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Designing Severance Insurance: Theory and Evidence From Ethiopia

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Response to Reviewers:	

Journal of Development Economics

Registered Report Stage 1: Proposal

Designing Severance Insurance: Theory and Evidence From Ethiopia

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Abstract

We propose the first study testing firms' demand for insurance against layoff costs. Job-loss insurance policies for workers, such as severance pay, impose substantial financial burdens on firms precisely when they face shocks motivating layoffs. We evaluate demand for a novel product, *Severance Insurance*, which protects firms against these costs, among formal employers in Addis Ababa, Ethiopia. Guided by a model of firm behavior in the presence of layoff risk and Severance Insurance, we estimate key parameters to assess the welfare effects of this product: firms' value of insurance and adverse selection in insurance purchase. We also provide evidence of hypothetical behavioral responses to insurance, including moral hazard through increased layoffs, firm growth and workforce formalization. Our findings offer critical insights for designing employer-based social insurance policies and shed light on firms' capacity to manage risk.

Keywords: Firm Risk, Severance Pay, Social Insurance, Adverse Selection, Insurance Value

JEL Codes: D82, H21, H53, H55, J32, O12

Study Pre-Registration: Registration DOI

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Proposed Project Timeline

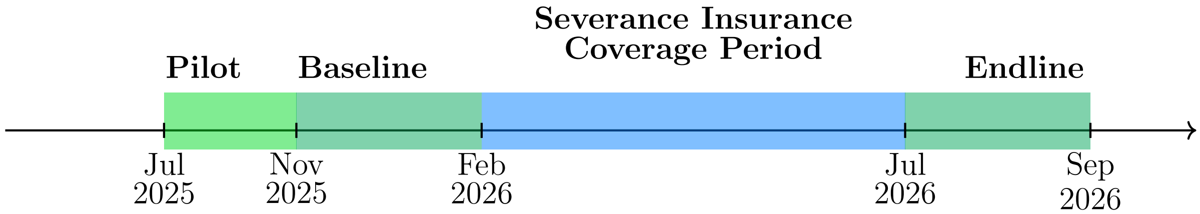


Figure 1: Proposed Project Timeline

The project spans fourteen months and is structured around four key phases:

- *Pilot phase (July-October 2025):* A pilot of the baseline survey is conducted to validate survey instruments and implementation protocols.
- *Baseline data collection (November 2025-January 2026):* The baseline survey is launched across the full sample following refinements from the pilot. At the end of the baseline data collection the research team selects one single respondent to be covered by Severance Insurance.
- *Severance Insurance coverage period (February 2026 – July 2026):* This window represents the coverage period of the Severance Insurance product we design and implement.
- *Endline data collection (August-September 2026):* The endline survey is launched immediately after coverage ends, marking the end of the study.

Reporting checklist for Stage 1 submissions

Section	Item	Description and details to report	Reported?
Cover page (required)	Title	Informative title specifying the study design, population, and interventions	Yes
	Date of latest draft	Date of when the prospective review article was last edited.	Yes
	Study pre-registration status	Link, registration identifier and registry name (or intended registry if not yet registered)	Yes
	Keywords	Up to six keywords, to be used for indexing purposes.	Yes
	JEL codes	Up to six codes.	Yes
Abstract (required)	Abstract	Summarize research question, outcome variables, methodological framework and contribution in less than 150 words.	Yes
Timeline (required)	Expected completion date	Expected date for completion of the pre-specified research design.	Yes
Introduction	Background and relevance of the study	Brief overview of previous research, and relevance of the research question(s) for the field of economic development	Yes
	Research question(s)		Yes
Research design	Basic methodological framework	Outline of the identification strategy in your study (experimental/non-experimental)	Yes
	Hypotheses	Pre-specified hypotheses to be tested in the study and reported as primary findings in the Stage 2 full manuscript	Yes
	Outcome variable(s)	Definition of the main outcome variable(s) and (if applicable) secondary outcome variable(s)	Yes

Continued on next page

Section	Item	Description and details to report	Reported?
		Specification of how outcome(s) will be constructed from the dataset	Yes
	Intervention(s)	Details of the intervention (when, where, how, by whom)	Yes
		Number of treatment arms and whether they are exclusive or overlapping	NA
		Randomization strategy	Yes
		Blinding strategy (if applicable)	NA
		Instructions and supporting materials for administering the intervention	Yes
		Source(s) of exogenous variation	NA
	Theory of change	How and why the intervention is predicted to lead to certain effects	Yes
	Sample	Specification of unit of analysis (individuals, organizations, countries, etc.)	Yes
		Data source(s)	Yes
		Projected sample size and statistical power calculations	Yes
	Variations from the intended sample	Specification of the degree of attrition that may threaten the robustness of the study	Yes
		Strategies to deal with attrition, non-compliance with the assigned treatment, etc.	Yes
	Data collection and processing	Type of data, collection method/data source(s), and timeline for collection	Yes
		Rule for terminating data collection / stopping rule	Yes
		Data management plan	Yes

Continued on next page

Section	Item	Description and details to report	Reported?
		Pilot data and experiments run in preparation of the Stage 1 submission	Yes
Empirical analysis	Statistical method(s)	Main evaluation method(s) and underlying assumptions	Yes
		Rules for handling missing values	Yes
		Definition and rules for handling outliers	Yes
	Multiple hypothesis testing	Strategies to prevent false positives	Yes
	Heterogeneous effects	Anticipated heterogeneous effects and theoretical justification	NA
	Statistical model	A functional (mathematical) form of the causal mechanism explored in the study	Yes
		Specification if regression model is linear, generalized linear, or other	Yes
		How will standard errors be calculated	Yes
Limitations and challenges	Challenges in the study implementation	Potential objective circumstances that might jeopardize the implementation of the proposed study design	Yes
Administrative information (required)	Ethics approval	Statement confirming that all necessary ethics approvals are in place.	Yes
	Funding	Funding sources in the suggested format	Yes
	Acknowledgments	List of (non-author) individuals who provided help to the research project.	NA
Bibliography	Bibliography	References can be in any style or format as long as the style is consistent.	Yes
Other items	Appendices	Tables and figures	Yes

1 Introduction

Formal enterprises are key engines of growth and job creation in low- and middle-income countries. Yet their ability to manage risk—especially amid weak financial markets and limited access to credit—remains largely unexplored, despite being a critical factor for private sector resilience, job quality, and long-term economic development.

One important but understudied factor exacerbating firm risk arises from the expansion of social protection for workers during unemployment, which has grown rapidly worldwide during recent decades; indeed, more than 80% of countries now provide some form of job displacement insurance (Gerard et al., 2025). Severance pay and unemployment benefits—financed through employer taxes—are highly valued by workers, especially in contexts where alternative safety nets are limited and job loss can have large effects on employment and consumption (Hensel ⓡ al., 2025). However, firms often find these benefits costly to provide (Bertrand and Crépon, 2021) and disputes often emerge over workers' entitlements and employers' compliance (Sadka et al., 2024). A key reason why providing these benefits may be particularly costly is that firms' benefit obligations arise precisely when firms are hit by negative shocks that motivate layoffs — a time when resources are likely depleted and the cost of liquidity is high.[2] In such situations, layoff costs can exacerbate firms' financial fragility, slow down recovery, and, when aggregated across the economy, amplify downturns.

Despite the growing prevalence of layoff costs worldwide, evidence remains scarce on how firms anticipate, manage, or avoid such costs; whether they would value insurance protection; and how insurance might shape their responses. These issues have been mostly studied in high-income countries (Lester and Kidd, 1939; Burdett and Wright, 1989; Johnston, 2021; Spaziani, 2025), despite the fact that the labor market impacts of layoff costs may be even more pronounced in low-income countries—many of which are now adopting such policies—due to limited access to credit and greater exposure to risk (Banerjee and Duflo, 2014; Groh and McKenzie, 2016). In these settings, where informal or contract labor remain available, layoff costs may ultimately discourage worker formalization (Bertrand et al., 2021), thereby reducing access to social protection and hindering economic growth. The scarcity of evidence on these issues severely limits policymakers' ability to design policies that balance worker protection and employers' financial sustainability.

[2] Severance pay usually requires firms to make substantial lump-sum payments immediately upon worker dismissal, creating a sudden and large financial burden exactly when the firm is under distress. Experience-rated unemployment insurance systems adjust payroll tax rates based on firms' layoff histories, so firms that lay off more workers face higher tax rates, increasing their costs following shocks.

In this paper, we design and measure the demand for a new product—*Severance Insurance*—which provides protection against layoff costs among sample of 160[3] formal firms with at least five employees in Addis Ababa, Ethiopia. The mid-to-large urban firms targeted by our survey typically employ formal, permanent workers, covered by job-displacement insurance. Microenterprises and firms in rural areas, on the other hand, generally have higher rates of informality. Thus, our sample captures firms that face significant severance pay liabilities, and for whom our product is most relevant. While we do not offer the product broadly in order to minimize the risk that our intervention induces marginal worker layoffs, eliciting demand for the product allows us to recover key parameters for evaluating the welfare effects of its provision—employers' insurance value and the inefficiencies from adverse selection—which we complement with evidence of hypothetical behavioral responses to insurance and with correlational evidence of such responses.

To begin, we develop a simple theoretical framework to study firm behavior in the presence of risk and insurance. In our framework, firms face uncertainty about the severity of future layoff shocks, and the cost of these shocks is exacerbated by their severance pay obligations. A severance insurance policy covers a portion of the severance pay liabilities at the cost of a fixed premium per covered worker. We model two potential sources of insurance value for firms, which we will test empirically. First, firm preferences over profits are described by a utility function that may be either linear or concave, allowing for risk aversion. While firms are typically assumed to be risk-neutral, a growing literature in corporate finance presents evidence consistent with risk-aversion (see, for example, Greenwald and Stiglitz (1990), and additional references discussed in the following paragraphs). Second, firms may face a higher cost of raising liquidity to pay severance during negative shocks, when low net worth and depleted collateral prompt lenders to perceive greater risk and charge higher interest rates (Diamond, 1984; Besanko and Kanatas, 1993; Bebczuk, 2003; Holmstrom and Tirole, 1997). Firms choose their total size, the share of covered workers to hire and lay off, how much costly effort to exert to reduce the probability of layoffs occurring, and whether to buy severance insurance in order to maximize their expected utility over profits. Heterogeneity in risk, risk aversion, asset availability, and the cost of raising liquidity generates variation in firms' choices.

This framework generates five sets of testable predictions regarding firms' demand for insurance and their behavioral responses to its availability. First, we formally characterize

[3] We outline in Section 4.6.1 that our study is sufficiently powered to detect the meaningful relationships of interest. However, should a larger sample size be deemed critical for the study's validity, the research team is committed to expanding it accordingly.

the conditions under which firms choose to purchase insurance. We will empirically test for the existence of insurance demand by analyzing firms' actual take-up decisions for a real severance insurance product. Second, we explore the determinants of insurance demand. The framework predicts the presence of adverse selection, whereby firms with higher levels of risk — unobservable to the insurer — exhibit a greater willingness to pay for coverage. Our design allows us to fully characterize the marginal and average cost curves faced by a private insurer, which, together with the estimated demand curve, enable us to identify the equilibrium price and quantity that would arise in a private market for severance insurance. Third, we explore the fundamental motivations for why insurance can be valuable to firms. This value is captured by their willingness to transfer profits from states with no layoffs to states with layoffs, formally represented by the marginal rate of substitution between these states. We will quantify this value across a range of layoff scenarios and further examine its deep determinants, including the curvature of the utility function — which captures risk aversion — as well as the cost and availability of liquidity. Fourth, we will use hypothetical questions to examine whether the availability of insurance induces moral hazard by increasing firms' propensity to lay off workers. Fifth, we will use hypothetical questions to examine whether firms expect the availability of insurance to promote firm growth, encourage workforce formalization, and increase the layoffs of workers covered by social protection rather than vulnerable, non-protected workers, through the reduction of labor and severance costs. Although experimental evidence of behavioral responses to insurance would have strengthened the analysis, the research team chose not to distribute Severance Insurance broadly, in order to minimize the risk of inducing layoffs through our intervention. Because such responses are key for evaluating the welfare effects of the policy, we still elicit them hypothetically.

These results constitute essential components for analyzing the welfare implications of severance insurance and guiding policy reform. First, we quantify the welfare loss arising from adverse selection and moral hazard in a private severance insurance market, providing insights into whether these information asymmetries cause underinsurance and evaluating the desirability of mandates and price subsidies to increase coverage. Second, the estimated expected insurance value and the hypothetical behavioral responses will serve as sufficient statistics within a Baily-Chetty–style framework (Baily, 1978; Chetty, 2006) to determine the optimal severance insurance policy conditional on a mandate. We will combine our estimates to provide the first assessment, although partially hypothetical, of whether a marginal increase in severance insurance, (i.e. its introduction), would enhance welfare: although all conclusions based on behavioral responses remain hypothetical, the welfare analysis is informative about the magnitude that true behavioral responses *should* have to justify the introduction of Severance Insurance. We therefore encourage the replication of the welfare analysis using causal estimates of responses to insurance, if these can be obtained while ensuring worker protection.

In the following paragraphs, we provide a more detailed exposition of our five sets of hypotheses and the corresponding planned analyses. The first set of hypotheses concerns the existence of demand for severance insurance, to provide an initial assessment of firms' interest in such a product. We offer firms in our sample an insurance product with varying replacement rates (capturing the generosity of coverage) and at fifteen different prices per worker, and elicit with an incentivized approach firms' willingness to purchase it. We first test whether there is any demand for the most generous insurance product (i.e., highest replacement rate and lowest price), as a lack of demand for this option would suggest little or no demand overall. We then examine whether demand increases with higher replacement rates and decreases as the price rises. The extensive price variation incorporated in our survey design enables us to comprehensively characterize the demand curve and investigate potential nonlinearities.

The second set of hypotheses examines the drivers of demand, focusing in particular on selection mechanisms. We investigate adverse selection, whereby firms possess private information about their firm's layoff risk—risk that is invariant to coverage, which cannot be priced by the insurer and drives up premiums, ultimately leading to underinsurance. We also examine selection on moral hazard, whereby employers purchase insurance precisely because they anticipate exerting less effort to avoid layoffs when insured, i.e., selection based on risk that is induced by coverage.

To detect adverse selection, we implement two established tests: the Positive Correlation Test (Chiappori and Salanie, 2000) and the Cost Curve Test (Einav et al., 2010). The Positive Correlation Test assesses whether realized risk is positively correlated with willingness to pay for insurance: under adverse selection, insured firms should have higher realized risk and thus higher costs for the insurer. A positive correlation may, however, also arise from moral hazard—that is, higher risk induced by insurance coverage. Our survey design allows us to implement a version of this test that is robust to moral hazard by examining the correlation among firms that do not actually purchase insurance; differences in realized risk among these firms can only be attributed to selection.

The Cost Curve Test estimates the slope of the insurer's marginal cost function. Under adverse selection, as prices fall and more firms opt in, the marginal cost of coverage declines, implying a negative slope. We implement this test by examining how realized risk varies with the price of insurance among the endogenous subsample of firms who opt to purchase coverage. We leverage the rich price variation generated by our intervention to nonparametrically estimate the insurer's marginal and average cost curves. Together with firms' demand, these cost curves allow us to quantify the welfare loss due to adverse selection (which we also re-estimate accounting for moral hazard). Specifically, this welfare loss corresponds to the wedge between firms' willingness to pay and the marginal cost for those firms excluded from coverage by high premiums arising from adverse selection. If this wedge is positive for all uninsured firms, a universal mandate would be welfare improving. Otherwise, targeted price subsidies that reduce premiums just enough to include only firms with a non-negative wedge would be preferable.

Finally, we assess whether pricing based on observable risk characteristics can mitigate the welfare losses induced by adverse selection. We test whether employers' subjective assessments of their firms' risk correlate with observable firm characteristics, whether marginal employers along the price distribution vary by objective and subjective risk measures, and whether controlling for these measures reduces the relationship between willingness to pay for insurance and realized risk. If subjective information adds substantial predictive power beyond what can be captured by characteristics observable to insurers, then mitigating adverse selection and expanding coverage through risk-based pricing alone may prove challenging.

To test for selection on moral hazard, we examine whether firms with the highest willingness to purchase insurance are also those expecting to increase layoffs the most if insured. If such selection exists, policy design would become more complex. In particular, high deductibles or low replacement rates would reduce insurer costs not by curbing moral hazard — that is, by inducing greater effort to avoid layoffs ex post — but rather by deterring high moral hazard firms from purchasing insurance ex ante, while simultaneously reducing the level of protection for low moral hazard firms that still choose to purchase coverage.

Our third set of hypotheses concerns the fundamental reasons why insurance could be valuable for firms. We formalize the concept of insurance value for firms, first introduced in Spaziani (2025), in two ways. First, we extend the traditional notion of the value of insurance for workers—typically defined as the marginal rate of substitution between employment and unemployment states (Baily, 1978; Gruber, 1997; Landais and Spinnewijn, 2021)—to a firm setting with a continuum of possible states, each represented by a different share of laid off workers, $l \in [0, 1]$. In this framework, the value of insurance across a continuum of states is captured by a continuum of marginal rates of substitution, calculated between the state with no layoffs ($l = 0$) and each state characterized by a layoff rate $l \in (0, 1]$. These marginal rates of substitution measure the amount of profits a firm is willing to transfer from the no-layoff state to each possible layoff state. Second, we assume that for every dollar of severance s, the employer must actually disburse $s(1 + r)$, where $r \geq 0$ captures the additional cost of raising liquidity during layoff states.

We propose a condition for the existence of insurance value in our framework: that at least one of the following two conditions holds. The first condition is that there exists at least one state of the world, l, to which the firm would transfer money from the no-layoff state, i.e., that there exists at least one marginal rate of substitution greater than one. We show that this condition is implied by an expected insurance value—calculated as the average of marginal rates of substitution across all layoff states, weighted by the probabilities of each layoff state occurring—exceeding one. We then extend the framework of Landais and Spinnewijn (2021) to accommodate multiple states and demonstrate that this expected insurance value coincides with the firm's willingness to pay for a unit of insurance, which we observe from our intervention. We use this observed willingness to pay to empirically test the hypothesis that insurance has value for firms. The second condition for the existence of insurance value is that the cost of raising liquidity during a shock, r is positive. We directly calibrate this parameter by eliciting from employers their perceived cost of external financing across different states of the world, allowing us to empirically test this hypothesis. Understanding whether insurance holds intrinsic value for firms is crucial, as firms may underestimate or be unable to accurately assess their risk and therefore choose not to purchase insurance. Consequently, the government's decision to provide or regulate severance insurance should be based not only on observed demand but also on the underlying insurance value to firms. Furthermore, understanding which source of insurance value is most important allows governments to design targeted interventions: our severance insurance product would be optimal for addressing risk aversion, while credit access improvements or liquidity assistance are better suited to mitigate financing constraints.

Next, we test whether insurance value drives firms' demand for insurance. To do this, we correlate firms' willingness to pay for insurance with our measures of their marginal rates of substitution between the no-layoff state and specific layoff states l. A positive correlation suggests the existence of unmet demand for severance insurance driven by its intrinsic value to firms. We elicit these marginal rates of substitution by asking employers whether they would purchase an insurance policy where they pay a premium in the no-layoff state and receive severance coverage only if the particular layoff state l occurs, with payoffs unchanged in all other states. To minimize respondents' fatigue and the complexity of our intervention, this task is not incentivize. Following Landais and Spinnewijn (2021), the expected premium at which a firm is indifferent between purchasing or not purchasing this insurance identifies the marginal rate of substitution for that state.

We then use these measures of the marginal rates of substitution to analyze how they evolve as the layoff share l increases. Our framework predicts that these rates should rise with l, indicating that firms are willing to sacrifice increasingly larger profits in the no-layoff state to transfer resources to more severe layoff states. Moreover, we examine non-parametrically the shape of the marginal rate of substitution function over the layoff interval $l \in [0, 1]$. The curvature of this function—whether it is convex or concave—informs whether it is more effective to insure higher or lower layoff states in order to generate greater increases in insurance value.

Finally, we express the marginal rate of substitution explicitly as a function of its key potential determinants: risk aversion, the cost of liquidity in shock states, and liquidity constraints. We then relate our estimated marginal rates of substitution to survey-based measures of these determinants to assess their relative importance in shaping the value of insurance.

Our final set of hypotheses concerns employers' behavioral responses to Severance Insurance. We use hypothetical questions to examine whether coverage increases layoffs by reducing their associated costs; whether it induces firms to grow in size and hire a higher share of workers under formal contracts by effectively lowering the cost of formal labor; and whether it increases the share of layoffs among covered workers, who at least receive social protection during unemployment, by reducing the relative cost of dismissing formally employed workers.

Although identifying the causal effects of these mechanisms is key to a full welfare analysis, the research team chose not to estimate the effect of insurance experimentally due to ethical concerns: providing insurance more broadly could increase the risk of marginal layoffs induced by the intervention itself. As a result, only *one* firm will be covered by severance insurance. Nonetheless, because these mechanisms are central to understanding the potential impact of Severance Insurance, we propose two pieces of evidence. First, elicit firms hypothetical response to severance insurance using vignette experiments. Second, we leverage Ethiopian severance payment rules, which depend on worker tenure and wages, to construct predicted severance costs and examine whether firms with higher predicted costs have lower layoff rates, lower realized costs, and higher shares of covered hires and layoffs, controlling for observables.

Together, the findings on adverse selection and insurance value, along with the evidence on hypothetical moral hazard, firm growth, and workforce formalization, represent the first comprehensive attempt to evaluate the benefits and costs of insuring firms against layoff costs. Only when considered jointly can these insights meaningfully inform policymakers about the actual interest in such a policy and guide its optimal design. Although many low- and middle-income countries face challenges in establishing comprehensive social security systems, they are actively pursuing reforms. Understanding the impact of introducing worker protections on employers is critical for designing policies that effectively support firm growth, labor market formalization, and economic development. Moreover, evidence on these dynamics remains scarce even in high-income countries, underscoring the importance of further research across diverse contexts to inform policy globally.

With these results, we contribute to three key literatures. First, we contribute to the long-standing study of firm's ability to bear risk. While standard economic models assume that firms are risk neutral, economists have long been puzzled by the empirical evidence on insurance both in high-income (Main, 1983) and low-income (Cole and Xiong, 2017) settings. In particular, large companies in rich countries have significant demand for insurance, while small agricultural businesses in low-income countries have weak demand for insurance, but change their investment profiles significantly when offered insurance at highly subsidized rates. Here we present the first evidence, to our knowledge, on the demand for insurance among formal, medium-to-large businesses in a low-income country, and we relate this demand to the key drivers: liquidity consrainst, borrowing constraints, and risk aversion. While the first two mechanisms are easily accommodated within standard theories of the firm, risk aversion may raise more skepticism. However, a growing body of work suggests that risk aversion can help explain firm behaviors that are otherwise inconsistent with standard models (Greenwald and Stiglitz, 1990)—for example, suboptimal hiring under uncertainty about worker productivity (Grossman and Hart, 1981; Frank, 1990; Orszag and Zoega, 1996); underinvestment in training amid high turnover risk (Choudhary and Levine, 2010); avoidance of high-return, high-risk investments (Heaton and Lucas, 2000; Moskowitz and Vissing-Jørgensen, 2002; Caggese, 2012; Coles et al., 2006; Calvet et al., 2007; Michelacci and Schivardi, 2013); and lower ownership shares in riskier contexts (Bitler et al., 2005).[4] We leverage our unique survey setting to shed further light on the potential presence of risk aversion, as well as borrowing and liquidity constraints that become more binding for firms

[4] Behaviors consistent with risk aversion may also emerge under risk neutrality in the presence of real options (Bulan, 2005), or as an optimal response: underinvestment may be due to progressive corporate taxation, which induces a concave mapping from pre-tax to post-tax profits (Eeckhoudt et al., 1997).

during layoff states, creating concavities in their decisions.

Second, we contribute to the literature that studies the design of social insurance policies in low-income countries (Gerard et al., 2025). A fundamental question is whether unemployment benefits for workers should be provided by employers (as is typically the case for severance pay) or by the state (as is the case for unemployment insurance). Employer-based policies free some previous state capacity for other tasks, but increase the risk faced by firms, since they require employers to support workers in states of the world where the firm has also been affected by a shock (Spaziani, 2025). Our study will investigate whether firms are able to bear this additional risk, or if they need their own insurance policy to deal with it.

Third, we contribute to the study of the optimal design of insurance policies for firms. We will estimate: (i) the demand for and value of severance insurance, and whether it induces (ii) (incentivized) adverse selection, and (iii) (non-incentivized) moral hazard, firm growth, and workforce formalization. We use a novel intervention and a theoretical framework to quantify for the first time the value of insurance to firms, extending the methods developed by Landais and Spinnewijn (2021) for the case of worker insurance. Moreover, our intervention is particularly suited to estimate adverse selection, since they enable us to separately observe desired and realized insurance status. This contributes to a literature in public economics, which has largely been unable to study adverse selection among firms due to the mandatory nature of severance pay and unemployment taxes in high-income countries, as well as to a literature in development economics, which is particularly interested in adverse selection since firms in low-income countries can more easily opt out of mandated policies by choosing not to formalize (Ulyssea et al., 2023). Finally, we contribute to the study of firms's behavioral responses to insurance coverage, by documenting (with a set of hypothetical questions) whether firms anticipate scope to alter their hiring and layoff decisions in response to a roll-out of the policy — a topic that has received some attention in studies focused on rich economies, but has not been explored by the literature on insurance in low-income countries (Johnston, 2021).

Methodologically, our study relates to papers such as Ausubel (1999); Klonner and Rai (2006); Karlan and Zinman (2009); Burchardi et al. (2018), which aim to identify information asymmetries using field interventions and carefully designed survey questions that allow for deeper and more direct investigation of these frictions. Our paper further leverages the most innovative method for studying adverse selection — the Cost Curve Test proposed by Einav et al. (2010) — and explicitly connect the distortions induced by these information asymmetries to questions of optimal policy design.

Finally, if our study demonstrates strong demand and commercial viability, there are realistic pathways for scaling up. Ethiopia's insurance market is steadily expanding, with eighteen licensed companies—mostly private—alongside the state-owned Ethiopian Insurance Corporation (EIC), the market leader. These insurers, already providing occupational injury insurance to employers, covering workers' lost wages and medical expenses for workplace injuries, are increasingly expanding coverage and exploring innovative products as formal employment grows (UNDP, 2025). With strong demand, the EIC could adopt Severance Insurance as a national trendsetter, with private actors likely to follow. The government could either reinsure private actors in the event of aggregate shocks generating widespread layoffs or directly administer the product as an alternative to the private market. Ongoing efforts to reconstruct workers' employment histories across jobs will further facilitate public administration of such schemes. Crucially, before recommending adoption, further research is needed to identify potential harms to workers and strategies to mitigate them.

