***		0.183***	
		(88.57)		(84.56)	
White Collar		0.338***		0.338***	0.064***
		(126.91)		(118.06)	(14.51)
Executive		1.150***		1.152***	0.361***
		(388.95)		(352.76)	(41.61)
Firm Size			0.029***	0.018***	0.021***
			(11.11)	(12.24)	(5.35)
Return on Assets			-0.061	0.106***	0.081***
			(-1.33)	(4.68)	(3.72)
Leverage			-0.050***	-0.009	-0.040***
			(-2.99)	(-0.82)	(-3.22)
Asset Tangibility			-0.005**	-0.004***	-0.001
			(-2.26)	(-2.82)	(-0.38)
Fixed Effects	Industry and Region	Industry and Region	Industry and Region	Industry and Region	Workers
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
R^2	0.05	0.59	0.18	0.60	0.92
Number of Observations	2,685,569	2,685,569	2,232,696	2,232,696	2,232,696