2 Theory of Firm Behavior with Risk and Insurance

We propose a model of firm behavior in the presence of layoff risk, severance payments to workers, and severance insurance protecting firms against these payments. The model generates testable predictions about firms' (i) demand for insurance, (ii), selection in insurance demand, (iii) value of insurance, and behavioral responses related to (iv) layoff incentives, and (v) firm size and workforce composition. These predictions form the theoretical foundation for five key sets of hypotheses, which we outline in this section.

2.1 Model Setup

Consider a firm managed by an employer E, who is solely responsible for making all operational and strategic decisions within the firm.

Production The employer hires workers to produce output, choosing both the firm size N and the share $c \in [0, 1]$ of workers who are covered by social protection in the event of job loss; the remaining fraction $n = 1 - c$ are not covered. Covered and non-covered workers may differ in both productivity and compensation. Let $R^c = of^c$ and $R^n = of^n$, denote the revenue generated by a covered and a non-covered worker, respectively, where o is the output price and f^c and f^n represent the marginal product of each type of worker. Wages are set equal to marginal products, so $w^c = f^c$ and $w^n = f^n$. Regardless of worker type, each vacancy entails a cost $\chi(N)$, with $\chi(\cdot)$ strictly convex, so that hiring additional workers becomes progressively more expensive as the firm grows.

Risk. A shock may occur, forcing the firm to lay off a fraction $l \in [0,1]$ of its workforce. Ex ante, the severity of the shock—represented by the layoff rate l—is uncertain: the firm faces a continuum of possible states, each characterized by a different layoff share l. For each state l, the employer chooses the fractions $\alpha \in [0,1]$ and $\beta \in [0,1]$ of covered workers c and non-covered workers n, respectively, to lay off, such that $l = \alpha c + \beta n$. Workers who remain employed continue to produce output and earn wages, while laid-off workers generate no revenue or cost. Moreover, laid-off covered workers are entitled to receive a severance payment s from the firm. Because the cost of liquidity is higher following a shock– when resources are depleted and collateral is at its lowest, the firm incurs a total cost of $s(1+r)$, where r represents the increased cost of liquidity. To compensate for the loss of production and revenue associated with laid-off workers, the firm can draw on liquid assets or other external income sources, denoted by A.[5] Note that the primary source of risk in the framework arises from entrepreneurial uncertainty linked to the unpredictable layoff rate l. Severance payments, however, amplify the firm's vulnerability by worsening firm's conditions during shocks, adding a compounded risk that intensifies entrepreneurial risk and which the firm cannot independently insure against or diversify away.

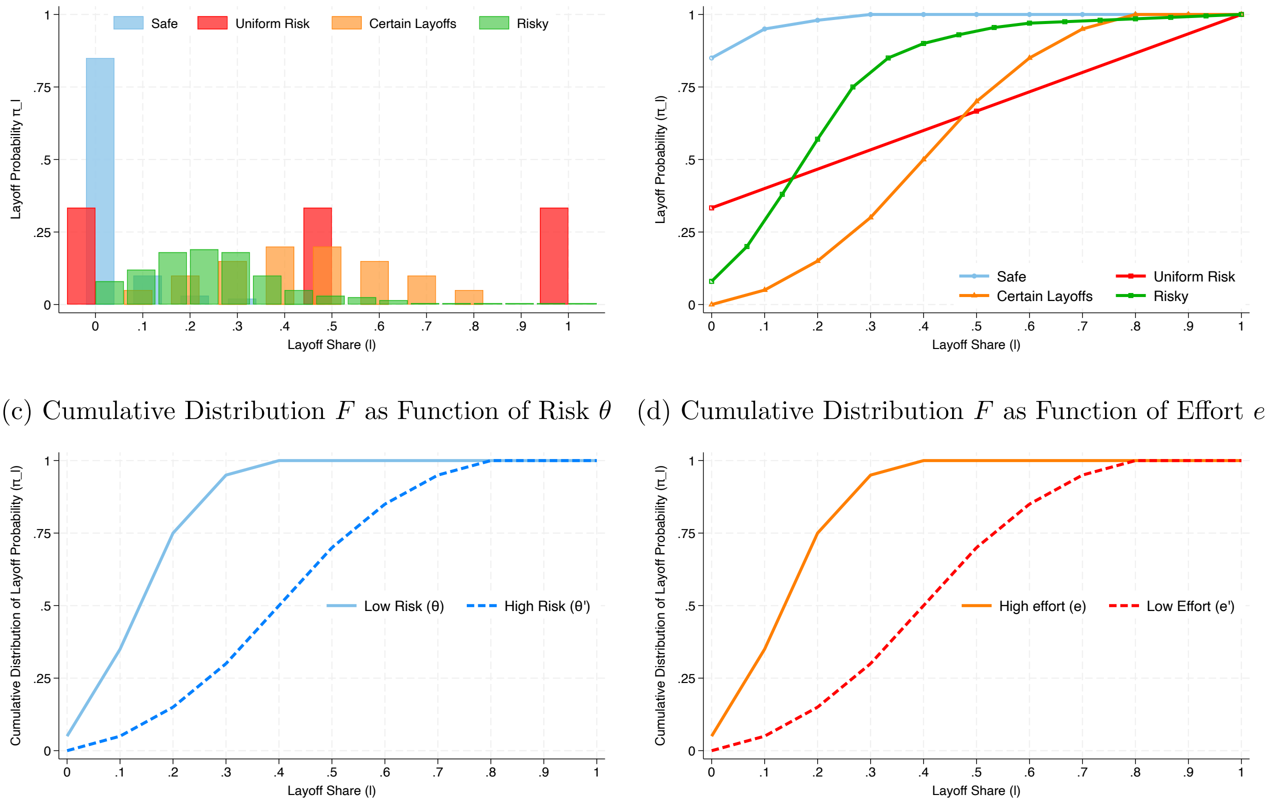
Risk Determinants. Each state of the world, characterized by the layoff share $l \in [0,1]$, occurs with probability $\pi_l(\theta, e)$, where θ is an exogenous parameter capturing firm-specific risk, and e is the endogenous effort that the employer can exert to mitigate risk.[6] Effort e entails a utility cost $\psi(e)$ for the employer, where $\psi(\cdot)$ is strictly convex, reflecting that it becomes increasingly costly to mitigate exposure to shocks. The firm's expected layoff rate is $\bar{l}(\theta, e) = \int_0^1 \pi_l(\theta, e)\, l\, dl$, where $\int_0^1 \pi_l(\theta, e)\, dl = 1$. We assume that, all else equal, higher firm risk θ leads to a higher expected layoff rate $\bar{l}(\theta, e)$, whereas higher employer effort e reduces the expected layoff rate $\bar{l}(\theta, e)$. We illustrate these dynamics with the help of Figure 2. Panel (a) shows the probability density function f of the layoff rate l, describing the probability $\pi_l(\theta, e)$ attached to each layoff share $l \in [0,1]$, for four simulated firm types. Different combinations of risk and effort generate different densities, concentrating probability mass on different layoff shares. Panel (b) displays the corresponding cumulative distribution functions F for these firms. Panels (c) and (d) illustrate how the cumulative distribution F shifts in response to changes in firm risk θ and employer effort e. Increasing risk θ or decreasing

[5] To ensure that production remains the profit-maximizing activity in the absence of layoffs, we assume that the value of these fallback resources is smaller than the net revenue generated with production, i.e. $A < R^n - w^n$ and $A < R^c - w^c$.

[6] For example, structured management practices improve resilience to shocks (Lamorgese et al., 2024).

Figure 2: Simulation: Characterizing Firm's Exposure to Shocks

(a) Probability Density Function f of the Layoff Rate l (b) Cumulative Distribution F the Layoff Rate l



(c) Cumulative Distribution F as Function of Risk θ (d) Cumulative Distribution F as Function of Effort e

Notes: Panels (a) and (b) display the probability density function f and the cumulative distribution function F, respectively, of the layoff rate l for four simulated firm types: the *"safe"* firm (10 workers) concentrates most mass at zero layoffs ($l = 0$); the *"risky"* firm (15 workers) places more probability on higher layoff shares; the *"certain layoffs"* firm (10 workers) assigns all the probability to strictly positive shares ($\pi_0(e, \theta) = 0$); and the *"uniform risk"* firm (2 workers) faces a uniform distribution over $[0, 1]$. These distributions facilitate comparisons across firms of different sizes. Panel (c) shows that increasing the firm's risk parameter θ shifts F to a first-order stochastically dominating distribution (solid to dashed line). Panel (d) shows that reducing employer effort e has a similar effect on F.

effort e shifts the cumulative distribution F (solid line) towards a first-order stochastically dominating distribution F' (dashed line). Because the expected layoff rate can be expressed as a function of the cumulative density function, i.e., $\bar{l}(\theta, e) = 1 - \int_0^1 F(l)\, dl$, a shift to a first-order dominating distribution reduces the area under the cumulative distribution ($\int_0^1 F(l)\, dl$), thereby increasing the expected layoff rate $\bar{l}(\theta, e)$. Formally: $\theta' > \theta \implies \bar{l}(\theta', e) > \bar{l}(\theta, e)$, and $e' < e \implies \bar{l}(\theta, e') > \bar{l}(\theta, e)$.

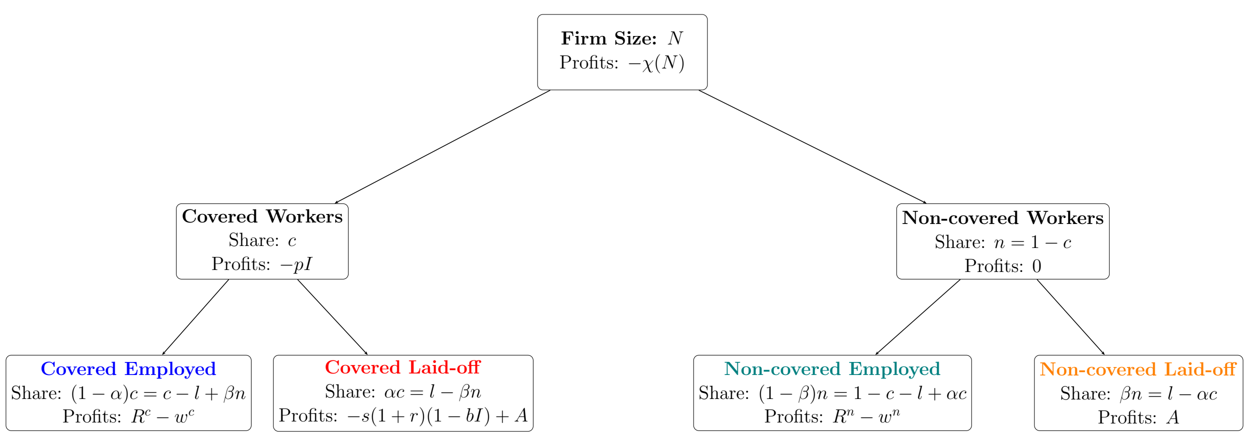
Severance Insurance. The employer can purchase Severance Insurance to reduce the firm's risk associated with severance payments to laid-off covered workers. If the employer opts to purchase insurance (denoted by $I = 1$), the firm pays a premium p per covered worker initially hired, and receives a reimbursement equal to a fraction $b \in [0, 1]$ of the severance payment due to each laid-off covered worker. Consequently, the firm's net cost per laid-off covered worker is reduced to $s(1 + r)(1 - b)$, where b represents the insurance replacement rate. If the firm remains uninsured ($I = 0$), it bears the full severance cost per laid-off covered worker, $s(1 + r)$.

Firm Profits. In each state of the world, characterized by a layoff rate $l \in [0, 1]$, the firm's profits Π_l are defined as the net gains and losses from the four type of workers: covered employed, covered laid-off, non-covered employed, and non-covered laid-off. These worker types and the gain or loss that they produce are summarized in Figure 3. Formally, profits in state l are defined as:

$$\Pi_l = N[\overbrace{(c - l + \beta n)}^{\text{\% Covered Employed}}(R^c - w^c) + \overbrace{(1 - c - l + \alpha c)}^{\text{\% Non-covered Employed}}(R^n - w^n) + \overbrace{(l - \beta n)}^{\text{\% Covered Laid-off}}(-s(1 + r)(1 - bI) + A).$$
$$. + \overbrace{(l - \alpha c)}^{\text{\% Non-covered Laid-off}} A - \overbrace{cpI}^{\text{Premium per Covered Worker}}] - \overbrace{\chi(N)}^{\text{Vacancy Cost}} \tag{1}$$

Preferences Over Profits. In each state of the world l, characterized by a layoff rate $l \in [0, 1]$, the employer has preferences over the firm's profits Π_l, represented by the state-independent utility function $u(\Pi_l)$. The curvature of $u(\cdot)$ captures the employer's absolute

Figure 3: State l-profits by Worker Type



Notes: The figure shows, for a given layoff rate $l \in [0, 1]$ how each worker type contributes to firm profits.

risk aversion, defined as $\rho(\Pi_l) = -\frac{u''(\Pi_l)}{u'(\Pi_l)}$. This formulation allows for deviations from the standard assumption of firm's risk neutrality. The employer's expected utility is given by the probability-weighted average of utilities across all possible layoff states l, as shown in Equation 2. We assume that the employer's utility and preferences fully coincide with those of the firm.

$$U_E = \overbrace{\int_0^1 \pi_l(e,\theta)\, u(\Pi_l)\, dl}^{\text{Expected Utility}} - \overbrace{\psi(e)}^{\text{Effort Cost}} \tag{2}$$

This simple setup enables us to formulate five hypotheses regarding firm behavior in the presence of risk and insurance, which we outline in the following sections.

2.2 Hypothesis Set D: Demand for Insurance

Is there demand for severance insurance, and how does this demand vary with the premium per covered worker p and the insurance replacement rate b? This hypothesis is central to our analysis: high demand for insurance would serve as an initial signal for governments to assess its welfare implications and to consider introducing it, either publicly or privately.

To study demand for insurance, we analyze the employer's problem of selecting their optimal insurance status. The employer purchases insurance if it yields higher expected utility compared to not purchasing it, that is, if $U_E^{I=1} \geq U_E^{I=0}$. This condition can be rewritten as:

$$\begin{aligned} &\int_0^1 \pi_l(e,\theta)\big[u(\Pi_l^{I=1}) - u(\Pi_l^{I=0})\big]\, dl \geq 0 \quad \text{or:} \\ &\int_0^1 \pi_l(e,\theta)\Big[u\big(P_l + N\big[(l-\beta n)s(1+r)b - cp\big]\big) - u(P_l)\Big]\, dl \geq 0 \end{aligned} \tag{3}$$

where P_l represents the commmon terms between $\Pi_l^{I=0}$ and $\Pi_l^{I=1}$:

$$\begin{aligned} P_l \equiv N\Big[&(c - l + \beta n)(R^c - w^c) + (1 - c - l + \alpha c)(R^n - w^n) + (l - \beta n)A + (l - \alpha c)A \\ &- s(1+r)(l - \beta n)\Big] - \chi(N). \end{aligned}$$

For an insurance product with replacement rate b and premium per covered worker p, we denote $\Pr(I_{b,p} = 1)$ as the probability that an employer purchases insurance with these characteristics.

With this setup, we formally state our hypotheses concerning the existence of demand for severance insurance. The model further generates testable predictions about how demand responds to variations in the replacement rate and the price per worker:

D1. Is there demand for Severance Insurance?

$$Pr(I_{b,p} = 1) > 0$$

D2. Demand for insurance increases with the replacement rate b:

$$\frac{\partial \Pr(I_{b,p} = 1)}{\partial b} > 0.$$

A higher replacement rate b implies that a larger share of severance payments to covered laid-off workers is borne by the insurer rather than the firm. This raises the expected utility from purchasing insurance, $U_E^{I=1}$, raising the probability that the employer chooses to buy it ($Pr(I_{b,p} = 1)$).

D3. Demand for insurance decreases with the premium per covered worker p:

$$\frac{\partial \Pr(I_{b,p} = 1)}{\partial p} < 0.$$

A higher premium p increases the upfront cost of insuring each covered worker, reducing the net benefit of insurance regardless of the layoff realization. Consequently, the expected utility from purchasing insurance, $U_E^{I=1}$, decreases, lowering the probability that the employer chooses to buy it ($Pr(I_{b,p=1})$).

These hypotheses are summarized in Table 1. Section 4.1 outlines the their empirical test.

Notice that Equation (3) relies on the simplifying assumption that purchasing insurance does not affect firm behavior. However, as it will be discussed in Sections 2.5 and 2.6, purchasing insurance can in fact influence the employer's choices over key firm-level decisions, including the level of effort to reduce layoffs e, firm size N, the share of covered workers c, and the share of covered layoffs α. When accounting for these behavioral responses, the condition for the employer to purchase insurance, shown in Equation (4), becomes more complex, as it incorporate the fact that each of these variables may differ with and without insurance (for example, $e^{I=0} \neq e^{I=1}$). Importantly, the predictions for demand with respect to b and p

remain unchanged.

$$U_E^{I=1} - U_E^{I=0} \geq 0, \qquad \text{where:} \tag{4}$$

$$\begin{aligned} U_E^{I=1} = \int_0^1 \pi_l(e^{I=1}, \theta)\, u\Bigg(& N^{I=1}\Big[(c^{I=1} - l + \beta^{I=1} n^{I=1})(R^c - w^c) \\ & + (1 - c^{I=1} - l + \alpha^{I=1} c^{I=1})(R^n - w^n) + (l - \beta^{I=1} n^{I=1})\big(- s(1+r)(1-b)\big) \\ & + (l - \alpha^{I=1} c^{I=1})A - pc^{I=1}\Big] - \chi(N^{I=1})\Bigg)\, dl - \psi(e^{I=1}) \end{aligned}$$

$$\begin{aligned} U_E^{I=0} = \int_0^1 \pi_l(e^{I=0}, \theta)\, u\Bigg(& N^{I=0}\Big[(c^{I=0} - l + \beta^{I=0} n^{I=0})(R^c - w^c) \\ & + (1 - c^{I=0} - l + \alpha^{I=0} c^{I=0})(R^n - w^n) \quad + (l - \beta^{I=0} n^{I=0})\big(- s(1+r)\big) \\ & + (l - \alpha^{I=0} c^{I=0})A\Big] - \chi(N^{I=0})\Bigg)\, dl - \psi(e^{I=0}) \end{aligned}$$

2.3 Hypotheses Set S: Selection in Insurance demand

Who purchases severance insurance? Equation (4) formalizes the employer's insurance decision, yielding testable predictions on key drivers of insurance uptake and offering crucial insights for welfare analysis and policy design.

S1. Demand for insurance increases with firm risk θ:

$$\frac{\partial Pr(I_{b,p} = 1)}{\partial \theta} > 0$$

A higher firm risk θ raises the probability of large layoff shares l, increasing expected severance payments. Because severance insurance reduces these payments for the same premium per covered worker, the expected utility from purchasing insurance, $U_E^{I=1}$, increases, which raises the probability that the employer chooses to buy it, $Pr(I = 1)$. This prediction provides a theoretical foundation for *adverse selection* or *risk-based selection* in insurance uptake. The risk considered in this case is invariant to coverage.

S2. Demand for insurance increases with moral hazard, measured by the effort reduction $(e^{I=0} - e^{I=1})$:

$$\frac{\partial Pr(I_{b,p} = 1)}{\partial (e^{I=0} - e^{I=1})} > 0$$

As it will be discussed in Section 2.5, severance insurance may induce employers to reduce their effort to mitigate layoffs, i.e., $e^{I=0} > e^{I=1}$. Employers who reduce effort more tend to face higher probabilities of large layoffs l once insured, leading to greater expected severance payments. Because severance insurance reduces these payments for the same premium per covered worker, the expected utility from purchasing insurance, $U_E^{I=1}$, increases, which raises the probability that the employer chooses to buy it, $Pr(I_{b,p} = 1)$. This prediction provides a theoretical foundation for *selection on moral hazard*, where risk is induced by coverage.

These hypotheses are summarized in Table 1. Section 4.2 outlines their empirical test.

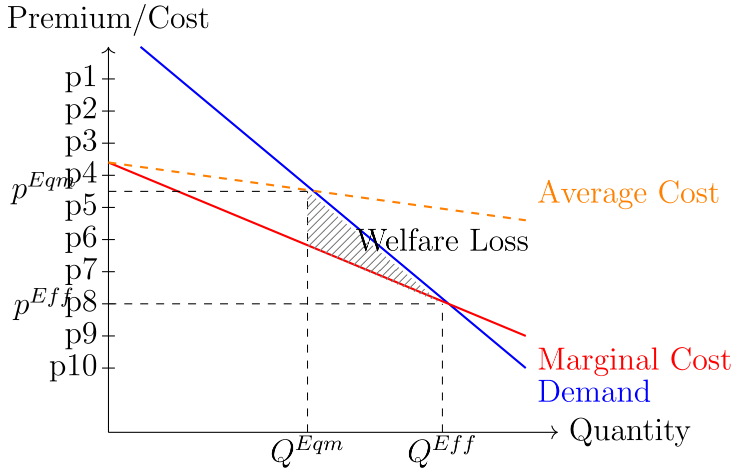
Studying these selection dynamics is crucial for optimal policy design:

Adverse selection arises when employers have private information about their firm-specific risk θ, which is not observed by the insurer and therefore not priced into the premium. In the presence of adverse selection, the insurer faces higher average costs because higher-risk firms are more likely to buy insurance. This leads the insurer to raise premiums for everyone, potentially excluding lower-risk firms from coverage due to the high premiums (*underinsurance*). In extreme cases, premiums may become so high that demand falls to zero, causing the market to completely unravel.

We illustrate the welfare loss from adverse selection in Figure (4), extracted from Einav et al. (2010). The figure shows the share of firms purchasing insurance on the x-axis (quantity) and premiums and insurer costs on the y-axis. It features three curves: the demand curve, representing firms' willingness to pay for insurance; the marginal cost curve, representing the insurer's cost of covering an additional firm; and the average cost curve, representing the insurer's average cost across all insured firms. The demand curve slopes downward, reflecting that insurance demand increases as premiums decrease. Similarly, the marginal cost curve is downward sloping, indicating that the cost of insuring additional firms declines as premiums fall and coverage expands (i.e., only riskier firms are covered at higher prices). Because the marginal cost curve slopes downward, the average cost curve lies above it and also slopes downward.

The efficient level of insurance coverage, Q^{Eff}, is identified by the intersection of the demand curve with the marginal cost curve: all the firms in $[0, Q^{Eff}]$ would be efficiently insured because their willingness to pay exceeds the marginal cost. However, the equilibrium coverage, Q^{Eqm}, is determined by the intersection of the demand and average cost curves. In this example, adverse selection leads to *underinsurance*: at the equilibrium price p^{Eqm}, only $Q^{Eqm} < Q^{Eff}$ employers purchase insurance. The shaded area in the figure captures the welfare loss from adverse selection—the surplus foregone by firms who would have been efficiently insured but are excluded due to the high premium in equilibrium.

Figure 4: Welfare Loss from Adverse Selection



Notes: The figure is extracted from (Einav et al., 2010). The x-axis measures the share of firms purchasing insurance (quantity), while the y-axis displays premiums and insurer costs. Three curves are depicted: the demand curve, the marginal cost curve, and the average cost curve. Both the marginal and average cost curves slope downward *because of* adverse selection. The shaded area represents the welfare loss resulting from underinsurance caused by adverse selection.

The government has a comparative advantage in eliminating the distortions induced by adverse selection, and the specific positions of Q^{Eqm} and Q^{Eff} guide policy interventions. If all firms would be efficiently insured (i.e., $Q^{Eff} = 1$), a mandate requiring insurance purchase would increase welfare by ensuring coverage for all employers. Alternatively, if only a subset of firms has demand above marginal cost (i.e., $Q^{Eff} < 1$), subsidies that lower insurance prices to the efficient level would be preferable.

Selection on moral hazard is equally important for insurance design. Moral hazard occurs if insurance causes employers to reduce effort to avoid layoffs, thereby raising the probability of claims. In the absence of selection on moral hazard, the standard models of optimal insurance (Baily, 1978; Chetty, 2006) prescribe lowering the generosity of coverage to counterbalance these distortions, encouraging firms to internalize more of the cost of layoffs and thus exert greater effort to avoid them.

However, if selection on moral hazard exists, then lowering generosity may reduce insurer costs not by reducing moral hazard, but rather by deterring high moral hazard employers from buying insurance altogether. This screening effect results in a market where only low moral hazard firms remain insured, but they receive less generous coverage than would be optimal for their behavior.

2.4 Hypothesis Set IV: Insurance Value

Is severance insurance valuable to firms, and why? To answer this question, we formally define two sources of value by relaxing two standard assumptions: that firms are risk-neutral and have full access to credit.

First, we generalize the standard approach used in the literature to measure the value of unemployment insurance for workers (Gruber, 1997; Landais and Spinnewijn, 2021). For workers, this value is defined as the marginal rate of substitution between employment (the good state) and unemployment (the bad state)—that is, the amount a worker would be willing to pay in the employed state to gain one additional dollar of consumption in the unemployed state. Similarly, we introduce the concept of value of insurance for firms by presenting in Equation (5) the marginal rate of substitution between the no-layoff state and a state with layoff share $l \in (0, 1]$, representing how much a firm would be willing to pay in the no-layoff state to transfer one dollar of profits to the layoff state.

$$MRS_{0,l} = \frac{u'(\Pi_l)}{u'(\Pi_0)} \qquad \text{where:} \tag{5}$$

$$\begin{aligned}\Pi_l = N[&\underbrace{(c - l + \beta n)(R^c - w^c)}_{\text{Covered Employed}} + \underbrace{(l - \beta n)[-s(1 + r)(1 - b) + A]}_{\text{Covered Laid Off}} \\ &+ \underbrace{[1 - l - c(1 - \alpha)](R^n - w^n)}_{\text{Non-covered Employed}} + \underbrace{(l - \alpha c)A}_{\text{Non-cov. Laid Off}} - pcI] - \chi(N) \\ \Pi_0 = N[&\underbrace{c(R^c - w^c)}_{\text{Covered Employed}} + \underbrace{(1 - c)(R^n - w^n)}_{\text{Non-covered Employed}} - pcI] - \chi(N)\end{aligned}$$

As the firm faces a continuum of layoff states $l \in [0, 1]$, the value of insurance for the firm naturally extends to a continuum of marginal rates of substitution:[7]

$$[MRS_{0,0}, \ldots, MRS_{0,l}, \ldots MRS_{0,1}] \tag{6}$$

Second, we allow for liquidity to become increasingly costly in layoff states: each dollar of severance pay effectively costs $1 + r$, where $r \geq 0$ captures the higher cost of liquidity during a shocks, as in Spaziani (2025).

[7]These marginal rates of substitution serve as the fundamental building blocks for deriving all other marginal rates of substitution between any two states l and l'. specifically, for two layoff shares $0 \leq l < l' \leq 1$, it can be shown that $MRS_{0,l'} = MRS_{0,l} \cdot MRS_{l,l'}$, which implies $MRS_{l,l'} = \frac{MRS_{0,l'}}{MRS_{0,l}}$.

We define the following hypotheses regarding insurance value:

IV1. Existence of insurance value: We say that insurance has value if at least one of the two following conditions holds:

1. **Risk aversion:** There exists at least one state of the world $l > 0$ in which employer values transfering funds from the state without layoffs ($l = 0$) to states with a positive layoff share ($l > 0$), that is, in which marginal utilty is higher in the layoff state l than in the no layoff state $l = 0$:

$$\exists l : MRS_{0,l} > 1$$

   Since profits in any layoff state are strictly lower than in the no-layoff state, $\Pi_l < \Pi_0 \quad \forall l$, it follows that $\frac{\Pi_l}{\Pi_0} < 1$. Therefore, $MRS_{0,l}$ can exceed one only in presence of risk aversion $\rho > 0$, meaning that the marginal utility of profits is higher in the layoff state.

2. **Borrowing constraints:** The cost of liquidity is higher in layoff states than in the no-layoff state:

$$r > 0$$

   In this case, each dollar transferred to the layoff state is worth the dollar itself plus the avoided liquidity cost r.

Studying the existence of insurance value is key to informing government intervention. For example, insurance value may be high even if demand is low, due to employers underestimating their risk. In this case, the government may wish to ensure coverage despite limited demand. Moreover, depending on the key drivers of the value of insurance, different policy interventions may be more appropriate. Depending on the primary determinants of insurance value, targeted policy interventions differ. When risk aversion predominates, severance insurance serves as an effective instrument to mitigate firm-specific risk and the uncertainty associated with severance liabilities. Conversely, if insurance value mainly arises from borrowing or liquidity constraints, policies that enhance firms' access to external capital or liquidity during financial distress are likely to be more efficient.

IV2. Demand for insurance increases with insurance value:

$$\frac{\partial Pr(I=1)}{\partial MRS_{0,l}} > 0 \quad and \quad \frac{\partial Pr(I=1)}{\partial r} > 0$$

To link the value of insurance, as captured by the marginal rate of substitution, to firms' demand for insurance, we generalize the framework developed in Landais and Spinnewijn (2021) to our context with a continuum of states of the world. We assume that the employer can purchase state-contingent insurance, i.e., Arrow–Debreu securities, which pay one unit of benefit in each state characterized by a layoff share $l \in [0, 1]$. Each unit of benefit costs p_l and provides marginal utility $u'(\Pi_l)$. The employer purchases insurance if the expected marginal utility gain from a unit of insurance is higher in layoff states than in the no-layoff state:

$$\int_0^1 \frac{\pi_l(\theta, e)u'(\Pi_l)}{p_l}\, dl \geq \frac{u'(\Pi_0)}{p_0}.$$

We divide both sides of the inequality by $u'(\Pi_0) > 0$, apply the definition of $MRS_{0,l}$ from Equation (5), and use the assumption that the price of Arrow–Debreu securities is constant across states and equal to $p_l = p_x$ to obtain:

$$\frac{1}{p_x}\int_0^1 \pi_l(\theta, e)\frac{u'(\Pi_l)}{u'(\Pi_0)}\, dl = \frac{1}{p_x}\int_0^1 \pi_l(\theta, e)MRS_{0,l}\, dl \geq \frac{1}{p_0}$$

Or, equivalently:

$$\underbrace{\int_0^1 \pi_l(\theta, e)MRS_{0,l}\, dl}_{\text{WTP=Expected Insurance Value}} \geq \underbrace{\frac{p_x}{p_0}}_{\text{Price}}. \tag{7}$$

Equation (7) shows that the employer purchases insurance if their willingness to pay (WTP), on the left-hand side of the equation, exceeds the relative price of a unit of insurance, on the right-hand side of the equation. Specifically, the WTP corresponds to the expected insurance value, as it is given by the weighted average of the marginal rates of substitution between the state with no layoffs ($l = 0$) and each state characterized by a layoff share l, with weights given by the probabilities $\pi_l(\theta, e)$ of each layoff share l. Our framework thus predicts that a higher marginal rates of substitution between the no-layoff state and the layoff states lead to a higher willingness to pay for insurance.

Notice that, if the expected insurance value is larger than one, it must be that at least one marginal rate of substitution is larger than one. We formally state this result since we will use it to test hypothesis IV1.

$$\underbrace{\int_0^1 \pi_l(\theta, e)MRS_{0,l}\, dl}_{\text{WTP=Expected Insurance Value}} > 1 \implies \underbrace{\exists l : MRS_{0,l} > 1}_{\text{Existence of Insurance Value}} \tag{8}$$

IV3. Insurance value increases with the layoff share l:

$$\frac{\partial MRS_{0,l}}{\partial l} \geq 0$$

Our model predicts that the marginal rate of substitution between the no-layoff state and a state with layoff share l increases as the layoff share l rises. To show this, we first examine the marginal rate of substitution at the extremes of the layoff share interval, $l = 0$ (no layoffs) and $l = 1$ (all workers laid off). At $l = 0$, we have $MRS_{0,0} = \frac{u'(\Pi_0)}{u'(\Pi_0)} = 1$. Furthermore, $MRS_{0,1}$ does not capture possible discontinuities in the firm's profit function that may arise due to bankruptcy or firm exit policies. Theoretically, we abstract from this possibility; however, our survey is designed to test empirically whether bankruptcy induces such discontinuities. We thus show that the marginal rate of substitution $MRS_{0,l}$ increases from 1 to $MRS_{0,1}$ as the layoff share l rises. Intuitively, a higher layoff share l reduces profits Π_l, thereby raising the marginal utility in the layoff state. As a result, the employer is increasingly willing to transfer resources from the no-layoff state to the layoff state, leading to a higher $MRS_{0,l}$. Formally:

$$\frac{\partial MRS_{0,l}}{\partial l} = \frac{u''(\Pi_l)}{u'(\Pi_0)} \cdot \frac{\partial \Pi_l}{\partial l} = \underbrace{\overbrace{\frac{u''(\Pi_l)}{u'(\Pi_0)}}^{\leq 0}}_{\geq 0} \cdot N \left[\underbrace{-(R^c - w^c) - (R^n - w^n) - s(1+r)(1-b) + 2A}_{<0} \right] \geq 0$$

IV4,5,6. Drivers of Insurance Value: The marginal rate of substitution can be expressed as a function of its three possible microfoundations: risk aversion ρ, borrowing constraints, represented by the cost of raising liquidity after a shock and captured by the interest rate on severance payments r, and liquidity constraints, captured by assets availability A. Appendix A.1 shows that the marginal rates of substitution can be written as:

$$MRS_{0,l} = \exp\left(N[(R^c - w^c) + (R^n - w^n) + s(1+r)(1-b) - 2A] \int_0^l \rho(\Pi_x)\, dx \right) \tag{9}$$

Equation (9) yields the following predictions for the marginal rate of substitution:

IV4. It increases with risk aversion ρ:

$$\frac{\partial MRS_{0,l}}{\partial \rho} > 0.$$

More risk-averse employers place a higher value on insurance, as it reduces both the losses and the marginal utility experienced in case of a shock.

IV5. It increases with borrowing constraints, captured by the interest rate on liquidity r:

$$\frac{\partial MRS_{0,l}}{\partial r} > 0.$$

A higher cost of raising liquidity makes insurance more valuable because it mitigates the need for funds precisely when they are most expensive.

IV6. It decreases with liquidity constraints, captured by employer assets A:

$$\frac{\partial MRS_{0,l}}{\partial A} < 0.$$

The availability of liquid assets reduces marginal utility in case of a shock, substituting for the role of insurance.

These hypotheses are summarized in Table 1. Section 4.3 outlines their empirical test.

2.5 Hypothesis Set MH: Moral Hazard and Layoff Incentives

Does severance insurance induce employers to lay off more workers? This phenomenon, where the employer's incentive to exert effort to avoid layoffs decreases because they bear a smaller share of the severance payments, is known as moral hazard. If severance insurance substantially increases layoffs, it creates a trade-off: employers gain from reduced risk exposure, but workers suffer from higher job losses. Overall welfare may decline if worker losses outweigh employer gains, making the policy potentially undesirable.

To analyze whether severance insurance induces distortions in layoff decisions, we examine the employer's problem of choosing the optimal effort level to avoid layoffs, e. The employer chooses effort e to maximize expected utility U_E, defined in Equation (2). Differentiating U_E with respect to e and setting the derivative equal to zero yields the first-order condition in Equation (10), defining the optimal effort level as the level at which the marginal benefit of effort equals the marginal cost. The benefit arises from the increase in expected profits resulting from a reduction in the firm's expected layoff rate, $\bar{l}(\theta, e)$. [8] The cost corresponds

[8] Increasing effort reduces the firm's expected layoff rate by shifting from the dashed to the solid line in panel [d] of Figure 2.

to the increasing disutility of higher effort, $\psi'(e)$.

$$\frac{\partial U_E}{\partial e} = 0 \implies \underbrace{\int_0^1 \frac{\partial \pi_l(e,\theta)}{\partial e} u(\Pi_l)\, dl}_{\substack{\text{Marginal Benefit of Effort:} \\ \text{Higher Expected Profits}}} = \underbrace{\psi'(e)}_{\substack{\text{Marginal Cost of Effort:} \\ \text{Increasing Effort Cost}}} \tag{10}$$

$$\Pi_l = N\big[(c - l + \beta n)(R^c - w^c) + (1 - c - l + \alpha c)(R^n - w^n) \\ + (l - \beta n)(-s(1+r)(1-bI) + A) + (l - \alpha c)A - cpI\big] - \chi(N) - \psi(e)$$

Equation (10) leads to the following predictions about moral hazard:

MH1. Effort to avoid layoffs increases with the severance pay s:

$$\frac{\partial e}{\partial s} > 0$$

A higher severance pay s raises the cost of layoffs, thereby increasing the marginal benefit of exerting effort to avoid such more costly layoffs.

MH2. Effort to avoid layoffs decreases with the replacement rate b**:**

$$\frac{\partial e}{\partial b} < 0$$

A higher replacement rate b reduces the cost of layoffs, thereby reducing the marginal benefit of exerting effort to avoid such cheaper layoffs. Insurance coverage, moving from $I = 0$ to $I = 1$, can be interpreted as moving from a null replacement rate $b = 0$ to a positive replacement rate $b > 0$, and delivers a consistent prediction.

These hypotheses are summarized in Table 1. Section 4.4 outlines their empirical test.

Implications of Moral Hazard for Underinsurance If moral hazard is present, it can further amplify the underinsurance dynamics already driven by adverse selection. To illustrate this point, suppose that insurance coverage induces a reduction in effort e, leading to an increase in the expected layoff rate, $\bar{l}(\theta, e)$. As a consequence, each employer has two realized risk outcomes: one when insured, $Y_{i,t+1}^{I=1}$, and one when uninsured, $Y_{i,t+1}^{I=0}$. This implies that in Figure 4, we now need to distinguish between two sets of marginal and average cost curves: $MC^{I=1}$ and $AC^{I=1}$ (with insurance-induced moral hazard), and $MC^{I=0}$ and $AC^{I=0}$ (without moral hazard). By construction, $MC^{I=1}$ and $AC^{I=1}$ lie weakly above $MC^{I=0}$ and $AC^{I=0}$, respectively. This shift affects both the equilibrium and the efficient prices and quantities, as well as the area representing the welfare loss from adverse selection. On the one hand, higher costs raise the equilibrium price, potentially leading to further underinsurance. On the other hand, the increase in costs also reduces the efficient quantity of employers for whom insurance is socially desirable (i.e., those with costs below their willingness to pay, as reflected in the demand curve). As a result, the overall effect on welfare loss due to adverse selection becomes theoretically ambiguous ex ante.

2.6 Hypotheses Set FS-CH-CL: Firm Size and Composition

Does severance insurance remove barriers to firm growth and workforce formalization by reducing the cost of labor and particularly the cost associated with employing covered workers? Does it incentivize firms to lay off workers who are covered by social insurance rather than those without any social protection? These questions are fundamental for understanding the broader implications for economic development and for workers' welfare.

To analyze how severance insurance induces changes in hiring and layoff decisions, we analyze the employer's optimal choices of firm size, share of covered hires, and share of covered layoffs.

Optimal firm size N. The employer chooses firm size to maximize expected utility U_E, defined in Equation (2). Differentiating U_E with respect to N and setting the derivative equal to zero yields the first-order condition in Equation (11), defining the optimal size as the size at which the marginal benefit and the marginal cost of an additional worker are equal. The marginal benefit corresponds to the average profit (or loss) generated by a worker, averaged across all worker types. The marginal cost reflects the increasing vacancy cost.

$$\frac{\partial U_E}{\partial N} = \int_0^1 \pi_l(e,\theta) u'(\Pi_l) \frac{\partial \Pi_l}{\partial N}\, dl = 0 \tag{11}$$

$$\begin{aligned}\frac{\partial \Pi_l}{\partial N} = &\overbrace{(c-l+\beta n)(R^c - w^c) + (l-\beta n)[-s(1+r)(1-b)+A]}^{\text{Average Profit Across Worker Types}} \\ &+ [1-l-c(1-\alpha)](R^n - w^n) + (l-\alpha c)A - pcI - \underbrace{\psi(N)}_{\substack{\text{Increasing}\\ \text{Vacancy Cost}}}\end{aligned}$$

Equation (11) leads to the following predictions about firm size:

FS1. Firm size decreases with severance pay s:

$$\frac{\partial N}{\partial s} < 0$$

A higher severance pay s reduces the marginal benefit of hiring an additional worker by increasing the expected cost of layoffs, thereby decreasing average worker profits relative to the fixed vacancy costs and leading to a smaller optimal firm size.

FS2. Firm size increases with the replacement rate b:

$$\frac{\partial N}{\partial b} > 0$$

A a higher replacement rate b increases the marginal benefit of hiring an additional worker by reducing the cost of layoffs, thereby increasing average worker profits relative to fixed vacancy costs and leading to a larger optimal firm size. Insurance coverage, moving from $I = 0$ to $I = 1$, can be interpreted as moving from a null replacement rate $b = 0$ to a positive replacement rate $b > 0$, and delivers a consistent prediction.

Optimal share of covered hires c. The employer chooses the fraction of covered workers c to maximize expected utility U_E, defined in Equation (2). Differentiating U_E with respect to c and setting the derivative equal to zero yields the first-order condition in Equation (12), defining the optimal share of covered hires as the one at which the marginal benefit and the marginal cost of an additional covered worker are equal. The benefit of employing a covered worker arises from increasing the share of workers who deliver covered profits, $R^c - w^c$, instead of non-covered profits, $R^n - w^n$, conditional on the worker remaining employed with probability $(1 - \alpha)$. This marginal benefit is positive whenever covered workers generate higher profits than non-covered workers. The cost comes from the higher expense incurred when laying off a covered worker: with probability α, the firm must pay $s(1 + r)(1 - bI)$, whereas laying off a non-covered worker entails no cost.

$$\frac{\partial U_E}{\partial c} = \int_0^1 \pi_l(e,\theta) \cdot u'(c_l) \cdot \frac{\partial c_l}{\partial c}\, dl = 0, \tag{12}$$
$$\frac{\partial c_l}{\partial c} = (1-\alpha)(R^c - w^c) + (-1+\alpha)(R^n - w^n) + \alpha[-s(1+r)(1-bI) + A] - \alpha A$$
$$= \underbrace{(1-\alpha)(R^c - w^c - R^n + w^n)}_{\substack{\text{Marginal Benefit of Covered Hire :} \\ \text{Higher relative profits if employed}}} + \underbrace{\alpha[-s(1+r)(1-bI)]}_{\substack{\text{Marginal Cost of Covered Hire :} \\ \text{Layoff costs if unemployed}}} .$$

Equation (12) leads to the following predictions about covered hires:

CH1. The share of covered hires decreases with severance pay s:

$$\frac{\partial c}{\partial s} < 0$$

A higher severance pay s increases the marginal cost of hiring an additional covered worker by increasing the expected costs of layoffs, thereby reducing the optimal share of covered workers.

CH2. The share of covered hires increases with the replacement rate b:

$$\frac{\partial c}{\partial b} > 0$$

A higher replacement rate b reduces the marginal cost of hiring an additional covered worker by reducing the expected costs of layoffs, thereby increasing the optimal share of covered workers. Insurance coverage, moving from $I = 0$ to $I = 1$, can be interpreted as moving from a null replacement rate $b = 0$ to a positive replacement rate $b > 0$, and delivers a consistent prediction.

Optimal share of covered layoffs α: The employer chooses the fraction of covered layoffs α to maximize expected utility U_E, defined in Equation (2). Differentiating U_E with respect to α and setting the derivative equal to zero yields the first-order condition in Equation (13), defining the optimal share of covered layoffs as the one at which the marginal benefit and cost of an additional covered layoffs are equal. The benefit arises from the higher profits of non-covered workers that are obtained by increasing layoffs among covered workers. This is only advantageous if covered workers yield lower net profits than non-covered ones, that is, $R^c - w^c < R^n - w^n$. The cost of increasing covered layoffs is given by the severance payments required for each covered worker, $s(1+r)(1-bI)$. If covered workers are both more profitable and more costly to lay off, the model predicts that it is always optimal to set $\alpha = 0$, thereby avoiding covered layoffs entirely regardless of insurance status or replacement rate.[9]

[9] The same conclusions would apply within the set of covered workers if they differed in productivity (R), with wages (w) increasing in productivity and severance pay (s) increasing in wages.

$$\frac{\partial U_E}{\partial \alpha} = \int_0^1 \pi_l(e,\theta) \cdot u'(\Pi_l) \cdot \frac{\partial \Pi_l}{\partial \alpha}, dl = 0, \tag{13}$$

$$\frac{\partial \Pi_l}{\partial \alpha} = -c(R^c - w^c) + (1-c)(R^n - w^n) + c[-s(1+r)(1-bI) + A] - (1-c)A$$

$$= \underbrace{c(w^c - R^c) - (1-c)(w^n - R^n)}_{\substack{\text{Marginal Benefit of Covered Layoff:} \\ \text{Profits from laying off covered vs. non-covered}}} + \underbrace{c[-s(1+r)(1-bI)]}_{\substack{\text{Marginal Cost of Covered Layoff:} \\ \text{Severance Pay}}} .$$

Equation (13) leads to the following predictions about covered layoffs:

CL1. The share of covered layoffs decreases with severance pay s:

$$\frac{\partial \alpha}{\partial s} \leq 0$$

A higher severance pay s increases the marginal cost of laying off an additional covered worker by raising their layoff costs, which may lead to a reduction in the optimal share of covered layoffs. We should not observe such effect if $\alpha = 0$ is already at zero.

CL2. The share of covered layoffs increases with the replacement rate b**:**

$$\frac{\partial \alpha}{\partial b} \geq 0$$

A higher replacement rate b reduces the marginal cost of laying off an additional covered worker by reducing their layoff costs, which may lead to an increase in the optimal share of covered layoffs. Insurance coverage, moving from $I = 0$ to $I = 1$, can be interpreted as moving from a null replacement rate $b = 0$ to a positive replacement rate $b > 0$, and delivers a consistent prediction. We should not observe such effect if covered workers yield higher net profits than non-covered ones, i.e., $R^c - w^c > R^n - w^n$, as it will always be optimal to layoff $\alpha = 0$ covered workers, regardless of the insurance status or the replacement rate.

The predictions about firm size and composition are summarized in Table 1. Section 4.4 outlines their empirical test.

Table 1: Summary of Hypotheses Informed by Model Predictions and their Empirical Tests

No.	Hypothesis	Formulation	Empirical Test
Demand for Insurance (D)			
D1	$Pr(I_{i,b,p} = 1) > 0$	There is demand for severance insurance.	$\alpha_0 > 0$ in Equation (19)
D2	$\frac{\partial \Pr(I_{i,b,p}=1)}{\partial b} > 0$	Demand for insurance increases with the replacement rate b.	$\beta_b > 0$ in Equation (19)
D3	$\frac{\partial \Pr(I_{i,b,p}=1)}{\partial p} < 0$	Demand for insurance decreases with the premium per covered worker p.	$\beta_p < 0$ in Equation (19)
Selection in Insurance Demand (S)			
S1	$\frac{\partial \Pr(II_{i,b,p}=1)}{\partial \theta} > 0$	Demand for insurance increases with risk θ (adverse selection).	$\gamma > 0$ in Equation (22)
S2	$\frac{\partial \Pr(I=1)}{\partial (e^{I=0} - e^{I=1})} > 0$	Demand for insurance increases with moral hazard $e^{I=0} - e^{I=1}$ (selection on moral hazard).	$\beta > 0$ in Equations (24)
Insurance Value (IV)			
IV1	$\exists l : MRS_{0,l} > 0$ or $r > 0$	Existence of insurance value.	$\alpha > 0$ in Equation (25)
IV2	$\frac{\partial \Pr(I_{i,b,p}=1)}{\partial MRS_{0,l}} > 0$ or $\frac{\partial \Pr(I_{i,b,p}=1)}{\partial r} > 0$	Demand for insurance increases with insurance value.	$\beta > 0$ in Equation (28)
IV3	$\frac{\partial MRS_{0,l}}{\partial l} > 0$	Insurance value increases with the layoff share l.	$\beta > 0$ in Equation (29)
IV4-5-6	$\frac{\partial MRS_{0,l}}{\partial \rho} > 0$ $\frac{\partial MRS_{0,l}}{\partial r} > 0$ $\frac{\partial MRS_{0,l}}{\partial A} < 0$	Insurance value increases with risk aversion ρ, increases with borrowing constraints r and decreases with assets A.	$\beta > 0$ in Equation (30) for ρ, r; $\beta < 0$ for A
Moral Hazard (MH)			
MH1	$\frac{\partial e}{\partial s} > 0$	Effort to avoid layoffs increases with severance pay s.	$\beta < 0$ in Equation (34)
MH2	$\frac{\partial e}{\partial b} < 0$	Effort to avoid layoffs decreases with the replacement rate b.	$\delta_0 > 0$ in Equation (32)
Firm Size and Composition (FS, CH, CL)			
FS1	$\frac{\partial N}{\partial s} < 0$	Firm size decreases with severance pay s.	$\beta < 0$ in Equation (34)
FS2	$\frac{\partial N}{\partial b} > 0$	Firm size increases with the replacement rate b.	$\delta_0 > 0$ in Equation (32)
CH1	$\frac{\partial c}{\partial s} < 0$	The share of covered hires decreases with severance pay s.	$\beta < 0$ in Equation (34)
CH2	$\frac{\partial c}{\partial b} > 0$	The share of covered hires increases with the replacement rate b.	$\delta_0 > 0$ in Equation (32)
CL1	$\frac{\partial \alpha}{\partial s} \leq 0$	The share of covered layoffs decreases with severance pay s	$\beta \leq 0$ in Equation (34)
CL2	$\frac{\partial \alpha}{\partial b} \geq 0$	The share of covered layoffs increases with the replacement rate b.	$\delta_0 \geq 0$ in Equation (32)

2.7 Optimal Severance Insurance

We assume that severance insurance is mandatory for all employers (i.e., no selection), and evaluate its optimal design following Baily (1978) and Chetty (2006). The social planner chooses the severance insurance replacement rate b and the premium per covered worker p

to maximize social welfare, subject to an ex-ante balanced budget constraint. Social welfare, defined in Equation (14), is given by the sum of workers' expected utilities (Equation (15)) and the employer's expected utility (Equation (2)), while ensuring that the budget remains balanced in expectation.

$$SWF = \underbrace{U_W}_{\text{Workers' Utilities}} + \underbrace{U_E}_{\text{Employer Utility}} \tag{14}$$

Workers' utilities depend on their employment and coverage status. Covered employed workers consume the wage for covered workers, w^c, while non-covered employed workers consume the wage for non-covered workers, w^n. Covered laid-off workers consume the severance payment provided by the employer, s, whereas non-covered laid-off workers have no consumption.

$$U_W = N\int_0^1 \pi_l(e,\theta)\overbrace{\left[\underbrace{(1-\alpha)c\,u(w^c)}_{\text{Covered Employed}} + \underbrace{(1-l-c(1-\alpha))\,u(w^n)}_{\text{Non-covered Employed}} + \underbrace{\alpha c\,u(s)}_{\text{Covered Laid-off}} + \underbrace{(l-\alpha c)\,u(0)}_{\text{Non-covered Laid-off}}\right]}^{u_w} dl \tag{15}$$

The budget constraint is balanced in expectation: for every layoff share l, the premium collected, which increases in the number of covered employed workers, must match the expected expenditure in severance benefits, which increases in the number of covered laid off workers:

$$\underbrace{Ncp}_{\text{Expected Total Premium}} = \underbrace{N\alpha cbs}_{\text{Expected Benefit Expenditure}} \tag{16}$$

The optimal policy is derived in three steps. First, we substitute $p = \alpha bs$, obtained from the budget constraint in Equation (16), into the expression for the employer's utility U_E in Equation (2). Second, we take the derivative of the social welfare function in Equation (14) with respect to b to solve for the optimal replacement rate b^*. Third, We then use the budget constraint in Equation (16) to obtain the optimal premium per covered worker: $p^* = \alpha b^* s$.

Because the employer chooses optimally their level of effort e, the firm size N, the share of covered workers c, and the share of covered layoffs α, by an envelope condition, all changes in welfare induced by variations in b occur either through workers' welfare or through the budget constraint. Changes in the employer's welfare that would arise through adjustments in e, N, c, or α are all equal to zero, because the employer is already optimizing along these margins. In practice, this implies that we can treat e, c, and α as fixed when they appear in U_E. When taking the derivative of U_E with respect to b, we only differentiate terms where b appears explicitly, and we must account for the fact that τ is a function of b, i.e., $\tau = \tau(b)$, due to the balanced budget constraint.

Suppose, first, that the social planner only cares about the employer's expected utility, $SWF = U_E$. In this case, the formula for the optimal policy is simply:

$$\overbrace{\underbrace{r}_{\substack{\text{Insurance Value:}\\ \text{Cost of Liquidity during Shock}}}}^{\substack{\text{Marginal Benefit of}\\ \text{Severance Insurance}}} = \overbrace{\underbrace{\varepsilon_{\alpha,b}}_{\text{Fiscal Externality}}}^{\substack{\text{Marginal Cost of}\\ \text{Severance Insurance}}} \tag{17}$$

Equation (17) shows that the optimal policy balances the marginal benefit and marginal cost of severance insurance. The marginal benefit is captured by the additional value of a dollar of insurance during layoffs, represented by the avoided cost of raising a dollar of liquidity, r. The marginal cost arises as a fiscal externality on the government's budget: within each layoff state, increasing the share of covered layoffs—measured by the elasticity of the share of covered layoffs with respect to the replacement rate$\varepsilon_{\alpha,b}$ raises expected severance expenditures. To maintain budget balance, the government must therefore increase revenues by raising premiums on employers.

Suppose, now, that the social planner cares about both workers and the employer: $SWF = U_E + U_W$. In this case, the formula for the optimal replacement rate becomes:

$$\overbrace{\underbrace{\int_0^1 \pi_l(e,\theta) MRS_{0,l}\, dl}_{\substack{\text{Employer Expected}\\ \text{Insurance Value}}} + \underbrace{\psi_N \varepsilon_{N,b}}_{\text{Firm Growth}} + \underbrace{\psi_c \varepsilon_{c,b}}_{\substack{\text{Worker}\\ \text{Formalization}}} + \underbrace{\psi_{\alpha 1} \varepsilon_{\alpha,b}}_{\substack{\text{Protection for}\\ \text{Unemployed Workers}}}}^{\text{Marginal Benefit of Severance Insurance}} = \overbrace{\underbrace{-\psi_e \overset{(-)}{\varepsilon_{e,b}}}_{\text{Moral Hazard}} + \underbrace{\psi_{\alpha 2} \varepsilon_{\alpha,b}}_{\text{Fiscal Externality}}}^{\text{Marginal Cost of Severance Insurance}} \tag{18}$$

The optimal replacement rate is the one that equalizes the marginal benefit and cost of severance insurance. The marginal benefit includes four elements:

1. **Expected Insurance Value for Employer:** Increasing insurance reduces all the marginal rates of substitution between the state with no layoffs ($l = 0$) and each layoff state $l \in (0, 1]$. The value in each state is proportional to the probability of that layoff state actually occurring. As shown in Equation (8), an expected insurance value greater than one is indicative of risk aversion (Hypothesis IV1, IV4). In Section 2.4 we further discuss that the value may be also driven by borrowing and liquidity constrains (Hypotheses IV5-6).

2. **Firm Growth:** Increasing insurance leads to larger firm size N, as captured by the positive elasticity of size with respect to the replacement rate, $\varepsilon_{N,b}$ (Hypothesis FS2).

Firm growth benefits workers since employment has positive expected utility.

3. **Worker Formalization:** Increasing insurance leads to a larger share of the workforce covered by social protection, c, as captured by the positive elasticity of the share of covered hires with respect to the replacement rate, $\varepsilon_{c,b}$ (Hypothesis CH2). Being hired as a covered worker benefits employees in all states of the world: when employed, they may receive a higher wage compared to non-covered workers; and when unemployed, they receive severance payments instead of no protection.

4. **Protection for Unemployed Workers:** Increasing insurance may raise share of workers covered by social protection during unemployment, α, as captured by the elasticity of the share of covered layoffs with respect to the replacement rate, $\varepsilon_{\alpha,b}$. Being laid off as a covered worker benefits individuals by resulting in a smaller loss compared to being laid off without coverage.

The marginal cost of severance insurance includes two elements:

1. **Moral Hazard:** Increasing insurance weakens employers' incentives to exert effort to avoid layoffs, which raises the layoff rate causes an expected utility loss for workers, as they face a higher likelihood of unemployment. This cost is captured by the negative elasticity of effort with respect to the replacement rate, $\varepsilon_{e,b}$ (Hypothesis MH2).

2. **Fiscal Externality:** Increasing insurance induces a fiscal externality, as described for Equation (17).

The intuition behind why and how each factor affects welfare is contained within the scaling factors ψ, which are presented together with detailed steps for deriving the formulas for the optimal policy, in Appendix A.

As standard in the sufficient statistics literature, we calibrate the parameters in the formula to assess the local optimality of the status-quo replacement rate, $b = 0$, given that severance insurance is currently non-existent. If the marginal benefits exceed the marginal costs, the formula suggests that the replacement rate should be marginally increased to improve welfare. Conversely, if the marginal costs are larger, it would be optimal not to introduce the policy. The calibration of these formulas and the resulting implications for optimal policy design are discussed in Section 4.5.

3 The Severance Insurance Product

Because insurance against layoff costs for firms is generally unavailable across countries, we design and offer a new product—*Severance Insurance*—that protects firms against severance pay, in order to empirically test the hypotheses generated by our theoretical framework.

Product Description and Offer. We offer employers in our sample the opportunity to purchase severance insurance, conditional on being selected to receive the offer. After describing the product, we conduct a multiple price list exercise in which employers choose between receiving a cash bonus or using the bonus to purchase Severance Insurance, with the insurance premium varying across questions. Multiple price listings of this kind are a standard tool in the literature for eliciting product demand and have also been applied to elicit demand for insurance in low-income countries.[10] The description of the product, the incentive structure, the comprehension checks we perform, and the exact survey question used to elicit employers' interest in purchasing the insurance are detailed in Appendix B.

The Severance Insurance we offer has the following characteristics:

- **Coverage.** The product covers layoffs that occur between February 1st, 2026, and July 31st, 2026, and result in a severance payment for the laid-off worker.
- **Replacement rate.** The replacement rate is either $b = 50\%$ (product offered to everyone) or $b = B$ randomly chosen in the set $\{25, 50, 75\}\%$ (second product offered). The order in which the two products are offered is randomized. This means that employers covered by severance insurance receive a benefit equal to 50% or $B\%$ of the severance payment made for each laid off covered worker, subject to a cap of 250,000 Birr across all claims. The cap is unlikely to be binding for most firms.[11]
- **Claims.** Employers covered by severance insurance are connected with a representative of our implementing partner in Addis Ababa, who will oversee the intervention's implementation throughout the coverage period. The representative transfers the benefit to the firm's bank account at the time of the layoff, before the severance payment is made. Proof of severance payment is verified through our partner institution.
- **Price.** Employers are offered the two products at fifteen different prices per covered (severance pay eligible) worker: $Pw_1, \ldots, Pw_{15}$, where $Pw_1 = 5Birr < Pw_2 < \cdots <$

[10] For example, in an ongoing study, Casaburi et al. (2025) use an equivalent approach to study household demand for health insurance in Uganda.

[11] In our pilot, the baseline severance pay was 15,000 Birr, implying that our most generous product would cover severance payments for 16 workers, while the least generous product would cover 66 workers.

$Pw_{15} = 7,500 Birr$. These prices are calibrated to ensure that Pw_1 is frequently accepted and Pw_{15} is rarely accepted. Responses are incentive-compatible, as employers are informed that, if selected, one of their stated choices will be randomly implemented. Moreover, they understand that they will not be required to make any payment themselves: a bonus is provided upfront, from which the insurance premium is deducted. The calibration of the prices and the bonus are described in Appendix B.

Selection of the Eligible Employer and Product Characteristics. At the end of January 2026, the research team randomly selects *one* employer from the sample, denoted as i^T, to be offered coverage by the Severance Insurance product, as well as one combination of price per worker p and replacement rate b, denoted as $(\hat{p}, \hat{b})$, which determine the characteristics of the offered insurance contract. The research team made this decision to minimize the risk of potential layoffs induced by the intervention. To further minimize the risk of inducing layoffs through our intervention, the probability that an employer is selected is set inversely proportional to their size N_i and expected layoff rate $\bar{l}(\theta, e)$. Each combination of price and replacement rate is chosen with equal probability. The team then implements the selected employer's choice—i.e., whether or not the employer i^T purchases the product with characteristics $(\hat{p}, \hat{b})$ based on their response during the survey. If employer i^T expressed interest in purchasing Severance Insurance with characteristics $(\hat{p}, \hat{b})$, they will be covered by the insurance throughout the coverage period. Otherwise, no employer will be covered.

Notification of Insurance Status. Next, the research team notifies employers about their insurance status, which will be negative for all employers except, potentially, for employer i^T. If employer i^T is covered by severance insurance with replacement rate $\hat{b}$, they will receive the bonus payment, from which the premium per worker $\hat{p}$ is subtracted, directly into the general firm bank account. We will consider employer i^T to be effectively covered if they are successfully contacted by a representative of our implementing partner to ensure that the product's characteristics and conditions are fully understood and establish a direct point of contact for any future claims.

Verification of Product and Willingness to Pay Understanding. To elicit reliable demand estimates, we carefully explain the product details and the structure of the questions (multiple price listings) to respondents. To ensure that our results are not driven by confusion, we incorporate a series of understanding checks throughout the survey. If a respondent fails a check, enumerators provide a second explanation before the question is asked again. These checks cover the conditions under which the Severance Insurance benefits are paid, calculations of the amounts provided in different scenarios, and recognition that the generosity of the insurance product varies across products. Additional checks focus on the multiple price list mechanism, requiring employers to correctly compute the amount they would receive under each choice. To further reduce misunderstandings, respondents hear the implications of their decisions and are allowed to revise their choices. The exact wording of explanations and checks is provided in Appendix B.

Effectiveness of Incentives. Our lottery design makes employers' responses incentive-compatible. To raise attention, employers are repeatedly communicated that their responses *"can have real consequences."* Since our contract is perfectly enforceable—because we pay the bonus rather than requiring payment from employers—employers are expected to pay close attention to it and take it seriously. Even though the selection probability is low, we follow a common approach in the literature, supported by evidence that incentives continue to influence behavior even when only a small share of respondents is treated.[12]

Expectancy and Performance Bias. Expectancy and performance biases are unlikely to pose a significant issue in our study since there is no intervention prompting firms to change their behavior due to being part of a "treatment group." However, our measures of behavioral responses to Severance Insurance, which rely on comparing firm's self-reported behavior in the status quo (in absence of severance insurance) and in the hypothetical scenario of being covered by severance insurance, may be subject to experimenter demand effects, where firms might overstate or understate the behavioral changes they would make if insured. To mitigate this issue, we ask employers to report their expected behavior for the status quo and the hypothetical insurance scenario in different sections of the survey.[13] We additionally inform employers that their answers will not affect their selection probability.

4 Research design

In this section, we outline how we empirically test our five sets of hypotheses regarding the demand for Severance Insurance (Hypotheses Set D in Table 1), selection in insurance

[12] Charness et al. (2016) reviews research in top economics journals and conclude that "The evidence we have presented suggests that there may not be a substantial loss of motivation" when only a subset of participants are paid, and that "paying for only a subset of periods or individuals is at least as effective as the "pay all" approach and can well be more effective." This finding has been confirmed by Aydogan et al. (2024) who find that "a standard random incentive system, where all subjects are paid, or a double random system, where only 10% of subjects are paid, yields similar preference elicitation results." Similarly, Ahles et al. (2024) find that paying only a subset of respondents does not affect respondents' WTP for a physical good. Casaburi et al. (2025) specify that a "small" random subset of participants will receive one of their choices, confirming that our approach is used in the literature studying insurance in low-income countries.

[13] Details on these questions and their position in the survey are provided in Appendices C.9 and D.

demand (Hypotheses Set S), and insurance value (Hypotheses Set IV). To study these questions, we rely on employers' responses to the offer of our new severance insurance product described in Section 3.

Additionally, we propose two approaches to explore behavioral responses to insurance in terms of moral hazard and layoffs (Hypotheses Set MH), and firm size and workforce composition (Hypotheses Sets FS-CH-CL). We elicit behavioral responses under a hypothetical insurance scenario and examine correlations between predicted severance payments and realized outcomes. We do not randomize Severance Insurance across employers; the product is provided to a single firm for ethical reasons, allowing us to maintain incentives for eliciting demand while minimizing the risk of layoffs induced by our intervention.

In the following outline of our research design for each hypothesis, employers are indexed by i, the baseline survey is denoted by t, and the endline survey by $t+1$. For notational simplicity, we omit the baseline time subscript t in all the expressions, and use $t+1$ to denote variables measured at endline.

4.1 Testing Hypotheses Set D: Is There Demand for Severance Insurance?

For Severance Insurance to be a viable product for firms—whether offered by governments or private providers—there must be meaningful demand. The starting point of our analysis is thus to test for the existence of such demand.

For each employer i, we observe whether they would purchase severance insurance at each of thirty combinations of two replacement rates, $b = 50\%$ and $b \in \{25, 75, 100\}\%$, and fifteen different prices p. We create an indicator, $I_{b,p}$, equal to one if the employer wishes to purchase insurance at replacement rate b and price p. Importantly, we compare demand across different products because employers are randomly offered products with different replacement rates. As a result, responses within each product group are representative of the overall sample. We formally verify comparability across groups by presenting a balance table showing that key firm and employer characteristics are balanced across product assignments. If imbalances are detected, we reweight the subsamples accordingly to ensure valid comparisons.[14]

Informed by our theoretical framework, we test whether demand is significantly greater than

[14]Our baseline vector of controls includes: firm age, firm size, share of covered workers, average wage of covered workers, average tenure of covered workers, sector, share of output exported, employer gender, age, education and ownership share.

zero for our most generous insurance product–with a replacement rate of $b = 100\%$ and price $p = Pw_1 = 5$ Birr (Hypothesis D1 in Table 1)– whether demand increases with the replacement rate (Hypothesis D2) and whether it decreases with price (Hypothesis D3). We estimate the following equation:

$$I_{i,b,p} = \alpha + \beta_b \tilde{b_b} + \beta_p \tilde{p_p} + \epsilon_{i,b,p} \tag{19}$$

In Equation (19), $\tilde{b} = b - 100\%$ is equal to zero at the most generous replacement rate, $b = 100\%$, and increases with the replacement rate b; $\tilde{p} = p - Pw_1$ is equal to zero at the lowest price, $p = Pw_1$, and increases with price p. Since each employer is observed thirty times, one per combination of fifteen prices and two replacement rates, standard errors are clustered at the employer level. Here, $\alpha > 0$ captures the average demand for the most generous insurance product. We thus test whether $\alpha > 0$ (Hypothesis D1). We further expect $\beta_b > 0$, indicating that demand increases with the replacement rate (Hypothesis D2), and $\beta_p < 0$, indicating that demand decreases with price (Hypothesis D3).

Next, we leverage the rich variation in prices offered by our survey setting to estimate non-parametrically separate demand curves for insurance products with replacement rates $b \in \{25, 50, 75, 100\}\%$. Similar to Figure 4, we present graphs with the share of employers interested in purchasing insurance on the x-axis (quantity Q) and prices on the y-axis. For each product defined by replacement rate b, we construct the demand curve by connecting the fifteen points corresponding to the shares of employers willing to purchase insurance at each offered price. While demand functions are typically extrapolated from variation induced by a single price change, tracing the full curve across fifteen prices allows us to assess whether demand is linear or nonlinear, and to identify the prices and replacement rates at which nonlinearities arise.

4.2 Testing Hypotheses Set S: Selection in Insurance demand

Our theoretical framework predicts that demand for severance insurance can be driven by adverse selection (Hypothesis S1 in Table 1) and selection on moral hazard (Hypothesis S2). In this section, we describe our empirical approach to test these hypotheses.

4.2.1 Testing S1: Adverse Selection in Insurance demand

Adverse selection occurs when employers have private information about the firm's risk of laying off workers—information that influences their decisions to purchase insurance but that remains unobservable to the insurer and therefore cannot be reflected in the premium. In our theoretical framework, the firm-specific risk parameter θ captures this unobserved heterogeneity. Hypothesis S1 in Table 1 predicts that firms with higher risk θ are more likely to express interest in purchasing severance insurance compared to lower-risk firms, holding all else constant, which is indicative of adverse selection.

We test for the presence of adverse selection using two established approaches from the literature: the Positive Correlation Test proposed by Chiappori and Salanie (2000), and the Cost Curve Test introduced by Einav et al. (2010). Our main estimates of adverse selection rely on the latter test, as it addresses several limitations of the former approach. Next, we estimate the welfare loss associated with adverse selection by calculating the shaded area depicted in Figure 4, and evaluate whether policy tools such as mandates or premium subsidies could alleviate these inefficiencies. If demand varies with the insurance replacement rate ($\beta_b > 0$ in Equation 4.1), we test how adverse selection responds. The effect is theoretically ambiguous: if higher replacement rates raise demand mainly among low-risk employers–for example because high-risk employers are already close to fully demanding insurance–adverse selection declines; if they attract high-risk employers more strongly, it increases. Finally, we explore whether selection could be mitigated by pricing observable predictors of layoff risk.

Positive Correlation Test Although the Cost Curve Test represents the most advanced approach for testing the presence of adverse selection, we still introduce the Positive Correlation Test, which serves as the foundation for a set of additional analyses we perform.

The test relies on the following intuition: if riskier employers are more likely to purchase Severance Insurance, then there should be a positive correlation between insurance status and realized risk. In the context of our study, for instance, we may observe that employers who express interest in purchasing severance insurance exhibit higher realized layoff rates at endline than those who do not. Observing such a positive correlation provides evidence consistent with the presence of adverse selection.

Importantly, a positive correlation could also arise in the presence of moral hazard—that is, risk induced by insurance coverage. Our survey design offers a unique opportunity to implement a version of the test that is robust to potential moral hazard: the employers in our sample (with the potential exception of the selected employer i^T) are not actually covered by insurance. In administrative data, researchers typically observe only realized insurance status. As a result, differences in realized costs between insured and uninsured observations mix selection with behavioral responses to coverage (i.e., moral hazard). In contrast, our setting leverages variation in employers' *intention* to purchase insurance, which reflects selection alone, allowing us to cleanly isolate selection from moral hazard. Moreover, since only one employer, i^T is eligible for severance insurance, we are not worried that removing them from the analysis, if actually covered, introduces bias.

The test is performed as follows. Our data includes employers i observed thirty times– each corresponding to all combinations of two replacement rates b per employer and fifteen prices per covered worker p. To ensure that our estimates do not capture moral hazard effects, we drop all observations related to the eligible employer i^T if they are actually covered.

Typically, the test relies on a regression of realized risk on insurance status. To gain power, we leverage the rich variation in intended insurance status across different prices and regress firms' realized risk on employers' willingness to pay for insurance, controlling for the specific product offered. Firm's realized risk $Y_{i,t+1}$ is measured at endline in three ways: the realized layoff rate, the total severance payments made to workers, and the predicted severance benefit that the insurer would have paid in the absence of behavioral responses.[15] The employer's willingness to pay for the product is defined as the maximum premium per employee they are willing to pay for severance insurance with replacement rate b:[16]

$$p_{i,b}^{\max} = \max \{p \mid I_{i,p,b} = 1\} \tag{20}$$

Since we elicit demand for Severance Insurance at two replacement rates per employer, we compute two distinct measures of willingness to pay, $p_{i,b}^{max}$, for each employer.

We estimate the following regression, controlling for replacement rate fixed effects α_b:

$$Y_{i,t+1} = \alpha_b + \beta p_{i,b}^{\max} + \epsilon_{i,b} \tag{21}$$

Because each employer is offered the product at two replacement rates and willingness to pay is elicited twice per employer, the equation includes two observations per employer, and standard errors are therefore clustered at the employer level. Note that firm fixed effects are not included since the variation in realized costs occurs only across different firms.

If β is positive, this suggests the presence of adverse selection in the purchase of insurance. If β equals zero, the test would indicate that there is no adverse selection present in the sample. If β is negative, this would suggest advantageous selection, where less risky employers are

[15] Details on how realized risk measures are constructed are provided in Section C.10.

[16] In reality, $p_{i,b}^{\max}$ in this lies between the last accepted and the first rejected price. We will thus test the robustness of our findings to using the first rejected price instead of the last accepted price.

more likely to purchase insurance.

In the last two scenarios ($\beta = 0$ and $\beta < 0$), we investigate whether adverse selection is truly absent or instead offset by other drivers of selection that are negatively correlated with realized risk. First, we correlate both realized risk and willingness to pay with two alternative risk measures from the baseline survey designed to capture the firm risk parameter θ:[17]

1. *Objective Risk Index* Ω_i: we combine into an index the following observable firm charactaristics plausibly predictive of layoff risk: firm age, firm size, sectoral risk, exposure to supply chain disruptions, client concentration risk, revenue volatility, and liquidity constraints.

2. *Subjective Risk Index* Σ_i: we combine into an index the following variables summarizing the firm's layoff risk as perceived by the employer: the expected layoff rate $\bar{l}(\theta, e)$ during the coverage period, the expected probability to lay off at least 10% of workers during the coverage period, the probability that profits will fall by at least 5% during the following twelve months; the cost of raising liquidity in the no layoff state r_0, and the number of adverse events that the employers believes are "likely" or "very likely".

Observing positive correlations between these indices and both willingness to pay and realized risk is interpreted as evidence consistent with adverse selection. Second, we correlate risk aversion with both willingness to pay and realized risk to examine whether the estimated β reflects offsetting selection by high-risk types and low-risk, high–risk-aversion types into insurance, similar to Finkelstein and Poterba (2004).[18]

Finally, we explore how adverse selection varies with the generosity of insurance by estimating Equation (21) separately for each replacement rate $b \in \{25, 50, 75, 100\}\%$. A decline in the estimated β as replacement rates increase would suggest that more generous benefits attract relatively more low-risk employers. Conversely, an increase in β would suggest that higher benefits amplify adverse selection.

Cost Curve Test. This test for adverse selection estimates the slope of the insurer's marginal cost curve in Figure 4. The marginal cost curve describes the cost of insuring new employers opting in as insurance premiums decline. In the presence of adverse selection, lowering the premium draws in progressively lower-cost employers, resulting in a downward-sloping marginal cost curve.

[17] The construction of these indeces is described in detail in Appendix C.3.

[18] The approach to measure risk aversion is described in Appendix C.4.

Traditionally, the Cost Curve Test is conducted using claims data and a single observed price change. Researchers compare average insurer costs among insured firms before and after the price change. The difference in average costs at these two prices identifies the slope of the marginal cost curve, capturing how costs vary as prices change and individuals endogenously adjust their coverage.

Our survey design provides rich variation in employers' willingness to purchase insurance across fifteen different prices. This enables us not only to estimate the average slope of the marginal cost curve but also to trace its entire shape, allowing us to examine how adverse selection changes as premiums vary. For instance, adverse selection might increase sharply at higher prices—where only the riskiest employers opt in—and level off at lower prices, where additional purchasers are more homogenous in terms of risk.

The test is performed as follows. Our data includes employers i observed thirty times each—corresponding to all combinations of two replacement rates b per employer and ten premiums per covered worker p. We restrict the sample to observations where employers expressed interest in purchasing insurance at the specific combination of premium per worker p and replacement rate b (i.e., $I_{i,b,p} = 1$). We then regress realized firm risk $Y_{i,t+1}$ on prices, controlling for the insurance product offered. Specifically, we estimate Equation 22, which includes fixed effects for replacement rates α_b:

$$Y_{i,t+1} = \alpha_b + \gamma p_{i,b} + \epsilon_{i,b} \tag{22}$$

The equation includes up to thirty observations per employer—one for each combination of fifteen prices and two replacement rates at which employers are willing to purchase Severance Insurance. Standard errors are thus clustered at the employer level to account for potential correlation of errors within employers. Employer fixed effects are not included because there is no within-employer variation in realized risk.

The coefficient of interest, γ, represents the slope of the marginal cost curve. A positive γ provides evidence of adverse selection, indicating that marginal buyers at higher prices are riskier. A negative γ would suggest advantageous selection. A statistically insignificant γ implies the absence of selection based on private information.

We replicate the analysis using both the full range of prices and adjacent price pairs (Pw_{15} vs. P_{14}, P_{14} vs. P_{13}, ..., P_2 vs. P_1), yielding both the overall average slope (γ) and slope estimates for each price change ($\gamma^{14}, \gamma^{13}, \ldots, \gamma^{1}$), to explore whether and how the intensity of selection varies with price. Since these coefficients capture variation in the outcome generated by marginal buyers at each price, they provide insights into the shape of the cost curve test. By regressing firm and employer characteristics on adjacent prices, or by showing non-parametrically the average characteristics of employers that are marginal at each of our fifteen prices, we can identify the characteristics driving selection along the price distribution.[19] We show how the employer and firm characteristics listed in Footnote 14 vary as prices increase and new employers opt out of insurance. If adverse selection is detected from Equation (22), we confirm that it is layoff risk driving selection by showing how the Objective Risk Index (Ω_i), the Subjective Risk Index (Σ_i), and their components evolve as prices rise and new employers opt out of insurance. If instead advantageous selection or no selection is detected, we explore whether the pattern is driven by risk aversion increasing as prices increases and marginal buyers opt out, similar to the findings of Finkelstein and Poterba (2004).

Finally, we examine how adverse selection varies with the generosity of insurance. Specifically, we estimate Equation (22) separately for each replacement rate $b \in \{25, 50, 75, 100\}\%$. If the coefficient γ from the cost curve test rises with the replacement rate, this would indicate that more generous insurance amplifies adverse selection.

Welfare Loss from Adverse Selection and Policy Recommendations. We leverage the rich variation in intended insurance status at different premiums provided by our survey setting to reconstruct the demand curve, marginal cost curve, and average cost curve shown in Figure 4 using our data. We focus on the insurance product with replacement rate $b = 50\%$, and investigate heterogeneities for the other replacement rates.

- **Demand Curve:** The procedure is outlined in Section 4.1.
- **Average Cost Curve:** We identify fifteen points of the curve, each corresponding to a premium p. For each premium p, we define the set of employers who express interest in purchasing insurance at price p, denoted Q^p. This includes all employers willing to purchase insurance at price p and at any higher price, i.e., the segment $[0, Q^p]$ in Figure 4. We then calculate the average realized risk $\bar{Y}_{t+1}$ per covered worker across all employers in this segment. The normalization is needed because the y-axis of the figure displays prices per covered worker. The average cost curve point at premium p is given by the coordinates $\left(Q^p,\ \bar{Y}_{t+1} \mid [0, Q^p]\right)$.
- **Marginal Cost Curve:** We identify fifteen points of the curve, each corresponding

[19] Marginal buyer groups will be merged with adjacent prices to ensure no group displayed is based on less than 5 observations.

to a premium p. For each p, we define the set of employers who purchase insurance at price p but not at any higher price $p' > p$, denoted $Q^{p',p}$. This corresponds to the marginal segment $(Q^{p'}, Q^{p}]$ of employers who drop out as price increases from p to p'. We then calculate the average realized risk per covered worker $\bar{Y}_{t+1}$ across all employers in the marginal segment $(Q^{p'}, Q^{p}]$. The marginal cost curve point at premium p is given by the coordinates $\left(Q^{p},\ \bar{Y}_{t+1} \mid (Q^{p'}, Q^{p}]\right)$. The marginal cost of the set of employers who purchase insurance at the highest price, for whom p' is undefined, coincides with the average cost of employers in this set.

After tracing out these curves, we identify the following points: the efficient price and coverage, P^{Eff} and Q^{Eff}, identified by the intersection between the demand and the marginal cost curve; and the equilibrium price and coverage, P^{Eqm} and Q^{Eqm}, identified by the intersection between the demand and the average cost curve. Depending on the relative position of Q^{Eff} and Q^{Eqm}, we will discuss the relative desirability of mandates versus price subsidies to reduce the inefficiencies created by adverse selection. We will also quantify these inefficiencies by calculating the area of the shaded triangle in Figure 4.

Finally, we quantify how the inefficiencies from adverse selection vary with insurance demand by replicating Figure 4 and calculating the area of the shaded triangle separately for each replacement rate $b = \{25, 50, 75, 100\}\%$. Since changes in the demand function and the endogenous cost curves induced by changes in the replacement rates affect the equilibrium and efficient prices and quantities, the shaded areas must be normalized in order to be meaningful. Following Einav et al. (2010), we will rescale welfare changes by the total surplus under efficient pricing, which is equal to the area of the triangle between the demand curve and the marginal cost curve from 0 to Q^{Eff}.

Pricing Risk Predictors to Reduce Adverse Selection. If adverse selection leads to large inefficiencies due to underinsurance, it becomes key to consider strategies to reduce premiums and expand coverage. One approach is to assess whether observable employer characteristics predict both realized risk and insurance demand. If so, insurers could increase premiums for riskier employers and decrease them for others, thereby expanding coverage.

As a first step, we examine whether employers possess private information about their firm's risk that is not captured by observable characteristics. To do so, we correlate our objective risk index, Ω_i with the subjective risk index, Σ_i. A strong, positive correlation between them would suggest that employers' expectations about firm risk are driven by observable firm characteristics. Conversely, a weak correlation would indicate that employers hold private information about their firm's risk that is not captured by observables. It is also possible that the variables included in the objective index might offset each other on average, masking underlying relationships and resulting in a near-zero overall correlation. To address this possibility, we also examine correlations between individual components of the two indices.

Irrespective of the correlation between subjective and objective risk indices, it is unclear ex ante which of the two would be a better predictor of realized risk. On one hand, employers may hold inaccurate beliefs about their firms' layoff risk, leading the subjective risk index to poorly predict actual outcomes. On the other hand, the observable characteristics we used to construct the objective risk index may fail to adequately capture true risk in this specific period and context. As a second step, we therefore assess which measure—subjective or objective risk—is more strongly associated with realized risk. We estimate an extended version of the Positive Correlation Test, shown in Equation (23), with the goal of assessing whether the correlation between willingness to pay for insurance and realized risk declines after progressively introducing different sets of controls: first, the objective risk index Ω_i; second, the subjective risk index Σ_i; and finally, the additional observable characteristics X_i listed in Footnote 14. We will also identify the key individual variables within Ω_i, Σ_i, and X_i that best predict realized risk and demand using Least Absolute Shrinkage and Selection Operator (LASSO).

$$Y_{i,t+1} = \alpha_b + \beta p_{i,b}^{max} + \gamma_1 \Omega_i + \gamma_2 \Sigma_i + \gamma_3 X_i + \epsilon_{i,b}, \tag{23}$$

Because each employer is offered the product at two replacement rates and willingness to pay is observed twice per employer, the equation includes two observations per employer, and standard errors are therefore clustered at the employer level. If the coefficient β decreases when we include objective risk measures (Ω_i), this suggests that these variables capture price-relevant risk and could thus help mitigate adverse selection if incorporated into premium setting. By contrast, if β decreases only when subjective risk (Σ_i) is included, this indicates that adverse selection is driven primarily by private information known only to employers, making it more difficult to address through pricing based on observables.

Next, we replicate the analysis using the Cost Curve Test by estimating a version of Equation (23) on the sample of employer–price–benefit combinations for which the employer chooses to purchase insurance. In addition, we show non-parametrically how both objective and subjective measures of risk vary along the price distribution, by reporting the average characteristics of marginal employers at each of our fifteen prices.

Last, we leverage our rich data on intended insurance take-up at fifteen different prices to simulate alternative pricing strategies and assess whether incorporating objective risk measures would flatten the marginal cost curve.

4.2.2 Testing S2: Selection on Moral Hazard in Insurance Demand

According to our theoretical model (Hypothesis S2 in Table 1), some employers may choose to purchase insurance precisely because they anticipate putting in less effort to avoid layoffs if covered, leading to higher insurer costs even when the insurer has full information about the firm's baseline risk θ, i.e., in the absence of adverse selection.

Measuring moral hazard presents two challenges. First, effort (e) is not directly observable. Since higher effort reduces the expected layoff rate (see Section 2.1), we use the expected layoff rate $\bar{l}(\theta, e)$, as a proxy. Second, we do not observe actual behavior under insurance coverage. Instead, we rely on a hypothetical scenario elicited through the survey: employers are first asked—before any questions on severance payments or insurance—to report their expected layoff rate for the period between February and July 2026 without insurance coverage. Later in the survey, they are asked to report their expected layoff rate for the same period assuming they are covered by severance insurance with a 50% replacement rate. We then compare these two expectations to analyze potential behavioral responses.[20]

Our descriptive and self-reported proxy for moral hazard is thus: $MH = \bar{l}^{Hb=50\%} - \bar{l}^{b=0\%}$, where $\bar{l}^{Hb=50\%}$ is the expected layoff rate under the hypothetical insurance scenario, and $\bar{l}^{b=0\%}$ is the expected layoff rate without insurance, approximated by a null replacement rate. Higher moral hazard implies a higher layoff rate under insurance relative to no insurance.

To test for selection on moral hazard, we estimate an equation where we keep risk-based selection constant by control for our objective and subjective risk indices, Ω_i and Σ_i, and correlate our proxy for moral hazard with willingness to pay for the insurance product with replacement rate $b = 50\%$, $p^{\max}_{i,b=50}$, for consistency with the hypothetical scenario. We estimate:

$$p^{\max}_{i,b=50} = \alpha + \beta\, MH_i + \gamma_1 \Omega_i + \gamma_2 \Sigma_i + \epsilon_i. \tag{24}$$

Because the equation includes only one observation per employer—corresponding to the willingness-to-pay measure for the product with a 50% replacement rate—there is no need to cluster standard errors at the employer level. Observing $\beta > 0$ would be interpreted as evidence of selection on moral hazard.

[20] Details on variable construction are provided in Appendix C.9.

4.3 Testing Hypotheses Set IV: Insurance Value

Our model allows for risk-aversion and higher cost of liquidity during layoff states to shed light on whether and why severance insurance holds value for employers. In this section, we test for the existence of insurance value, investigate whether it drives demand for insurance, and explore its potential drivers empirically.

4.3.1 Testing IV1: Existence of Insurance Value

As discussed in Section 2.4, insuring employers is meaningful only if at least one of the following conditions holds. First, there must exist a state of the world such that employers are willing to forego income in the no-layoff state in exchange for additional income in that layoff state — that is, if their marginal rates of substitution between the two states exceed one. Second, the cost of raising liquidity is higher during layoff states (Hypothesis IV1 in Table 1).

We test the first condition using Equation (8), which implies that if the expected insurance value exceeds one, there must exist at least one state of the world where the marginal rate of substitution is greater than one. By Equation (7), the expected value of insurance coincides with the willingness to pay for a unit of benefit, WTP^1 which we can directly measure from our survey. WTP^1 is defined as the ratio of the total willingness to pay to the expected payout. The total willingness to pay is given by the highest price that the employer is willing to pay for insurance with price p and replacement rate $b = 50\%$, $p^{max}_{i,b=50}$ from Equation (20), multiplied by the number of covered workers, Nc. We focus on the willingness to pay elicited for the product with a 50% replacement rate in order to directly relate WTP^1 to the marginal rates of substitution between individual states, which are calibrated as described below through demand for an insurance product with a 50% replacement rate. The expected payout is calculated as the fraction $b = 50\%$ of the severance payment s, multiplied by the number of covered workers who are laid off, $Nc\alpha$, where N is the total firm size, c is the fraction of covered covered, and α is the fraction of covered workers who are laid off. We calibrate s using employers' self-reported expected severance payment amount per covered lid off worker, as detailed in Appendix C.7. The expected layoff rate of covered workers is calibrated as described in Appendix C.9.

$$WTP^1 = \frac{p^{max}_{i,b=50} Nc}{0.5 s\alpha Nc} = \frac{p^{max}_{i,b=50}}{0.5 s\alpha}.$$

The test for the first condition of Hypothesis IV1 is that the willingness to pay for a unit of insurance is greater than one, $WTP^1 > 1$.

To test the second condition, we measure the change in the cost of liquidity between the no-layoff state and a layoff state (specifically, a layoff rate between 10% and 15% of the workforce for simplicity). We elicit from employers the interest rate at which they would be willing to borrow in each scenario, denoted by r_0 (no layoffs) and r_l (with layoffs). These responses capture the marginal cost of liquidity (whether sourced formally or informally) in each state. We then compute the differential cost of liquidity as $r = r_l - r_0$. The second condition of Hypothesis IV1 is thus that $r > 0$.

Formally, we estimate the following equation, where we first set $O_i = WTP_i^1 - 1$ to test the first condition, and then set $O_i = r$ to test the second condition:

$$O_i = \alpha + \epsilon_{i,b}. \tag{25}$$

When testing both conditions, we include only one observation per employer, since we have a single measure of r and rely solely on the WTP^1 measure corresponding to the $b = 50\%$ replacement rate. Therefore, standard errors do not need to be clustered at the employer level. In the first test, $\alpha > 0$ indicates that $WTP^1 > 1$. In the second test $\alpha > 0$ indicates that $r > 0$. If at least one of these conditions holds, we interpret this as evidence that insurance holds value among employers.

For employers who do not satisfy these two conditions, we explore potential explanations. Specifically, we examine whether these employers underestimate their layoff risk at baseline compared to actual realized layoffs at endline; whether they report above-median uncertainty about their risk type θ (as measured by the dispersion of their layoff probability distribution); whether they exhibit preferences close to risk neutrality; whether they represent lower moral hazard types — prioritizing income in the no-layoff state because they exert greater effort to avoid layoffs; whether they have above median access to credit; or whether they have a weak understanding of severance payments.

4.3.2 Measuring Marginal Rates of Substitution Across Layoff States

To test the remaining hypotheses in Hypothesis Set IV in Table 1 — specifically, whether insurance value drives demand, whether the marginal rate of substitution increases with the layoff share, and whether it is driven by risk aversion, borrowing constraints, or liquidity constraints — we need a measure of employers' marginal rates of substitution across layoff states. In this section, we describe how we construct this measure.

Our approach extends Landais and Spinnewijn (2021), who identifies a lower bound for the marginal rate of substitution for workers using a single price change. Since we focus on measuring $MRS_{0\hat{l}}$, the marginal rate of substitution between two specific states—the no-layoff state and the state with layoff share $l = \hat{l}$—we are also in the binary case and can follow their methodology. Moreover, we leverage the rich price variation uniquely provided by our survey design to estimate $MRS_{0\hat{l}}$ directly, rather than providing a lower bound.

We adapt the condition for the employer to buy insurance in Equation (7) to the binary case. The employer is indifferent between purchasing and not purchasing insurance if the expected marginal utility in the layoff state ($l = \hat{l}$) is equal to the expected marginal utility in the no-layoff state ($l = 0$), each divided by the respective price of insurance in that state. This condition implies that there exists a price per unit of insurance, $\frac{p_{\hat{l}}}{p_0}$, such that the marginal rate of substitution $MRS_{0,\hat{l}}$ equals the employer's expected price per unit of insurance:

$$\underbrace{\frac{\pi_{\hat{l}} u'(\Pi_{\hat{l}})}{p_{\hat{l}}}}_{\substack{\text{Expected Marginal Utility}\\ \text{for unit of Insurance}\\ \text{In State } \hat{l}}} = \underbrace{\frac{\pi_0 u'(\Pi_0)}{p_0}}_{\substack{\text{Expected Marginal Utility}\\ \text{for unit of Insurance}\\ \text{In State } 0}} \implies MRS_{0,\hat{l}} = \frac{u'(\Pi_{\hat{l}})}{u'(\Pi_0)} = \underbrace{\frac{\pi_0}{\pi_{\hat{l}}} \frac{p_{\hat{l}}}{p_0}}_{\substack{\text{Expected Price}\\ \text{per Unit of Insurance}}} \tag{26}$$

With our survey setting, we can measure both the price of a unit of insurance that would make the employer indifferent, $\frac{p_l}{p_0}$, and the subjective probabilities of each layoff state, π_0 and $\pi_{\hat{l}}$, and thus recover $MRS_{0,\hat{l}}$.

First, we measure the price of a unit of insurance that would make the employer indifferent between the two states, $\frac{p_{\hat{l}}}{p_0}$. To do so, we offer employers a hypothetical[21] version of our Severance Insurance product that covers $b = 50\%$ of their severance obligations in the event that a specific layoff rate, $\hat{l}$, is realized. To ensure comparison between two states only, the insurance premium is paid only in the case of zero layoffs ($l = 0$), and payoffs remain unaffected in any other state of the world. We conduct understanding checks, described in Appendix C.8, to ensure that the employers understand that payoffs occur only in specific states. We ask employers whether they would buy this insurance at fifteen different prices per worker: $Pw_1, \ldots, Pw_{15}$.[22] Let $p^{\max}_{i,b,\hat{l}}$ denote the maximum price per covered worker that employer i is willing to pay for this product. For example, suppose that the employer accepts

[21] Given the large number of marginal rates of substitution we aim to elicit, designing incentive-compatible questions for each would have substantially increased both the cognitive burden on respondents and the complexity of our intervention. We therefore chose to incentivize only the version of the product that would most plausibly be implemented in practice—the one that offers coverage in any layoff state—rather than in an individual layoff state, as would be required to measure a MRS.

[22] Details on the insurance product and the exact questions in the survey are provided in Appendix C.8.

prices $Pw_1, \ldots, Pw_7$ but rejects the higher prices $Pw_8, \ldots, Pw_{15}$. Then, $p^{\max}_{i,b,\hat{l}} = Pw_7$.[23] The price of a unit of insurance that makes the employer indifferent between purchasing and not purchasing is given by the total price of insurance, constructed using the price per covered worker $p^{\max}_{i,b,\hat{l}}$, divided by the total expected payout. The total price of insurance is given by the indifference premium $p^{\max}_{i,b,\hat{l}}$ multiplied by the number of covered workers, Nc. The total payout is given by the fraction b of the severance payment s, multiplied by the number of covered workers laid off, $Nc\alpha$, where N is total firm size, c is the fraction of workers covered, and α is the fraction of covered workers who are layoffs. We calibrate s using the expected severance payment per covered laid-off worker, as detailed in Appendix C.7. The expected layoff rate of covered workers, α, is calibrated as described in Appendix C.9.

$$\frac{p_{\hat{l}}}{p_0} = \frac{\overbrace{p^{\max}_{i,b,\hat{l}}\, Nc}^{\text{Total Price of Insurance}}}{\underbrace{bsNc\alpha}_{\text{Total Insurance Payout}}} = \frac{p^{\max}_{i,b,\hat{l}}}{0.5s\alpha}. \tag{27}$$

We offer this hypothetical product focusing on two different layoff rates per employer, presented in random order. Rather than exact layoff rates, we consider layoff intervals corresponding to low, medium, high, and extreme scenarios to increase realism. The first layoff interval, $\hat{l} = [1\% - 5\%)$, is proposed to all employers and corresponds to a low layoff scenario.[24] Then, each employer is randomly assigned one additional scenario from the following options: $\hat{l} = [10\% - 15\%)$ (moderate layoff scenario), $\hat{l} = [30\% - 50\%)$ (high layoff scenario), or $\hat{l} = 100\%$ (extreme layoff scenario).

Second, at baseline we elicit employers' subjective probabilities of experiencing layoffs during the coverage period (February -July 2026) across these scenarios.[25]

Multiplying the indifference price of a unit of insurance from Equation (27) by the relative layoff probability of the corresponding layoff interval $[l, l')$ yields an estimate of the marginal rate of substitution between the no-layoff state and that layoff interval. Table 2 presents marginal rates of substitution we can estimate along with their key components.

We characterize the distribution of each $MRS_{0,[l,l')}$ across all layoff intervals and compare these employer valuations to established estimates of the value of unemployment insurance

[23] In reality, $p^{\max}_{i,b,\hat{l}}$ in this example would lie between Pw_7 and Pw_8. We will thus test the robustness of our findings to using the first rejected price instead of the last accepted price.

[24] We chose a scenario that is likely to have a positive probability of many firms while also being economically meaningful. Based on data on realized lay-offs from Abebe et al. (2025), we expect higher lay-off ranges to attract a substantial share of zero expected probabilities.

[25] The full set of layoff probabilities we elicit and the elicitation approach are described in Appendix C.2.

Table 2: Measuring Marginal Rates of Substitutions

Scenario	Layoff Interval $[l, l')$	Indifference Price	Probability $\pi_{[l,l')}$	Implied MRS
No layoffs	0 workers	–	π_0	$MRS_{0,0} = 1$
Low	[1%, 5%)	$p^{\text{max}}_{i,b,[1\text{-}5\%)}$	$\pi_{[1\text{-}5\%)}$	$MRS_{0,[1\text{-}5\%)}$
Moderate	[10%, 15%)	$p^{\text{max}}_{i,b,[10\text{-}15\%)}$	$\pi_{[10\text{-}15\%)}$	$MRS_{0,[10\text{-}15\%)}$
High	[30%, 50%)	$p^{\text{max}}_{i,b,[30\text{-}50\%)}$	$\pi_{[30\text{-}50\%)}$	$MRS_{0,[30\text{-}50\%)}$
Extreme	100%	$p^{\text{max}}_{i,b,100\%}$	$\pi_{100\%}$	$MRS_{0,100\%}$

Notes: The table presents the layoff share intervals for which we elicit: (i) the maximum price employers are willing to pay for a hypothetical insurance product covering 50% of their severance obligations if the corresponding layoff interval is realized; (ii) employers' subjective probabilities of experiencing layoffs in these intervals; and (iii) the resulting marginal rates of substitution estimated from these responses. The exact survey questions used to elicit subjective probabilities are described in Appendix C.2. The questions to elicit willingness to pay for the two-state product are described in Appendix C.8.

for workers, which range from 0.89 to 3.13 in the literature (e.g., Gruber 1997; Hendren 2017; Landais and Spinnewijn 2021).[26] Notice that, since the second layoff share is chosen at random for each employer, the resulting responses should be representative of the full sample. To validate this, we test whether the employer and firm characteristics in Footnote 14 are balanced across the three groups assigned to different layoff intervals.

4.3.3 Testing IV2: Insurance Demand Increases with Insurance Value

Our theoretical framework predicts that insurance demand should be higher among firms with greater insurance value (Hypothesis IV2 in Table 1). We test this hypothesis by correlating our two measures of insurance value—the marginal rate of substitution, MRS, and the increased cost of liquidity in layoff states, r—with the willingness to pay for the main insurance product we offer (the one covering layoffs in all states), $p^{max}_{i,b}$. Specifically, we estimate the following equation where O_i is either $MRS_{i,0,l}$ or r_i. Note that, for each employer, we measure two willingness-to-pay measures, one per replacement rate at which the product covering in all layoff states is offered, and two marginal rates of substitution, both elicited with a replacement rate equal to $b = 50\%$, one per layoff interval considered. For consistency between the product covering in case of any layoff scenario and the product covering in specific layoff scenarios, we only use the willingness to pay elicited for the product offering

[26]The value of 0.89 from Gruber (1997) is calculated by multiplying the consumption drop at layoff (22.2% as reported in their Table 1) by the highest risk aversion parameter considered (4). The value of 3.13 from Landais and Spinnewijn (2021) is taken from column 1 of their Table 3.

a replacement rate $b = 50\%$ in case of any layoffs occurring, $p^{max}_{ib=50}$. Therefore, when $O_i = r_i$, the equation includes only one observation per employer and there is no need to cluster standard errors. However, when $O_i = MRS_{i,0,l}$, we have two observations per employer, and standard errors need to be clustered at the employer level.

$$p^{max}_{i,b=50} = \alpha + \beta O_i + \delta_l + \varepsilon_{i,b} \tag{28}$$

Here, δ_l are layoff interval fixed effects, included only when $O_i = MRS_{i,0,l}$ to increase power. Observing $\beta > 0$ would indicate that insurance value drives insurance demand.

4.3.4 Testing IV3: Insurance Value Increases with the Layoff Share l

We test another key prediction of our theoretical framework: employers should be willing to give up more in the no-layoff state in order to receive compensation in states with higher layoff shares (Hypothesis IV3 in Table 1). Understanding whether—and at what pace—the marginal rate of substitution increases with the severity of layoffs is crucial to identify the most effective layoff states to insure. Depending on the shape of this relationship, the greatest welfare gains from insurance may arise from covering particular ranges of layoff intensity. For example, if $MRS_{0,l}$ increases convexly with l, then insuring high layoff scenarios leads to larger welfare gains. Conversely, if the value function is concave, or even declining for extreme layoffs (e.g., if firms no longer pay severance under bankruptcy conditions[27]), then insuring lower layoff shares may provide the largest welfare gains.

Formally, we estimate the following equation:

$$MRS_{i,l} = \alpha_i + \beta l_i + \epsilon_i \tag{29}$$

In the equation, α_i are individual fixed effects, which we introduce in order to reduce noise because we measure marginal rates of substitutions over two different layoff intervals for each employer; l_i indicates the lay-off share the MRS is elicited over (we take the midpoint of the interval when we elicit the MRS over an interval). Since the regression includes two observations per employer, standard errors must be clustered at the employer level.

We then explore potential nonlinearities non-parametrically. We calculate the average $MRS_{0,[l,l)'}$ for each layoff interval $[l,l)'$ across all employers. We then plot these average values and their standard errors against their corresponding layoff intervals. This allows us to visualize the

[27] Although our theoretical model does not explicitly incorporate default, we empirically elicit $MRS_{0,\,100\%}$ to assess whether the marginal utility of insurance drops when severance payments are no longer due.

average MRS curve and assess whether it increases in the layoff interval $[l, l)'$ and whether the relationship is linear, concave, or convex in $[l, l)'$.

4.3.5 Testing IV4-IV6: Drivers of Insurance Value

Our theoretical framework predicts that the marginal rate of substitution between layoff states, which captures insurance value, should increase with risk aversion ρ (Hypothesis IV4 in Table 1), increase with the cost of raising liquidity and borrowing constraints r (Hypothesis IV5), and decrease with the availability of liquid assets A (Hypothesis IV6). We test these predictions by examining whether the marginal rates of substitution correlates with these variables in the expected direction.[28] Since this study is the first to estimate employers' value of insurance and explore its underlying drivers, we do not impose priors on the relative importance of these mechanisms. We also analyze the correlations after controlling for a set of firm characteristics and employer demographics, listed in Footnote 14, in order to isolate how idiosyncratic differences in risk aversion, assets, and borrowing constraints affect insurance value among otherwise comparable firms.

Formally, we estimate the following equation:

$$MRS_{i,0,l} = \alpha + \beta M_i + \gamma X_i + \delta_l + \epsilon_i \tag{30}$$

In the equation, δ_l are layoff interval fixed effects. Because we measure marginal rates of substitutions over two different layoff interval for each employer, the regression includes two observations per employer, and standard errors must be clustered at the employer level. We expect $\beta > 0$ when $M_i = \rho_i$ and $M_i = r_i$ and $\beta < 0$ when $M_i = A_i$.

4.4 Descriptive Evidence on Hypotheses Sets MH, FS-CL-CH: Moral Hazard, Firm Size, and Composition

Sections 2.5 and 2.6 predict that Severance Insurance may induce a variety of behavioral responses, both positive and negative. These include incentivizing layoffs, stimulating firm growth, and increasing the share of covered hires and layoffs.

Even though identifying the causal effects of these behavioral responses is crucial for assessing the overall welfare impact of the policy, we do not experimentally vary insurance coverage due to ethical concerns regarding the risk of inducing layoffs through our interven-

[28] Appendices C.4, C.5, and C.6 describe our survey measures of risk aversion, borrowing constraints, and liquid assets.

tion. Nonetheless, we present two pieces of descriptive evidence on firm behavior to evaluate the plausibility and likely direction of these effects.

4.4.1 Testing MH2, FS2, CH2, CL2: Behavioral Responses Under Hypothetical Insurance Coverage

We provide suggestive evidence on whether severance insurance could increase the expected layoff rate $\bar{l}(\theta, e)$ (Hypothesis MH2 in Table 1), firm size N (Hypothesis FS2), the share of covered hires c (Hypothesis CH2), and the share of covered layoffs α (Hypothesis CL2). For each of these variables, we construct self-reported qualitative employer-level measures of expected changes induced by Severance Insurance. Specifically, at baseline, we compute for each employer the difference in expected outcomes during the coverage period (February-July 2026) between two scenarios: (i) without insurance, approximated by a null replacement rate ($b = 0$) and elicited early in the survey, prior to introducing severance payments and insurance; and (ii) under a hypothetical insurance scenario with a replacement rate of $b = 50\%$, asked at the very end of the survey to reduce perfomance bias.[29]

Specifically, employers' behavioral responses to insurance for $v \in \{\bar{l}, \bar{N}, \bar{c}, \bar{\alpha}\}$ are defined as:

$$\underbrace{\Delta v^b}_{\text{Behavioral Response to Insurance}} = \underbrace{v^{Hb=50\%}}_{\text{Hypothetical Insurance}} - \underbrace{v^{b=0\%}}_{\text{No Insurance}} \tag{31}$$

We test the presence and direction of behavioral responses with the following equation:

$$\Delta v_i^b = \delta_0 + \epsilon_i \tag{32}$$

Since we construct a single measure of behavioral response per employer for each outcome, there is no need to cluster standard errors. We expect insurance to increase all these variables, implying $\delta_0 > 0$ (≥ 0, for covered layoffs). A key outcome to evaluate is the change in the layoff rate induced by insurance, $\Delta \bar{l}^b$. Observing substantial moral hazard effects without corresponding improvements in firm growth or workforce formalization would suggest that introducing such an insurance policy may not be advisable, as it could generate negative net effects on workers. As our analysis is descriptive, its policy implications should be interpreted with caution.

Notice that $\Delta \bar{l}^b$ will be used to construct our measures of hypothetical realized risk under insurance — specifically, the hypothetical layoff rate, hypothetical severance pay, and hy-

[29] Details on variable construction are provided in Appendix C.9.

pothetical insurer costs incorporating moral hazard.[30] We then use these measures to trace the marginal cost and average cost curves shown in Figure 4 accounting for both adverse selection and moral hazard, to assess how the efficient and equilibrium prices and quantities change in the presence of moral hazard.

Next, we explore the characteristics of workers at risk of layoff by calculating hypothetical measures of moral hazard separately for above- and below-average wage workers, expecting moral hazard to be primarily driven by the lower-wage workers. Finally, we investigate the hypothetical effect of insurance on churn – a costly activity in our context, primarily driven by workers' quits, whose cost may be reduced by the availability of Severance Insurance.

4.4.2 Testing MH1, FS1, CH1, CL1: Behavioral Responses to Severance Pay

Our second approach to measuring behavioral responses to Severance Insurance exploits firm-level variation in firms' predicted severance obligations, $\bar{s}_i$, which arise from idiosyncratic differences in workers' wages and tenure.

In Ethiopia, employees who have completed their probation period (up to 60 days) are entitled to severance pay, which depends on their daily wage and tenure. During the first year of service, they are entitled to thirty times the average daily wage of the last week of service. For each additional year of tenure, they are entitled to an increase of one-third of the amount calculated for the first year, with total severance not exceeding twelve months' wages.[31] Figure 5 illustrates how severance payments evolve with tenure for workers at key moments of the wage distribution for the sample of workers based in Addis Ababa from Tekleselassie ⓡ al. (2025). Moving from the 25^{th} to the 75^{th} percentile can add up to 6,000 Birr per worker to the severance payments, or 100% of the maximum median severance pay.

We leverage this variation by comparing otherwise similar firms that differ in the severance obligations implied by the composition of their workforce. By our theoretical framework, firms with higher predicted severance liabilities should have lower layoff rates, and greater firm size, share of covered workers, and share of covered layoffs in expectation during the coverage period and at endline (Hypotheses MH1, FS1, CH1, and CL1 in Table 1).

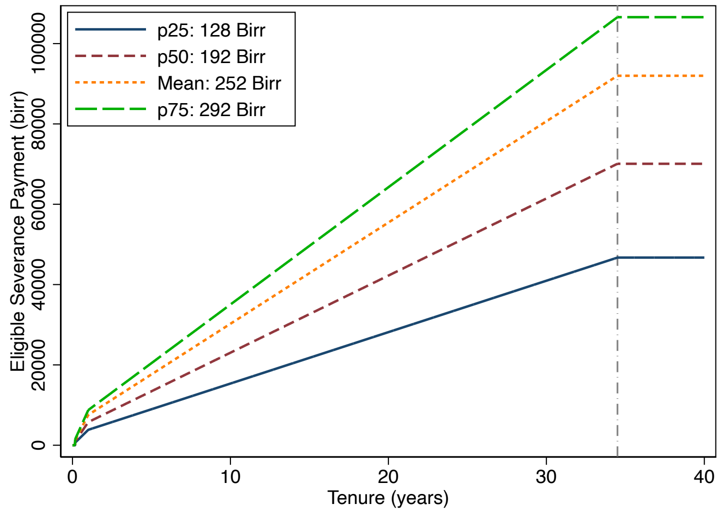
We construct a measure of the employers' *predicted* severance payment per covered worker, $\bar{s}_i$, using information on the average daily wage $\bar{w}_i$ and tenure $\bar{T}_i$ among covered employees:[32]

[30] The calibration of these hypothetical layoff rates and insurer costs is described in Appendix C.11.

[31] See Labour Proclamation No. 1156/2019 for details. In case of termination due to redundancy, an additional sixty times the average daily wage of the last week of service is added to the base severance pay.

[32] See Appendix C.7 for full construction of the *predicted* severance pay per covered laid-off worker $\bar{s}_i$.

Figure 5: Simulation: Severance Payment as Function of Wage and Tenure



Notes: The figure shows how severance payments for workers with different daily wages—specifically, those at the 25^{th} percentile, median, mean, and 75^{th} percentile—in the worker sample based in Addis Ababa from Tekleselassie ⓡ al. (2025), evolve with tenure (in years).

$$\bar{s}_i = \begin{cases} \bar{w}_i \times 365 \times \bar{T}_i & \text{if } \bar{T}_i \leq 1 \\ \min\left\{\bar{w}_i \times 30 \times \left(1 + \frac{1}{3}(\bar{T}_i - 1)\right), \bar{w}_i \times 365\right\} & \text{if } \bar{T}_i > 1 \end{cases} \tag{33}$$

We then estimate the following equation to test the relationship between predicted severance obligations and the following outcomes $Z_{i,t+1}$: realized layoff rate $l_{i,t+1}$, firm size, $N_{i,t+1}$, share of covered workers c_{t+1}, and share of covered layoffs $\alpha_{i,t+1}$; expected layoff rate $\bar{l}$, firm size $\bar{N}$, share of covered hires $\bar{c}$ and layoffs $\bar{\alpha}$ during the coverage period.[33] X_i includes the controls listed in Footnote 14.

$$Z_{i,t+1} = \alpha + \beta \bar{s}_i + \gamma X_i + \epsilon_i \tag{34}$$

The equation includes a single observation per employer as for each we observe one realized outcome, implying that standard errors do not need to be clustered at the employer level. We expect $\beta < 0$ across all outcomes (≤ 0, for covered layoffs). A negative β would indicate that firms facing higher layoff costs reduce layoffs, firm growth, workforce formalization, and protection during unemployment—consistent with stronger retention incentives and growth constraints induced by severance obligations.

[33] Expected outcomes are created as described in Appendix C.9.

4.5 Calibration of the Optimal Policy

In Section 2.7, we derived Equations (17) and (18), which provide formulas for the optimal Severance Insurance replacement rate. We calibrate the parameters in these formulas to assess whether the marginal benefits of insurance outweigh the marginal costs and to offer a preliminary evaluation of whether it would be optimal to marginally introduce the policy. Since the analysis relies on hypothetical rather than causal measures of behavioral responses, the policy implications based on behavioral responses remain descriptive. Nonetheless, the welfare analysis is informative about the magnitude that behavioral responses *should* have to justify the introduction of Severance Insurance. The hypothetical behavioral responses offer a first benchmark for comparison.

For calibrating Equation (17), which maximizes employer utility alone, we need two parameters: the additional liquidity cost during a bad shock, r, and the elasticity of the covered layoff share with respect to the replacement rate, $\varepsilon_{\alpha,b}$. The calibration of the increased cost of liquidity, r, was described in Section 4.3.1 and outlined in Appendix C.5. Intuitively, r is measured as the difference in the interest rates employers would accept between two scenarios: no layoffs and a layoff rate of 10–15%. The interest rate reflects the cost of liquidity faced by employers in each state. Taking the difference between these two interest rates isolates the component of borrowing cost attributable to the increased layoff risk. We approximate $\varepsilon_{\alpha,b}$ in two ways. First, by rescaling the expected proportional change in α from raising the replacement rate from 0 to 50%: $\varepsilon_{\alpha,b} \approx \frac{\frac{\alpha^{b=50\%}-\alpha^{b=0}}{\alpha^{b=0}}}{0.50}$ where α^b is created as Equation (31). Second, by using the negative of the responsiveness of α to predicted severance pay $\bar{s}$ from Equation (34): $\varepsilon_{\alpha,b} \approx -\frac{\partial \alpha}{\partial \bar{s}} \cdot \frac{\bar{s}}{\alpha}$ If $r > \varepsilon_{\alpha,b}$, the marginal benefit of severance insurance exceeds the marginal cost, suggesting that it would be optimal to marginally increase the replacement rate from $b = 0$, i.e., to introduce the policy. Otherwise, it is optimal to keep the replacement rate at zero. Since our measures of $\varepsilon_{\alpha,b}$ are not causal estimates, these conclusions remain descriptive.

Equation (18), obtained when the social planner also considers workers' utilities, includes a larger set of parameters to calibrate. We calibrate the elasticities of firm size N and the share of covered workers c with respect to the replacement rate using the same approach applied for $\varepsilon_{\alpha,b}$ in Equation (17). By Equation (7), the expected insurance value equals the willingness to pay for a unit of insurance, defined in Equation (25) and calibrated as described in Section 4.3.1. The key challenges relies in calibrating some of the parameters within the scaling factors ψ, which are fully characterized in Equation (40) of Appendix A. We will calibrate the value of employment for covered and uncovered workers using estimates of the surplus from employment provided in Hensel ⓡ al. (2025). Most importantly, we will run simulations to assess under which values of the various scaling factors ψ the marginal benefit of insurance exceeds the marginal cost, making the introduction of the policy optimal. We will discuss the required magnitudes and evaluating their plausibility.

4.6 Sample and statistical power

The sample consists of 160 formal employers randomly selected by our implementing partner, EconInsights, from a registry of formal firms located in Addis Ababa, Ethiopia. We discuss below that our study is sufficiently powered to detect the meaningfully sized relationships of interest. However, if a larger sample size is considered critical for the study's validity, the research team is committed to expanding it.

We restrict the sample to employers with at least five employees–meeting the Ethiopian government's classification of enterprise. This is the most relevant population for the policy question at hand: these are the firms currently subject to severance obligations and thus the primary potential users of an insurance product designed to mitigate the associated costs. Smaller firms are often informal, with severance pay obligations less likely to be due and to be enforced. Our sample is thus representative of mid-to-large size formal employers in Addis Ababa. As such, while our results may not generalize to the full universe of firms, they speak directly to the population most likely to be affected by layoff costs and to uptake this policy innovation.

4.6.1 Power calculations

Overall, our analysis is well powered to conduct the proposed analysis, despite only sampling 160 firms. This is mostly driven by the fact that we do not estimate between firm treatment effects and focus on means, bi-variate correlations, and within firm treatment effects.

We conduct power calculations via simulations of the anticipated data structure based on the survey instrument. For the WTP, we assuming a symmetric WTP for insurance with a mean of 100 Birr per worker to convert MDEs into monetary values. We further conservatively assume that the intracluster correlation of firms WTP across different replacements rates b is 0.8 (Hensel ⓡ al., 2025, find an parallel ICC on the worker side of 0.8). We make the same assumption about firms' MRS. R^2 are assumed to be close to zero throughout as the only explanatory power comes from the independent variables. For all power calculation we present the minimum detectable effect size with test-size 5% and 80% power. Limited take-up is not a concern, as we do not estimate treatment effects. Similarly, attrition is not a concern, almost all of our analysis relies on baseline data only (except for testing adverse selection on realized riskiness). Wherever possible, we benchmark our MDE estimates against Hensel ⓡ al. (2025) who conduct a very similar exercise to elicit workers' WTP for additional severance insurance.

Hypothesis set D The MDE for our test of hypothesis D1 is 5 percentage points. That is, we are powered to detect positive demand if at least 5% of replacement rate price combinations would result in a purchase.

The MDE of hypothesis D2 is 10 percentage points. That is we can detect if going from a 50% percent replacement rate to a 100% replacement rate increases demand by 5 percentage points.

The MDE of hypothesis D3 is 1 percentage points per 100 Birr. That is we can detect if increasing the insurance price by 100 Birr per worker decreases demand by 1 percentage point.

Hypothesis set S The MDE for the positive correlation test for S1 is 0.21 standard deviations increase in the cost index per standard deviation of WTP (60 Birr) increase. This is similar to the 0.22 standard deviations Hensel ⓡ al. (2025) observe for adverse selection in severance insurance uptake for workers in Ethiopia. However, not all studies find a positive estimate for the positive correlation test. For example, Finkelstein and Poterba (2004) find no correlation, which they explain by both high-risk and low-risk but high–risk aversion types selecting into insurance.

The MDE for S2 (selection on moral hazard) is also 0.21 standard deviations, conservatively assuming that the subjective and objective risk indices only explain 10% of the variation in realized risk. That is, we can detect if one standard deviation more in moral hazard behavior is associated with one standard deviation higher risk.

Based on the literature, we anticipate both selection channels to be relevant. Even though we cannot convert the effect sizes in Einav et al. (2010) to standard deviations, they find evidence of adverse selection in the private health insurance market: they find that a one-dollar increase in the price of a more comprehensive employer-provided health insurance plan is associated with an increase in the average cost of the (endogenous) sample selecting the plan at that price by 16 cents. Similarly, while we cannot convert the effect sizes in Einav et al. (2013) to standard deviations, they find that selection moral hazard and underlying risk are similarly important. They find that moving tenth percentile to the ninetieth percentile of the moral hazard distribution is associated with about a 23 percentage point decline in the demand for a high- deductible plan health insurance plan, while moving from the tenth to the ninetieth percentile of the expected health risk distribution is associated with a 24 percentage point decline in the demand for the same plan. Karlan and Zinman (2009) also find selection on moral hazard among micro credit clients (0.02 standard deviation per 100 basis point difference in interest rate) but they find no evidence on adverse selection on underlying risk. On the consumer side, Klonner and Rai (2006) find a price-delinquency elasticity of 74 percent among credit card clients.

Hypothesis set IV For this set of hypothesis, we model the MRS as a generic standardized variable as we do not have strong priors of the distribution of the MRS. The MDE of hypothesis IV1 is 0.21 standard deviations. That is we can detect if the MRS is at least 0.21 standard deviations about 1.

The MDE of hypothesis IV2 is 0.17 standard deviations increase in MRS per one standard deviation (60 Birr) increase in willingness to pay.

The MDE of hypothesis IV3 is 0.04 standard deviations increase in MRS per 10 percentage point increase in the lay-off share.

Hypothesis IV4 to IV6 have the same standardized MDE of 0.17 standard deviations increase in the MRS per standard deviation of the independent variable of interest.

Behavioral response tests The main tests of hypotheses MH2, FS2, CH2 and CL2 are whether the average within firm difference are different from zero. Here the MDEs are 0.22 standard deviations for all outcomes.

Finally, for MH1, FS1, CH1, CL1 we regress a measure of predicted exposure severance risk on realized endline outcomes. The MDE is 0.22 standard deviations higher outcomes per standard deviation increase in exposure to risk (assuming that control variables explain ca. 10% of the variation in the realized endline outcomes).

Taking an approximation of the distribution of past lay-offs in Abebe et al. (2025), 0.22 standard deviations are roughly equivalent to a minor change of 0.4 percentage points in the average lay-off probability due to insurance coverage. The evidence on the presence of moral hazard in lay-off behavior is mixed. Johnston (2021) find no evidence of moral hazard in the cost of unemployment insurance tax rate. Older papers, like Topel (1984), Card and Levine (1994) and Anderson and Meyer (1994) document substantial negative elasticities of lay-offs with respect to the experience rating, i.e. their marginal layoff cost (between -0.1 and -0.43). Moreover, there is evidence that firms adjust their hiring and employment decisions in response to changes in unemployment insurance taxes: Johnston (2021) find that 1-percentage-point increase in a firm's UI tax rate reduces firm hiring by 2.8 percent and employment by 1.5%. This suggests that the severance insurance may also have sizable effects on firm growth and hiring of covered workers. In other contexts, Burchardi et al. (2018) find very evidence of large moral hazard among share cropping clients. A 25% increase in the share of retained crops increases output by 60%.

4.7 Additional Considerations for Data Analysis

We provide additional information describing our data analysis procedure.

Multiple outcome and multiple hypothesis testing. We will report sharpened q-values adjusting for multiple hypothesis testing within families of hypothesis tests in in addition to uncorrected p-values. The hypotheses families we correct within are D, S, IV1-3, IV4-6, MH, CH, and CL.

Missing values. Based on our past experiences surveying firms in Addis Ababa, we expect very few missing values due to refusal or inability to answer survey questions. To the extent that there are missing values in time-invariant variables at baseline, we will attempt to measure them again at endline. For variables still missing after this step, we follow the Standard Operating Procedures outlined by Lin and Green (2016). Specifically, when outcomes are observed but covariates are missing, we impute missing values using the covariate mean if fewer than 10% of observations are missing. If more than 10% are missing, we impute an arbitrary constant and include an indicator variable to flag missingness.

Outliers. Our key measures of willingness-to-pay are bounded by design. The marginal rates of substitution may go towards infinity as if the probability of a a certain lay-off range is perceived as zero. We will code these values as the maximum of the non-infinity values. For other unbounded variables, we will check that results remain robust to replacing the minimum value of the dependent variable with the first percentile and the maximum value with the 99th percentile.

Understanding. To strengthen the reliability of our estimates and ensure they are not driven by respondent confusion, we leverage a rich set of comprehension and consistency checks. Specifically, we test the robustness of our findings in three subsamples of respondents: (i) those who correctly answered all seven comprehension checks on the product and both checks on layoff intervals, either on the first attempt or after a second explanation; (ii) those who display internal consistency across products—that is, are willing to pay weakly more for the more generous product; and (iii) those who did not revise any of their choices after completing a multiple price list. The checks are reported in Appendices B and C.8.

5 Data collection and processing

The data for this study will be drawn from two employer surveys, a detailed baseline and a short endline survey to collect realized layoff data. The proposed timeline for these data collections is displayed in Figure 1. Details on the surveys are provided in Appendix D.

Survey Procedures. The surveys will be administered in person by EconInsight, a professional survey firm and long-standing partner organization of the research team. All surveys will be conducted in-person using SurveyCTO, a platform that allows for built-in consistency checks to ensure internal reliability. In addition, the research team will conduct random spot checks to further verify data quality.

Sampling. The sample is drawn from a list of registered establishments in Ethiopia provided by the Ministry of Trade and Industry (MoTI). The dataset, compiled in 2024, includes approximately 400,000 enterprises nationwide, with a substantial proportion reported to be operating in Addis Ababa. We apply the following criteria to refine the dataset into a sampling frame: (i) exclude firms without phone numbers or with incomplete numbers; where possible, we correct missing digits (e.g., adding leading zeros); (ii) limit the sample to firms operating in Addis Ababa; (iii) exclude firms categorized as own account workers. We stratify by sector.

We will conduct at least three contact attempts for all sampled firms to minimize selective participation in the study. The initial outreach attempt will be conduct via phone and used to screen out firms that fall outside our target firms size of at least five employees. Subsequent surveys will be conducted in-person.

Baseline data. To collect baseline data, enumerators from EconInsight will visit business premises to interview either the firm owner or, if the owner is unavailable, the manager. If the target respondent is unavailable during the first visit, a second visit will be scheduled. Baseline collection will conclude once at least 160 completed surveys have been obtained, and fieldwork funds are depleted. The process is expected to last a maximum of three months between November 2025 and January 2026. The baseline survey aims to obtain detailed information on employers' demographics, firm characteristics, expectations about future hires and layoffs both under the status quo and under a hypothetical insurance scenario, as well as to elicit demand for Severance Insurance and the marginal rates of substitution between layoff states.

Endline data. Endline data collection will occur in August 2026, following the end of the insurance coverage period. Enumerators will again visit each business, this time after contacting the original respondent to schedule an appointment. Contact attempts will continue until either the respondent explicitly refuses or ten unsuccessful attempts have been made. This round of data collection is expected to be completed by September 2026. The endline survey aims to measure realized layoffs and severance payments during the coverage period, to understand employers' experiences with covering these payments, and to collect updated information on firm characteristics and workforce composition.

Attrition. Attrition is only relevant to our endline survey, which is only needed for a subset of our analysis, i.e., measuring realized risk. Attrition may occur if firms relocate or shut down. For our study, it is crucial to follow-up with business that have closed down, as they have the highest number of lay-offs. Hence, we will collect multiple contact methods at baseline, including personal phone numbers, email addresses of multiple employees, and the firm's physical location. We commit to following up with up to ten contact attempts to at least two individuals and in-person before classifying a firm as unreachable in the endline survey. This will enable us track the status of a firm and measure lay-offs as severance payments even if the firm seized to exist (as we have successfully done in other surveys, e.g. in Hensel et al., 2021). Given our past experiences and the relatively large and formal nature of the businesses, we do not think that attrition poses a major challenge for our study.

If we observe non-negligible differential attrition, we will compare baseline characteristics (listed in footnote 14) between attritors and non-attritors to assess the potential for bias. Following the approach of Horowitz and Manski (2006) and Kling et al. (2007), we will examine the sensitivity of our results to different assumptions about the outcomes of attriting firms by imputing values that generate both best-case and worst-case scenarios for our main estimates. Based on the observed characteristics of attritors, we will also make predictions about how our findings generalize to the full baseline sample.

Non-compliance with treatment assignment. Non-compliance is not a concern in our setting as we do not study the impact of randomly assigned treatment.

6 Interpreting Results

Formal enterprises play a pivotal role in the economies of low- and middle-income countries, serving as key engines of growth and job creation. Understanding these firms' ability to bear risk and absorb the costs associated with formal employment—such as severance obligations during periods of distress—is crucial for assessing the resilience of the private sector. Their capacity to manage labor-related risks influences not only their own growth trajectories but also the broader processes of formalization and structural transformation. In settings where improving workers' welfare depends on helping firms grow and succeed, policies that protect both employers and employees may be necessary to promote sustainable development. Our paper is the first to introduce the concept of insuring firms in a manner and timing analogous to worker insurance.

Specifically, our study evaluates the demand for, the value of, and the behavioral responses to a new product—Severance Insurance—designed to protect firms from the financial burden of layoff costs. While further research with more representative samples and in diverse country contexts will help to fully understand the broader desirability and viability of such a policy, this study provides important preliminary evidence on all the essential aspects for optimal policy design, and may inform whether policymakers should consider its public introduction or the regulation of private markets.

First, the analysis in Section 4.1 will establish whether there is demand for Severance Insurance. If demand is substantial, understanding its underlying drivers becomes essential. For instance, if demand is driven by private information about risk—as examined in Section 4.2—our work will inform policy design in two key ways: it evaluates whether adverse selection leads to underinsurance and whether mandates or subsidies could address resulting inefficiencies; and it identifies firm characteristics that can be priced to reduce average insurer premiums and expand coverage.

If demand is driven by firms with a high insurance value, as explored in Section 4.3, our findings will highlight an unmet need among firms that Severance Insurance could address. Moreover, by examining the underlying microfoundations of insurance value, our results can help determine which policies may be most appropriate. Severance insurance may be best suited in presence of risk aversion, whereas improved access to credit during shocks may more effectively alleviate borrowing and liquidity constraints.

If, by contrast, we find low demand, Section 4.3 will assess whether this reflects a genuinely low value of insurance or other factors, such as low perceived risk. If the insurance value is high, offering it may still be warranted despite limited demand. Conversely, if the value is truly low, we will explore and aim to rule out alternative explanations and assess whether employers have sufficient internal buffers or other mechanisms to manage layoff risk.

Finally, although the analysis in Section 4.4 is based on hypothetical responses, it provides suggestive evidence on the behavioral effects of severance insurance. The margins that insurance could influence are critical to the development agenda. If insurance access facilitates firm expansion and formal employment without driving excessive layoffs,it could lead to an expansion of social protection to workers who currently depend on informal safety nets during unemployment. Conversely, if negative effects on workers prevail, the policy may be unviable despite potential benefits for employers. Future research rigorously assessing these behavioral responses while ensuring worker protection is essential to fully understand the trade-offs of this policy.

Only by combining these insights can policymakers assess the benefits and costs of Severance Insurance and policies protecting employers against layoff costs.

While we focus on mid-to-large size formal employers in Addis Ababa, Ethiopia, the findings of this study have potential relevance for a broader set of settings. First, they could apply to other low- and middle-income countries that, in an effort to provide protection to workers, are implementing or considering similar layoff costs on employers. Second, our findings may prompt interest in the potential demand for such a product in high-income countries, particularly among smaller, vulnerable firms subject to mandatory severance or experience-rated unemployment insurance and with limited possibility of informal adjustments. Finally, while our results are less likely to generalize to microenterprises in rural Ethiopia or other parts of Sub-Saharan Africa, where informality remains deeply entrenched and firms are far from formalization, understanding these dynamics will become increasingly important as the area develops and their private sectors gradually formalize.

7 Limitations and Challenges

A potential challenge of this studies lies in introducing a new insurance product to firms. The severance insurance we offer does currently not exist in the market and firms are not going to be familiar with its structure and purpose. This lack of familiarity could affect our willingness-to-pay estimates. We are confident that we can overcome this measurement challenge. First, we include very detailed explanations and understanding checks that ensure that respondents understand the nature of the product. Second, we will work with experienced enumerators and will train them over several days to ensure that they understand both the product and the willingness-to-pay elicitation. In past work, we have successfully conducted surveys eliciting workers' and jobseekers' willingness-to-pay for an extended severance pay eligibility, demonstrating that this measurement is realistic and meaningful. Finally, we will conduct robustness tests on the subsamples of respondents who satisfy a set of sanity checks indicating comprehension of the product and survey questions.

Another limitation is that our measures of moral hazard are based on hypothetical scenarios. We chose this approach deliberately to minimize potential harm to workers—specifically, to avoid layoffs induced by the insurance coverage we offer. As a result, our measures rely on employers' self-reported anticipated changes in behavior rather than on observed responses. While this design is ethically necessary, it limits our ability to capture realized (rather than anticipated) behavioral responses.

8 Administrative Information

Ethics Approval The proposed research has been approved by the IRB at the University of Warwick (HSSREC 120/24-25).

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References

Abebe, Girum and Stefano Caria (2018) "Job Flows, Worker Flows and Churning in a large urban city: Evidence from Addis Ababa," *Working Paper*.

Abebe, Girum, Stefano Caria, Marcel Fafchamps, Paolo Falco, Simon Franklin, Simon Quinn, and Forhad Shilpi (2025) "Matching frictions and distorted beliefs: Evidence from a job fair experiment," *The Economic Journal*, ueaf026.

Ahles, Amelia, Marco A. Palma, and Andreas C. Drichoutis (2024) "Testing the effectiveness of lottery incentives in online experiments," *American Journal of Agricultural Economics*, 106 (4), 1435–1453, 10.1111/ajae.12460.

Anderson, Michael L. (2008) "Multiple Inference and Gender Differences in the Effects of Early Intervention: A Reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects," *Journal of the American Statistical Association*, 103 (484), 1481–1495, 10.1198/016214508000000841.

Anderson, Patricia M. and Bruce D. Meyer (1994) "The Effects of Unemployment Insurance Taxes and Benefits on Layoffs Using Firm and Individual Data," Working Paper4960, National Bureau of Economic Research, 10.3386/w4960.

Ausubel, Lawrence M. (1999) "Adverse Selection in the Credit Card Market," Working Paper.

Aydogan, Ilke, LoÃ¯c Berger, and Vincent Theroude (2024) "Pay all subjects or pay only some? An experiment on decision-making under risk and ambiguity," Working Papershal-04669655, HAL, None.

Baily, Martin Neil (1978) "Some aspects of optimal unemployment insurance," *Journal of Public Economics*, 10 (3), 379–402, https://doi.org/10.1016/0047-2727(78)90053-1.

Banerjee, Abhijit V and Esther Duflo (2014) "Do firms want to borrow more? Testing credit constraints using a directed lending program," *Review of Economic Studies*, 81 (2), 572–607.

Bebczuk, Ricardo (2003) *Asymmetric Information in Financial Markets*, Cambridge University Press, https://EconPapers.repec.org/RePEc:cup:cbooks:9780521797320.

Bertrand, Marianne and Bruno Crépon (2021) "Teaching labor laws: Evidence from a randomized control trial in South Africa," *American Economic Journal: Applied Economics*, 13 (4), 125–149.

Bertrand, Marianne, Chang-Tai Hsieh, and Nick Tsivanidis (2021) "Contract Labor and Firm Growth in India," Working Paper29151, National Bureau of Economic Research, 10.3386/w29151.

Besanko, David and George Kanatas (1993) "Credit Market Equilibrium with Bank Monitoring and Moral Hazard," *The Review of Financial Studies*, 6 (1), 213–232, http://www.jstor.org/stable/2961994.

Bitler, Marianne P., Tobias J. Moskowitz, and Annette Vissing-Jorgensen (2005) "Testing Agency Theory with Entrepreneur Effort and Wealth," *The Journal of Finance*, 60 (2), 539–576, https://doi.org/10.1111/j.1540-6261.2005.00739.x.

Bulan, Laarni T. (2005) "Real options, irreversible investment and firm uncertainty: New evidence from U.S. firms," *Review of Financial Economics*, 14 (3), 255–279, https://doi.org/10.1016/j.rfe.2004.09.002, Real Options SI.

Burchardi, Konrad B, Selim Gulesci, Benedetta Lerva, and Munshi Sulaiman (2018) "Moral Hazard: Experimental Evidence from Tenancy Contracts*," *The Quarterly Journal of Economics*, 134 (1), 281–347, 10.1093/qje/qjy023.

Burdett, Kenneth and Randall Wright (1989) "Optimal firm size, taxes, and unemployment," *Journal of Public Economics*, 39 (3), 275–287, https://doi.org/10.1016/0047-2727(89)90030-3.

Caggese, Andrea (2012) "Entrepreneurial risk, investment, and innovation," *Journal of Financial Economics*, 106 (2), 287–307, https://doi.org/10.1016/j.jfineco.2012.05.009.

Calvet, Laurent E., John Y. Campbell, and Paolo Sodini (2007) "Down or Out: Assessing the Welfare Costs of Household Investment Mistakes," *Journal of Political Economy*, 115 (5), 707–747, http://www.jstor.org/stable/10.1086/524204.

Card, David and Phillip B. Levine (1994) "Unemployment insurance taxes and the cyclical and seasonal properties of unemployment," *Journal of Public Economics*, 53 (1), 1–29, https://doi.org/10.1016/0047-2727(94)90011-6.

Casaburi, Lorenzo, Kevin F. Cramer, and Jack Willis (2025) "Insurance Terms and Access to Health Services: Experimental Evidence from Uganda," Pre-registered study on the AEA RCT Registry, https://www.socialscienceregistry.org/trials/12956/history/215986, Accessed: 2025-09-26.

Charness, Gary, Uri Gneezy, and Brianna Halladay (2016) "Experimental methods: Pay one or pay all," *Journal of Economic Behavior and Organization*, 131, 141–150, https://doi.org/10.1016/j.jebo.2016.08.010.

Charness, Gary, Uri Gneezy, and Alex Imas (2013) "Experimental methods: Eliciting risk preferences," *Journal of Economic Behavior and Organization*, 87, 43–51, 10.1016/j.jebo.2012.12.023.

Chetty, Raj (2006) "A general formula for the optimal level of social insurance," *Journal of Public Economics*, 90 (10), 1879–1901, https://doi.org/10.1016/j.jpubeco.2006.01.004.

Chiappori, Pierre-Andre and Bernard Salanie (2000) "Testing for Asymmetric Information in Insurance Markets," *Journal of Political Economy*, 108 (1), 56–78, http://www.jstor.org/stable/10.1086/262111.

Choudhary, M. Ali and Paul Levine (2010) "Risk-averse firms and employment dynamics," *Oxford Economic Papers*, 62 (3), 578–602, http://www.jstor.org/stable/40856507.

Cole, Shawn A and Wentao Xiong (2017) "Agricultural insurance and economic development," *Annual review of Economics*, 9 (1), 235–262.

Coles, Jeffrey L., Naveen D. Daniel, and Lalitha Naveen (2006) "Managerial incentives and risk-taking," *Journal of Financial Economics*, 79 (2), 431–468, https://doi.org/10.1016/j.jfineco.2004.09.004.

Diamond, Douglas W. (1984) "Financial Intermediation and Delegated Monitoring," *The Review of Economic Studies*, 51 (3), 393–414, http://www.jstor.org/stable/2297430.

Eeckhoudt, Louis, Christian Gollier, and Harris Schlesinger (1997) "The no-loss offset provision and the attitude towards risk of a risk-neutral firm," *Journal of Public Economics*, 65 (2), 207–217, https://doi.org/10.1016/S0047-2727(97)00023-6.

Einav, Liran, Amy Finkelstein, and Mark R. Cullen (2010) "Estimating Welfare in Insurance Markets Using Variation in Prices*," *The Quarterly Journal of Economics*, 125 (3), 877–921, 10.1162/qjec.2010.125.3.877.

Einav, Liran, Amy Finkelstein, Stephen P Ryan, Paul Schrimpf, and Mark R Cullen (2013) "Selection on moral hazard in health insurance," *American Economic Review*, 103 (1), 178–219.

Enke, Benjamin and Thomas Graeber (2023) "Cognitive uncertainty," *The Quarterly Journal of Economics*, 138 (4), 2021–2067.

Finkelstein, Amy and James Poterba (2004) "Adverse selection in insurance markets: Policyholder evidence from the UK annuity market," *Journal of political economy*, 112 (1), 183–208.

Frank, Jeff (1990) "Monopolistic Competition, Risk Aversion, and Equilibrium Recessions," *The Quarterly Journal of Economics*, 105 (4), 921–938, http://www.jstor.org/stable/2937879.

Gerard, François, Gustavo Gonzaga, and Joana Naritomi (2025) "Job Displacement Insurance in Developing Countries," Working Paper.

Greenwald, Bruce C. and Joseph E. Stiglitz (1990) "Asymmetric Information and the New Theory of the Firm: Financial Constraints and Risk Behavior," *The American Economic Review*, 80 (2), 160–165, http://www.jstor.org/stable/2006562.

Groh, Matthew and David McKenzie (2016) "Macroinsurance for microenterprises: A randomized experiment in post-revolution Egypt," *Journal of Development Economics*, 118, 13–25.

Grossman, Sanford J. and Oliver D. Hart (1981) "Implicit Contracts, Moral Hazard, and Unemployment," *The American Economic Review*, 71 (2), 301–307, http://www.jstor.org/stable/1815735.

Gruber, Jonathan (1997) "The Consumption Smoothing Benefits of Unemployment Insurance," *The American Economic Review*, 87 (1), 192–205, http://www.jstor.org/stable/2950862.

Heaton, John and Deborah Lucas (2000) "Portfolio Choice and Asset Prices: The Importance of Entrepreneurial Risk," *The Journal of Finance*, 55 (3), 1163–1198, http://www.jstor.org/stable/222449.

Hendren, Nathaniel (2017) "Knowledge of Future Job Loss and Implications for Unemployment Insurance," *American Economic Review*, 107 (7), 1778–1823, 10.1257/aer.20151655.

Hensel, Lukas ⓡ Girum Abebe ⓡ François Gerard ⓡ Stefano Caria (2025) "Mitigating the Consequences of Job Loss in Low-Income Countries: Evidence from Ethiopia," Working Paper.

Hensel, Lukas, Tsegay Tekleselassie, and Marc Witte (2021) "Formalized Employee Search and Labor Demand," *IZA Discussion Paper 14839* (14839).

Holmstrom, Bengt and Jean Tirole (1997) "Financial Intermediation, Loanable Funds, and the Real Sector," *The Quarterly Journal of Economics*, 112 (3), 663–691, http://www.jstor.org/stable/2951252.

Horowitz, Joel L. and Charles Manski (2006) "Identification and Estimation of Statistical Functionals using Incomplete Data," *Journal of Econometrics*, 132 (2), 445–459, https://EconPapers.repec.org/RePEc:eee:econom:v:132:y:2006:i:2:p:445-459.

Johnston, Andrew C. (2021) "Unemployment Insurance Taxes and Labor Demand: Quasi-Experimental Evidence from Administrative Data," *American Economic Journal: Economic Policy*, 13 (1), 266–93, 10.1257/pol.20190031.

Karlan, Dean and Jonathan Zinman (2009) "Observing unobservables: Identifying information asymmetries with a consumer credit field experiment," *Econometrica*, 77 (6), 1993–2008.

Kling, Jeffrey R., Jeffrey B. Liebman, and Lawrence F. Katz (2007) "Experimental Analysis of Neighborhood Effects," *Econometrica*, 75 (1), 83–119.

Klonner, Stephan and Arun S. Rai (2006) "Adverse Selection in Credit Markets: Evidence from Bidding ROSCAs," Working Paper.

Lamorgese, Andrea, Megha Patnaik, Andrea Linarello, and Fabiano Schivardi (2024) "Management practices and resilience to shocks: Evidence from COVID-19," *Management Science*, 70 (12), 9058–9072.

Landais, Camille and Johannes Spinnewijn (2021) "The Value of Unemployment Insurance," *The Review of Economic Studies*, 88, 3041–3085.

Lester, Richard A. and Charles V. Kidd (1939) "The Case against Experience Rating in Unemployment Compensation," *Princeton University Press, Princeton, New Jersey.*

Lin, Winston and Donald P. Green (2016) "Standard Operating Procedures: A Safety Net for Pre-Analysis Plans," *PS: Political Science and Politics*, 49 (3), 495–500, 10.1017/S1049096516000810.

Main, Brian GM (1983) "Corporate insurance purchases and taxes," *Journal of Risk and Insurance*, 197–223.

Michelacci, Claudio and Fabiano Schivardi (2013) "DOES IDIOSYNCRATIC BUSINESS RISK MATTER FOR GROWTH?" *Journal of the European Economic Association*, 11 (2), 343–368, http://www.jstor.org/stable/24538796.

Moskowitz, Tobias J. and Annette Vissing-Jørgensen (2002) "The Returns to Entrepreneurial Investment: A Private Equity Premium Puzzle?" *American Economic Review*, 92 (4), 745–778, 10.1257/00028280260344452.

Orszag, Mike and Gylfi Zoega (1996) "Hiring Risk and Labour Market Equilibrium," CEPR Discussion Papers1314, C.E.P.R. Discussion Papers, https://ideas.repec.org/p/cpr/ceprdp/1314.html.

Sadka, Joyce, Enrique Seira, and Christopher Woodruff (2024) "Information and bargaining through agents: Experimental evidence from mexico's labour courts," *Review of Economic Studies*, 91 (6), 3677–3711.

Spaziani, Sara (2025) "Optimal Unemployment Insurance Financing: Theory and Evidence from Two US States," working paper.

Tekleselassie, T. ⓡ M. Witte ⓡ J. Radbruch ⓡ L. Hensel ⓡ I. E. Insphording (2025) "Feedback, Confidence and Job Search Behavior," IZA Discussion Paper17761, IZA.

Topel, Robert (1984) "Experience Rating of Unemployment Insurance and the Incidence of Unemployment," *The Journal of Law and Economics*, 27 (1), 61–90, 10.1086/467083.

Ulyssea, Gabriel, Matteo Bobba, and Lucie Gadenne (2023) "Informality," *VoxDevLit*, 6 (1).

UNDP (2025) "Country Programme Document for Ethiopia (2025–2030)," https://www.undp.org/ethiopia/publications/country-programme-document-ethiopia-2025-2030, June, Published 12 June 2025.

A Additional Theoretical Findings

A.1 MRS as function of its microfoundations

We start from the derivative of the marginal rate of substitution with respect to l:

$$\frac{\partial MRS_{0,l}}{\partial l} = \frac{u''(\Pi_l)}{u'(\Pi_0)} \cdot \frac{\partial \Pi_l}{\partial l} = \underbrace{\overbrace{\frac{u''(\Pi_l)}{u'(\Pi_0)}}^{\leq 0}}_{\geq 0} \cdot N \left[\underbrace{-(R^c - w^c) - (R^n - w^n) - s(1+r)(1-b) + 2A}_{<0} \right] \tag{35}$$

Given the definition of the Arrow–Pratt coefficient of absolute risk aversion, $\rho(\Pi_l) = -\frac{u''(\Pi_l)}{u'(\Pi_l)}$, we obtain:

$$\frac{\partial MRS_{0,l}}{\partial l} = \frac{-\rho(\Pi_l)u'(\Pi_l)}{u'(\Pi_0)} \cdot N[-(R^c - w^c) - (R^n - w^n) - s(1+r)(1-b) + 2A] \tag{36}$$

Using the definition of $MRS_{0,l} = \frac{u'(\Pi_l)}{u'(\Pi_0)}$, we have:

$$\frac{\partial MRS_{0,l}}{\partial l} = -\rho(\Pi_l) \cdot MRS_{0,l} \cdot N[-(R^c - w^c) - (R^n - w^n) - s(1+r)(1-b) + 2A] \tag{37}$$

Dividing both sides by $MRS_{0,l}$ yields

$$\frac{1}{MRS_{0,l}} \frac{\partial MRS_{0,l}}{\partial l} = \frac{\partial}{\partial l} (\ln MRS_{0,l}) = -\rho(\Pi_l) \cdot N[-(R^c - w^c) - (R^n - w^n) - s(1+r)(1-b) + 2A] \tag{38}$$

Integrating both sides of (38) from 0 to l, with $MRS_{0,0} = 1$, gives

$$\ln MRS_{0,l} = -\int_0^l \rho(\Pi_x) \cdot N\left[-(R^c - w^c) - (R^n - w^n) - s(1+r)(1-b) + 2A\right] dx, \tag{39}$$

or equivalently, Equation (9).

A.2 Optimal Severance Insurance

The formulas for the optimal replacement rate, b^* in Equations (17) and (18) are obtained by (i) taking the derivative of the SWF; (ii) setting it to zero; dividing both sides by $\alpha crsu'(\Pi_0)$; leveraging the definition of MRS in Equation (5); and leveraging the definition of elasticity, $\varepsilon_{X,b} = \frac{\partial X}{\partial b} \frac{b}{X}$.

The scaling factors multiplied to the elasticities in Equation (18) are:

$$\psi_N = \frac{N}{b\alpha crsu'(\Pi_0)} \underbrace{\int_0^1 \pi_l(e,\theta)u_w \, dl}_{\substack{\text{Worker Utility Gain} \\ \text{from Employment}}} \tag{40}$$

$$\psi_c = \frac{N}{b\alpha rsu'(\Pi_0)} \left[\underbrace{(1-\alpha)(u(w^c) - u(w^r))}_{\substack{\text{Worker Utility Gain when} \\ \text{Employed as Covered}}} + \underbrace{\alpha(u(s) - u(0))}_{\substack{\text{Worker Utility Gain when} \\ \text{Laid Off as Covered}}} \right]$$

$$\psi_{\alpha 1} = \frac{N}{rsu'(\Pi_0)b} \left[\underbrace{(u(s) - u(w^n))}_{\substack{\text{Worker Utility Loss when} \\ \text{Laid Off as Covered}}} - \underbrace{(u(0) - u(w^n))}_{\substack{\text{Worker Utility Loss when} \\ \text{Laid off as Non-Covered}}} \right]$$

$$\psi_e = \frac{Ne}{\alpha crsu'(\Pi_0)b} \underbrace{\int_0^1 \frac{\partial \pi_l(e,\theta)}{\partial e} \, dl u_w}_{\substack{\text{Worker Utility Loss from} \\ \text{Higher Layoff Probability}}}$$

$$\psi_{\alpha 2} = \underbrace{\frac{1}{r} \int_0^1 \pi_l(e,\theta) MRS_{0,l} \, dl}_{\text{Fiscal Externality on Govmt Budget}}$$

B Intervention Script

This section describes how we present the Severance Insurance product to employers in our sample, the incentive structure, and the exact survey question used to elicit their interest in purchasing the insurance.

We offer two versions of the product in random order. All respondents will be offered a version of the product with a replacement rate of $b = 50\%$. The other product is an alternative version in which each employer is randomly assigned a replacement rate b of 25%, 75%, or 100%.

After collecting information on employers' knowledge of severance insurance regulations and their estimates of required payments, the survey script continues as follows:

Introduction: *"Many firms face the risk of high severance pay obligations in case they have to let workers go during an economic downturn. Hence, we are thinking about a severance-pay insurance product that would help firms pay their obligations. As part of this study, we would like you to take part in a task that will help us understand how valuable this product would be for your firm. Your firm may have a chance to purchase the insurance product as part of this task."*

Task Description: *"Here is how the task will work. We will randomly select one firm who participates in this study and offer it a bonus. This bonus is worth $P15$ Birr.*[34] *If you are selected, you will receive it directly into the general firm bank account. The task that you face, as a manager of your firm, is to choose whether, if your firm is selected to receive the bonus, you would like to use a part of this bonus to purchase an insurance product designed to help you pay severance pay should you have to lay off some of your workers."*

Product Details: *"This is how the product will work. The insurance will be valid for 6 months starting in February 2026. That is, it is valid from February 2026 to July 2026. During the insurance period, you will be eligible to receive a payment for each worker you have to pay severance pay for. To be precise, the insurance will reimburse b% of the severance pay you actually pay to laid-off workers during this time period. All severance payments to workers laid off during the eligibility period are eligible, even if the payments themselves happen after the eligibility period. However, total benefit is capped at 250,000 Birr. You cannot receive more than this amount to compensate for severance payments during the eligibility period. Note that our product only reimburses you for genuine layoffs. if you rehire*

[34] $P15$ is firm-specific and calculated and the maximum price the firm could pay in the elicitation exercise (7,500 Birr * number of covered employees).

a worker within six months of having laid them off, we will not consider this as a genuine layoff, and you will have to pay us back the money we transferred to cover the severance pay of this worker. We will conduct spot checks to ensure that workers are not rehired. For example, if you lay-off three workers and have to pay a total of 15000 Birr in severance pay, the insurance will reimburse you 7500 Birr of the severance payment. The payment will be made before you have to transfer the money to the laid-off workers. Whenever you have to lay-off workers and pay severance during the study period, you can contact our representative. They will check the information you provided and then transfer the amount to you before you make the payment to the laid-off workers. If you do not lay off any workers during the insurance period, you will not receive any payments."

Incentives: *"I will now present you with several questions. In each question, you have to decide whether you would be willing to pay a certain amount of your bonus in order to purchase the severance-pay insurance that I have just described to you. If your firm is selected to receive the bonus, we will randomly choose one of the following questions and we will then implement your choice for this question. This means that you should choose carefully, as your choices now can have real consequences. If you win this lottery, we will contact you before February 2026 and provide your more details about the insurance scheme."*

Examples: *"For instance, I will first ask you to choose between the following two options: OPTION 1: Do not purchase severance pay insurance. OPTION 2: Pay* $P1$ *Birr (*$Pw1$ *Birr per eligible worker) and be eligible for a payment of 50% of the severance pay you have to pay to workers during the eligibility period. Note that if you choose option 2, the price (*$P1$ *Birr) will be directly deduced from the* $P1$ *Birr bonus. That is we will directly deduct the amount from the bonus and you will not have to pay us directly. Before asking you what you would choose, let me ask you three questions to check whether you have understood the way the two options work. Suppose you choose OPTION 2 "Pay* $P1$ *Birr (*$Pw1$ *Birr per eligible worker) and be eligible for a payment of 50% of the severance pay you have to pay to workers during the eligibility period." and get selected to purchase the insurance.*

Consistency Checks:

Check 1: *In what scenarios would you receive a severance-pay insurance payment? Choose between: 01 = When workers quit. 02 = When workers are laid-off without receiving severance pay. 03 = When workers are laid-off and receive severance pay.*

Check 2: *How much money are you going to receive as a severance-pay insurance payment if you lay off 2 workers and pay them 3000 Birr in severance pay each? Answer: ____."*

Check 3: *How much money are you going to receive as a severance-pay insurance payment if you do not lay off any workers during the insurance period?* ____

Check 4: *If you choose option 2 "pay* $P1$ *Birr (*$Pw1$ *Birr per eligible worker) and be eligible for a payment of 50% of the severance pay you have to pay to workers during the eligibility period." What is the total bonus your firm will receive if your firm is selected?* $P15 - P1$*;* $P15$*;* $P15$*-*$P1/2$

Check 5: *If you choose option 1 "Do not purchase severance insurance." What is the total bonus your firm will receive if your firm is selected?* $P15 - P1$*;* $P15$*;* $P15 - P1/2$

Exact Questions and Incentives Reminder: *"I will now present you with the different scenarios, in which you choose whether to pay a certain price to get the severance payment insurance. Remember that if you are selected to receive the bonus, we will select one of these scenarios and we will implement your choice in that scenario for real. That means that you should think hard about all your choices as they can have real consequences.*

Reminder of lay-off rate: *Before deciding whether to buy the product or not, think about how much you would value the benefits in case layoffs occur, and remember that you expect to lay off* $F4$ *workers with a permanent contract over the period of this product, and that there is a probability of* $F5\_2$ *that you will lay off at least one worker during the insurance period. You can only receive payouts if you actually lay off workers and pay severance pay during the insurance period from from February 2026 to July 2026.*

Only show if $F5\_2$=0: *Notice that the product is designed to support firms to pay the severance pay costs that arise after worker layoffs. So, if you are certain that you will not layoff any worker, you may not need the product. Please let us know if you want to revise your answers regarding the probability of future layoffs before continuing.*

Which of the following would you prefer? Option 1: Do not purchase severance pay insurance. Option 2: Pay $P1$ *Birr (*$Pw1$ *Birr per eligible worker) and be eligible for a payment of* b*% of the severance pay you have to pay to workers during the eligibility period."*

Confirmation: *This means that the maximum amount you are willing to give up from your P1 Birr bonus to be covered by this insurance product is less than pi*Nc Birr and more than (pi-1)*Nc Birr. Is this correct? a. Yes b. No, lower. c. No, higher.*

Alternative Replacement Rate: *"Now I would like to ask you about a different severance pay insurance product. Now, the insurance will cover* $r2$*% of the severance pay you have to pay during the eligibility period from February 2026 to July 2026. All other conditions are* *the same as for the previous severance-pay insurance product. (...)"*

Check 6: *For this product, how much money are you going to receive as a severance-pay insurance payment if you lay off 2 workers and pay them 3000 Birr in severance pay each? Correct answer: 6000*r2*

Check 7: *Will you receive a larger or a smaller fraction of the severance pay compared to the previous product? i.A larger fraction ii.A smaller fraction iii.The same fraction*

Confirmation: *This means that the maximum amount you are willing to give up from your X Birr bonus to be covered by this insurance product is less than pi*Ne Birr and more than pi-1*Ne Birr. Is this correct? a. Yes b. No, lower. c. No, higher.*

Price Calibration: The upper limit, $Pw_{15} = 7,500Birr$, is calibrated so that even pessimistic firms are unlikely to be willing to pay the price: in our pilot, the median severance pay was 15,000 Birr per laid off worker, and hence a severance insurance benefit of 7,500 Birr per laid off worker under the main product offered to everyone with 50% replacement rate. A firm would thus need to lay off all their workers to break even. Given an average realized lay-off of less than 4% base in near-representative firm data from (Abebe et al., 2025), we expect that extremely few firms will be willing to purchase the insurance at this price.

Bonus: The bonus is funded by the research team and calibrated at $7,500Birr \times Nc$, so that firms will use up all the bonus if they purchase the product at the highest price we ask about. This arrangement ensures that employers cannot retract their commitment and avoids imposing any financial burden or risk associated with a new, untested product.

C Measurement of Key Variables in the Survey

This appendix details the construction and measurement of the main variables described in the model and used in the analysis, as collected through our survey instruments.

C.1 Firm Composition, Marginal Product, and Cost of Labor

Informed by our theoretical framework, we measure several characteristics of the firm's workforce, as well as proxies for the marginal cost and marginal product of labor. We collect this information at both baseline and endline.

- **Firm Size, N:** We ask employers to report the number of employees.
- **Share of Covered and Noncovered Workers, c and $n = 1 - c$:** We ask employers how many of their employees are on permanent contracts. We proxy covered workers with those holding permanent contracts for two reasons. First, our sample consists of relatively large firms, where permanent contracts are likely to coincide with formal employment status. We validate this proxy by also asking how many workers have a written employment contract and are registered with the social security agency and comparing the two measures. Second, using this proxy helps reduce respondent burden, as repeated questions about registration may yield inaccurate or reluctant answers. We calculate the share of covered workers, c, as the ratio of permanent employees to total employment. The share of non-covered (temporary) workers is then $n = 1 - c$ and includes both temporary and casual workers.
- **Wages of Covered and Noncovered Workers, w^c and w^n:** We ask employers to report the average monthly wage for permanent and temporary workers, and convert these to annual figures by multiplying by 12.
- **Revenue per Covered and Noncovered Worker, R^c and R^n:** We elicit from employers the relative productivity of temporary versus permanent workers. Specifically, we ask them to estimate the productivity of a temporary worker as a fraction $\beta \in (0, 1)$ of a permanent worker's productivity. That is, $R^n = \beta R^c$. We then assume that average yearly profits, which we measure at baseline, are equal to profits without layoffs, i.e., $\Pi_{baseline} = \Pi_0$:

$$\Pi_{baseline} = cN(R^c - w^c) + (1 - c)N(R^n - w^n).$$

Substituting $R^n = \beta R^c$, dividing both sides by N and rearranging, we get:

$$R^c = \frac{\frac{\Pi_{baseline}}{N} + cw^c + (1-c)w^n}{c + (1-c)\beta}.$$

We then calculate $R^n = \beta R^c$.

C.2 Layoff Probabilities

We ask employers to give us their probability that each of the layoff intervals $[l, l']$ presented in Table 3 occurs during the coverage period (from February 1st, 2026 to July 31st, 2026), meaning that the number of laid-off workers falls between l% and l'% of their workforce.

Table 3: Measured Layoff Probabilities

Layoff Interval	**Layoff Probability**
0%	π_0
[1–5)%	$\pi_{[1-5\%)}$
[5–10)%	$\pi_{[5-10\%)}$
[10–15)%	$\pi_{[10-15\%)}$
[15–30)%	$\pi_{[15-30\%)}$
[30–50)%	$\pi_{[30-50\%)}$
[50–99)%	$\pi_{[50-99\%)}$
100%	π_{100}

Prior to eliciting information on employers' expected layoffs, we present them with the empirical distribution of realized layoff rates among firms with 10 or more employees in Addis Ababa in 2015, using administrative data from Abebe and Caria (2018). This anchoring is intended to reduce overestimation and encourage more realistic responses, since cognitive uncertainty may lead employers to over-estimate small probabilities (Enke and Graeber, 2023). We are also motivated by evidence from Hensel ⓡ al. (2025) that expected layoff rates tend to exceed realized ones. Specifically, the survey includes the following question to measure expected layoffs $\bar{L}_i$:

Anchoring: *"Before the next question, I would like to tell you about some research findings from a previous study. We interviewed an almost representative sample of firms with at least 10 workers in Addis Ababa. We found that 43% laid off at least one worker in the past year, while 8% laid off at least 5% of their staff in the past 12 months."*

Layoff probabilities: *"Now I would like to ask you about several possible scenarios about the* *number of layoffs of workers with a permanent contract in the six months from February 1st, 2026, to July 31st, 2026. How likely are the following scenarios? Please respond in percent as before. The probabilities need to add to 100%."*

C.3 Firm Risk, θ

We use variance-covariance weighted indices following Anderson (2008) to create two measures of firm risk θ. The Objective Risk Index, denoted as Ω, is based on firm observable characteristics. The Subjective Risk Index, denoted as Σ, is based on employers' own assessment of their firms' risk. We list the variables within each index below.

C.3.1 Objective Risk Index Ω

The objective risk index is based on the following observable firm characteristics:

1. **Firm Age.** We define $Young_i$, an indicator equal to one if the firm was established after September 1st, 2023.

2. **Firm Size.** We define $Small_i$ as an indicator equal to one for firms with a below median number of employees at baseline.

3. **Sectoral Risk.** We include the firm's sector, $Sector_i$, to capture seasonal fluctuations in operations as well as aggregate shocks that differ across sectors.

4. **Exposure to Supply Chain Disruptions.** We define $Inputs_i$ as an indicator variable equal to one for firms with above median value of imported inputs.

5. **Client Concentration Risk.** We define $Client_i$ as an indicator equal to one for firms with above median share of sales to the largest customer.

6. **Revenue Volatility.** We define $Revenue\_Variation_i$ as the percentage change between the firm's maximum and minimum monthly revenue over the past 12 months.

7. **Liquidity Constraints.** We define $Loan\_Sales_i$ as the ratio of outstanding loans to average monthly sales over the past 12 months.

C.3.2 Subjective Risk Index Σ

The subjective risk index is based on the following unobservable firm characteristics:

1. **Expected Layoff Rate, $\bar{l}(\theta, e)$.** We ask employers how many workers they expect to lay off between February 1st, 2026, and July 31st, 2026. We then divide this number

by employment at baseline:

$$\bar{l}_i(e,\theta) = \frac{\bar{L}_i}{N_i}$$

Specifically, after anchoring employers' expectations as described in Appendix C.2, the survey includes the following question to measure expected layoffs $\bar{L}_i$: *"Now we would like you to think about different possibilities for the six months from February 1st, 2026, to July 31st, 2026. Please think carefully about your answers so that they reflect what you really think. What do you think? How many workers will you lay off in the six months from from February 1st, 2026, to July 31st, 2026? Please include all workers, regardless of contract type."*

2. **Downside Layoff Risk:** We ask employers to assign a probability π_l to a series of events $l \in [0,1]$, each corresponding to a different share of workers laid off between February 1st, 2026, and July 31st, 2026, presented in Table 2. We create an indicator, $Downside\_Layoff\_Risk_i = \pi_{[10-15\%)} + \pi_{[15-30\%)} + \pi_{[30-50\%)} + \pi_{[50-100\%)} + \pi_{100}$, measuring the probability of laying off more than 10% of workers.

3. **Downside Profit Risk:** We ask employers to assign a probability $\pi_{\Delta\Pi}$ to a series of events $\Delta\Pi$, each corresponding to a different profit change over the twelve months following baseline. The specific events are reported in Table 4 We create a variable $Downside\_Profit\_Risk_i = \pi_{(-\infty,-15\%)} + \pi_{[-15,-5\%)}$, measuring the employer's perceived probability that firm profits will decline by at least 5%.

   Specifically, the survey includes the following question to measure expected profit change: *"How likely is that your total profits will increase, stay the same, or decrease over the next 12 months? To capture this, I will ask you about different scenarios where profits have changed by a given percent. Note that these scenarios reflect increases or decreases in real value of profits net of inflation. Please respond in percent from 0 to 100, where 0 means that there is absolutely no chance and 100 means that you are absolutely certain. The probabilities have to add to 100%."*

Table 4: Intervals Profit Question

Interval $[\Delta\Pi, \Delta\Pi')$	Employer's Probability $\pi_{[\Delta\Pi,\Delta\Pi')}$
Decrease of more than 15%	$\pi_{(-\infty,-15\%)}$
Decrease between 5 and 15%	$\pi_{[-15,-5\%)}$
A change between -5% and +5%	$\pi_{[-5,5\%)}$
Increase between 5 and 15%	$\pi_{[5,15\%]}$
Decrease of more than 15%	$\pi_{[15\%,\infty)}$

4. **Borrowing Constraints.** We measure the cost of liqudity in the state without layoff, r_0, representing the firm's baseline risk. The detailed survey methodology for this parameter is provided in Appendix C.5.

5. **Likely Adverse Event.** We create a measure of exposure, $Adverse_i$, equal to the number of possible adverse events that the employer believes are "likely" or "very likely", among: *"Problems with the domestic economy; New export barriers (e.g., tariffs); New import barriers (e.g., tariffs); Further devaluation of the Birr relative to the USD; High inflation; Availability of USD; Breakdown of machinery; Competitive pressure from Ethiopian firms; Competitive pressure from international firms."*

C.4 Firm Risk Aversion ρ

We give employers an endowment of 2,000 Birr and ask them how much of it, denoted by x, they would like to invest in a lottery on behalf of the firm. The lottery pays 2.5 times the amount invested with 50% probability, and 0 with 50% probability.

This means that the employer's final payoff will be:

- $2000 + 1.5x$ with 50 % probability
- $2000 - x$ with 50% probability

Intuitively, because the lottery has a positive expected return ($0.52.5x = 1.25x > x$), a risk-neutral employer would invest the entire 2,000 Birr. In contrast, a risk-averse employer will invest only part of the endowment, preferring to keep some amount certain.

We will estimate the risk aversion coefficient ρ assuming CRRA utility of the form $u(c) = \frac{c^{1-\rho}}{1-\rho}$. Maximizing expected utility and solving for the amount x that makes the employer indifferent between the two outcomes of the lottery gives an equation for ρ as a function of the amount x that the employer chooses to invest (Charness et al., 2013):

$$\rho = \frac{ln(1.5)}{ln\left(\frac{2000+1.5x}{2000-x}\right)} \tag{41}$$

C.5 Interest Rate on Borrowing, r

We measure at baseline the increase in the cost of liquidity during a shock, denoted by r in our model, by eliciting employers' willingness to accept a hypothetical loan. Specifically, we ask employers whether they would accept a loan at a given interest rate in two hypothetical scenarios: (i) no layoffs ($l = 0$) and no severance payments to be made to workers during the coverage period (from February 1st, 2026, to July 31st, 2026), and (ii) a layoff rate l of 10–15% of their workforce, with severance payments to be made during the same period.

For each scenario, we repeat the question across a range of decreasing interest rates. The lowest interest rates at which the employer is willing to accept the loan are recorded as $\hat{r}_0$ (no layoffs) and $\hat{r}_l$ (with layoffs). These rates represent the cost of liquidity for the firm, whether formally or informally sourced.

We define the increase in the cost of liquidity during a shock as

$$r = \hat{r}_l - \hat{r}_0.$$

This measure captures the additional cost of obtaining funds after a shock, net of the employer's baseline risk.

The survey includes the following questions:

$\hat{r}_0$: *"Now consider the scenario where you do not lay off any worker between February 1st, 2026, and July 31st, 2026, and you would have to pay 0 Birr in Severance payments. Suppose that this scenario happens in the real world and that a bank offered you a loan with an annual interest rate of 30 percent. This means that if you borrowed 10000 ETB, after one year you would need to repay 13000 ETB. Would you take this loan? Decrease interest rate to 25, 20, 15, 10, 8, 6, 4, 2. Stop asking the question when the person accepts the loan."*

$\hat{r}_l$: *"Now consider the scenario where you laid off between 0.1 and 0.15 % of your workers (Number of workers X expressed as integer). If these were permanent workers, based on what you told us, you have to pay $\bar{s} * X$ in severance pay. Suppose that this scenario happens in the real world and that we offered you a loan with an annual interest rate of 30 percent. This means that if you borrowed 10000 ETB, after one year you would need to repay 13000 ETB. Would you take this loan? Decrease interest rate to 25, 20, 15, 10, 8, 6, 4, 2. Stop asking the question when the person accepts the loan."*

At endline, we will measure r_{t+1}, the actual interest rate faced by the employer to raise liquidity and cover severance payments during the coverage period.

C.6 Liquidity, A

We measure at baseline and at endline employers' access to liquidity—and hence the extent of their liquidity constraints—using several alternative indicators.

- **Main Measure: Liquid Assets per Worker:**. We ask employers to report the total value of the firm's liquid assets (e.g., cash and bank deposits), and divide this by baseline employment. This provides a comparable measure of immediately accessible funds.
- We can also create three additional measures of liquidity:
  - **Total Assets per Worker:** We ask employers to report the total value of all assets owned by the firm and divide this by baseline employment. While some assets may be illiquid, others could potentially be sold or collateralized in response to a liquidity shock.
  - **Alternative Income Sources:** We ask employers to report their monthly earnings from any regular sources of income not related to the firm. This variable captures potential liquidity buffers outside the business.
  - **Sales to Liability:** We define $Sales\_Loan_i$ as the ratio of average monthly sales over the past 12 months to outstanding loans. This measure proxies the firm's typical revenue stream relative to its debt burden.

C.7 Severance Pay, $\bar{s}$

We construct two measures of employers' predicted severance pay per covered laid-off worker:

1. **Expected Severance Payment for Eligible Workers:** Employers are asked to report the average severance amount owed to a typical eligible worker. Specifically, the survey asks:

   "Think about all the permanent (our proxy for covered) *workers in your firms. What would be the average amount that you would have to pay to an eligible worker if you were to lay them off right now?"*

2. **Predicted Severance Pay for Eligible Workers,**: We obtain information on the average wage $\bar{w}$ and tenure $\bar{T}$ of permanent (our proxy for covered) workers and calculate the predicted severance pay using Equation (33).

C.8 Marginal Rates of Substitution

At baseline, right after the Severance Insurance intervention (introduced in Section 3 and detailed in Appendix B), we offer employers a new hypothetical (non-incentivized) insurance product. This product would cover 50% of the employer's severance obligations, up to a cap of 250,000 Birr, but only in a specific layoff state ($l = \hat{l}$) occurring during the coverage period (from February 1st, 2026, to July 31st, 2026). To ensure that the trade-off is exclusively between the two states $l = 0$ and $l = \hat{l}$, the premium is designed to be paid only if no layoffs occur during the coverage period ($l = 0$). In all other states of the world, payoffs remain unchanged.

We use this product to measure two specific marginal rates of substitution (MRS) at the employer level: $MRS_{0,[1-5\%)}$ for all employers, and one additional MRS randomly chosen among $MRS_{0,[10-15\%)}$, $MRS_{0,[30-50\%)}$, and $MRS_{0,100\%}$. The order in which layoff intervals are presented to each employer is random.

Specifically, the survey introduces the product with the following text:

(Lack of) Incentives: *"Now some questions about a new insurance product. These questions are hypothetical: we will not offer this new product for real."*

Product Details: *"As before, this new insurance product is designed to cover some of your severance pay liabilities for layoffs occurring between February 1st, 2026, and July 31st, 2026. We call this period of time the "insurance window". Also, as before, you would pay for this new insurance product out of a bonus that we would transfer to your firm. This bonus would be transferred in February 2026. The key difference between this new insurance product and the old one is that this new product only focuses on two scenarios: (i) the scenario in which you do not lay off any worker during the insurance window, and (ii) the scenario in which you lay off between* $0.01 * N_i$ *and* $0.05 * N_i$ *of your workers during the insurance window. At the end of February 2026: (i) if you have not laid off any workers, you will need to pay to us the price of the insurance product (by sacrificing a certain amount of the bonus that will be paid to your firm that month); (ii) if you have laid off between* $0.01 * N_i$ *and* $0.05 * N_i$ *of your workers, we will cover 50% of the cost of your severance pay liabilities, up to a cap of 250,000 Birr. (iii) If you have laid off any other number of workers, you do not pay for the product, nor you receive any benefit. Essentially, you can think of this product as tool to transfer resources from a scenario in which you firm will not lay off any workers to a scenario in which you firm has to lay off between* $0.01 * N_i$ *and* $0.05 * N_i$ *of your workers."*

Check 8: *Imagine that you laid off* $100(l_u + 0.05)$ *percent of your severance pay eligible workers. Would you receive any payout from this product? i.Yes ii.No (Correct Answer)*

Check 9: *Imagine that you laid off* $100(l_u + l_l)/2$ *percent of your severance pay eligible workers. Would you receive any payout from this product? i.Yes (Correct Answer) ii.No*

Reminder of Layoff Probability: *Before deciding whether to buy the product or not, think about how much you would value the benefits in case layoffs between* $0.01 * N_i$ *and* $0.05 * N_i$ *employees occur, and remember that you told us that the probability that you will lay off between* $0.01 * N_i$ *and* $0.05 * N_i$ *employees during the insurance window is* P_l.

If expect no layoffs, we continue with the following text: *Notice that the product is designed to support firms to pay the severance pay costs that arise if you lay off between* $0.01 * N_i$ *and* $0.05 * N_i$ *employees. So, if you are certain that you will not lay off between* $0.01 * N_i$ *and* $0.05 * N_i$ *employees, you may not need the product. Please let us know if you want to revise your answers regarding the probability of future layoffs before continuing."*

Exact question: *"Which of the following would you prefer? Option 1: Do not purchase the new product. Option 2: Pay* P_1[35] *Birr (*Pw_1 *Birr per eligible worker) and purchase the new product."* The question is repeated replacing $P1$ and $Pw1$ with $P2, \dots, P15$ and $Pw2, \dots, Pw15$ respectively.

Confirmation: *This means that the maximum amount you are willing to give up from your P1 Birr bonus to be covered by this insurance product is less than pi*Nc Birr and more than (pi-1)*Nc Birr. Is this correct? a. Yes b. No, lower. c. No, higher.*

Alternative Layoff Interval: Then, we randomize q among: "Between 10 and at most 15% workers"; "More than 30% and at most 50% workers"; "All your workers" and ask repeat the same set of questions for one of these different layoff intervals: *"Now I am going to ask you about your interest in a very similar insurance product that is focused on two scenarios. This time, the two scenarios are: (i) you do not lay off any workers, and (ii) you lay off* q *of your workers..."*

Confirmation: *This means that the maximum amount you are willing to give up from your P1 Birr bonus to be covered by this insurance product is less than pi*Nc Birr and more than (pi-1)*Nc Birr. Is this correct? a. Yes b. No, lower. c. No, higher.*

C.9 Descriptive Behavioral Responses to Severance Insurance

At baseline, we construct self-reported, employer-level qualitative measures of anticipated behavioral responses to Severance Insurance. These measures capture employers' expectations for key firm outcomes predicted by our theoretical framework to respond to insurance coverage. Specifically, we focus on the layoff rate $\bar{l}$, firm size N, the share of covered hires c,

[35] $P1$ is firm-specific and calculated and the maximum price the firm could pay in the elicitation exercise (7500 Birr * number of covered employees).

and the share of covered layoffs α (Hypotheses MH2, FS2, CH2, and CL2, Table 1). Expectations are elicited for the period from February 1st, 2026, to July 31st, 2026, our Severance Insurance coverage period, both under the status quo without insurance ($I = 0$) and under a hypothetical scenario in which Severance Insurance is offered with a 50% replacement rate ($HI = 1$).

We construct the following employer-level outcome variables under each scenario:

- **Expected Layoff Rate, $\bar{l}$:** Defined as in Appendix C.3.2.
- **Expected Firm Size, $\bar{N}$:** Computed as: $\bar{N} = N + \bar{H} - \bar{L} - \bar{Q}$, where N is the current number of workers, and $\bar{H}$, $\bar{L}$, and $\bar{Q}$ are the employer's expected number of hires, layoffs, and quits, respectively.
- **Expected Share of Covered Hires, $\bar{c}$:** Calculated as $\bar{c} = \frac{\bar{H}^c}{\bar{H}}$, where $\bar{H}^c$ denotes expected hires of permanent (i.e., severance-eligible) workers.
- **Expected Share of Covered Layoffs, $\bar{\alpha}$:** Calculated as $\bar{\alpha} = \frac{\bar{L}^c}{\bar{L}}$, where $\bar{L}^c$ denotes expected layoffs of permanent workers.

We elicit these expectations under both policy scenarios as follows:

Scenario 1: No Insurance ($b = 0\%$). We begin by asking about expectations prior to introducing severance payments or severance insurance. This scenario is approximated by an insurance with replacement rate $b = 0\%$. We anchor their responses by providing information on the distribution of layoffs observed in a similar context, as detailed in Appendix C.3.2. Specifically, the survey asks:

- **Expected Hires, $\bar{H}$:** *"What do you think? How many workers will you hire in the six months from February 1st, 2026, to July 31st, 2026?"*
- **Expected Layoffs, $\bar{L}$:** *"What do you think? How many workers will you lay off in the six months from February 1st, 2026, to July 31st, 2026? Please include all workers, regardless of contract type."*
- **Expected Quits, $\bar{Q}$:** *"What do you think? How many workers, on average, will quit during the six months from February 1st, 2026, to July 31st, 2026?"*
- **Expected Covered Hires, $\bar{H}^c$:** *"What do you think? How many workers with a permanent contract will you hire in the six months from February 1st, 2026, to July 31st, 2026?"*

- **Expected Covered Layoffs, $\bar{L}^c$:** *"What do you think? How many workers with a permanent contract will you lay off in the six months from February 1st, 2026, to July 31st, 2026?"*

- **Expected Churn H^{Churn}** :*What do you think? How many of the H workers you plan to hire in the six months from February 1st 2026 to July 31st 2026 would be hired to directly replace workers you plan to lay-off in the same period?*

- **Low Wage Layoffs:** *What do you think? How many of the workers you plan to lay off in the six months from February 1st 2026 to July 31st 2026 have below average wage?*

Scenario 2: Hypothetical Insurance ($Hb = 50\%$). In the final section of the survey, we re-elicit employers' expectations under a hypothetical scenario in which the firm is covered by Severance Insurance with a 50% replacement rate. The hypothetical setup is introduced as follows:

> *"Now imagine that you are randomly selected to purchase insurance against having to pay severance pay. That is, you would receive 50% of the severance pay you owe workers in the six months from February 1st, 2026, to July 31st, 2026. We would like to ask you about the likelihood that you will lay off any type of workers during this 6-month insurance eligibility period. Please think carefully about your answers so that they reflect what you really think. Your response will not affect your chances of being selected to receive the insurance product."*

Employers are then asked the same questions as in the baseline scenario, now anticipated by the following prompt:

> *"What do you think? If you win the lottery and the severance pay per worker is reduced by 50%, how many workers will you..."*

The difference in expectations across the two scenarios, defined in Equation (31), serves as a qualitative measure of employers' anticipated behavioral responses to Severance Insurance.

C.10 Realized Risk, Y_{t+1}

We rely on the following three measures of realized risk and insurer costs measured at endline:

1. **Realized Layoff Rate, l_{t+1}:** The survey asks employers how many workers were laid off (L_{t+1}) between February 1st, 2026, and July 31st, 2026. We calculate the realized

layoff rate as the ratio of laid-off workers to baseline firm size (N_t):

$$l_{t+1} = \frac{L_{t+1}}{N_t}.$$

2. **Severance Payments Made to Workers, s_{t+1}:** The survey asks employers to report the total amount of severance payments made to workers between February 1st, 2026, and July 31st, 2026, expressed in Birr.

3. **Predicted Severance Benefit in Absence Moral Hazard, b_{t+1}:** This measure estimates the counterfactual cost to the insurer had these employers been enrolled in Severance Insurance. It provides a lower bound on actual insurer costs, as it does not account for behavioral responses to insurance coverage, such as changes in layoff behavior or firm size and composition. $b_{t+1} = \max\{0.5\, s_{t+1},\ 250{,}000 \text{ Birr}\}$

C.11 Hypothetical Risk with Moral Hazard, Y_{t+1}^{MH}

We create hypothetical measures of the layoff rate, severance pay, and insurer costs that would have occurred at endline if employers had been covered by severance insurance. These measures are based on each employer's self-reported anticipated increase in the layoff rate under the hypothetical scenario of being covered by severance insurance with a replacement rate equal to 50%, calculated in Equation (31). Let $\Delta\%\bar{l}$ denote the percentage increase in the expected layoff rate between the case of no insurance and the hypothetical scenario with insurance. We then define the following outcomes:

1. **Hypothetical Layoff Rate with Moral Hazard:** $l_{t+1}^{MH} = l_{t+1}(1 + \Delta\%\bar{l})$

2. **Hypothetical Severance Payments Made to Workers with Moral Hazard:** $s_{t+1}^{MH} = s_{t+1}(1 + \Delta\%\bar{l})$, as the share of covered layoff remains constant when the layoff rate increases.

3. **Predicted Severance Benefit with Moral Hazard:** $b_{t+1}^{MH} = \max\left\{0.5\, s_{t+1}^{MH},\ 250{,}000 \text{ Birr}\right\}$

D Survey Instruments' Design

The **baseline survey** includes six modules, presented in Table 5. Module 1 collects consent and contact information to maximize our ability to reconnect with respondents for the notification of their insurance status and the endline survey. Module 2 gathers information on the employer's demographics, including age, education, and risk and time preferences, as well as their role in the firm and other income sources. Module 3 focuses on firm characteristics, such as age, size, sector, workforce composition (covered and non-covered workers), wages, sales, profits, loans, and assets. Module 4 assesses the employer's expectations about hires, layoffs and quits of all and of covered workers, as well as questions on their knowledge of severance payments, including the predicted severance amount, financing methods, and the cost of raising liquidity under alternative scenarios. Module 5 measures employers' willingness to pay for Severance Insurance by offering the product at two different replacement rates and ten different prices. It then elicits willingness to pay for hypothetical products that provide coverage for layoffs occurring within specific intervals, used to calculate specific marginal rates of substitutions between layoff states. Finally, Module 6 assesses the employer's expectations about hires, layoffs and quits of all and of covered workers under an hypothetical scenario of insurance coverage.

The **endline survey** consists of four modules, presented in Table 6. Module 1 collects renewed consent. Module 2 measures realized risk during the coverage period, including the realized layoff rate, severance payments made, and the characteristics of laid-off workers. Module 3 focuses on the financing of severance payments, capturing how employers mobilized funds,, any difficulties encountered, coping strategies adopted, and the broader financial consequences for the firm. Module 4 updates firm-level information, including firm size and composition, recent changes in employment, wages, sales, profits, assets, loans, costs of raising liquidity, and outlook expectations.

Table 5: Baseline Survey Structure

No.	Module	Variables To Collect
1	Introduction	Consent; contact information
2	Employer Demographics	Age; gender; education; time preferences; risk aversion; role in the company; other income sources; etc.
3	Firm Characteristics	Location; age of the firm; sector; number of covered and non covered employees, their wages and productivity; sales, profits, and their variability; assets; loans; recent changes in employment and wages; outlook expectations; etc.
4	Severance Pay	Expectations about hires, layoffs, and quits of all and workers and covered workers; familiarity with severance payments; predicted severance pay per covered worker and per worker at risk of layoff; ability to cover severance costs; cost of raising liquidity under alternative layoff scenarios; etc.
5	Willingness to Pay for Severance Insurance and Marginal Rates of Substitution	Offer to purchase insurance at different replacement rates and prices; elicit marginal rates of substitutions between different layoff states.
6	Hypothetical Insurance Scenario	Expectations about hires, layoffs, and quits of all and covered workers under hypothetical insurance coverage.

Table 6: Endline Survey Structure

No.	Module	Variables To Collect
1	Introduction	Consent; updated contact information
2	Realized Risk	Realized layoff rate; severance payments made; characteristics of laid-off workers; etc.
3	Severance Payments	Fund sources; payment method; difficulties in making payments; time required to mobilize funds; coping strategies to cover severance; consequences of severance payments on the firm; etc.
4	Updated Firm Characteristics	Number of covered and non-covered employees; recent changes in employment and wages; sales, profits; assets; loans; costs of raising liquidity; outlook expectations; etc.