The Gender Pay Gap in Startup Employment

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Abstract

We examine the gender pay gap in startups, uncovering a disparity in financial returns between men and women employed in startup roles. We propose that relative to their male counterparts, female employees experience lower financial returns from startup employment than from employment in incumbent firms. We theorize that this "entrepreneurial employment penalty" arises from the inherently ambiguous and less transparent nature of startup compensation. Negative stereotypes about women's workplace commitment lead to a discount in women's equity-based pay, which is characterized by higher ambiguity and less transparency than traditional salaries. Drawing on matched employer–employee data from Finland, we find notable gender disparities in equity allocation and the resulting long-term financial returns from startups. Furthermore, our analysis reveals that the gender pay gap in equity is exacerbated for women with childcare responsibilities but is reduced when startups are required to increase ownership transparency or face financial constraints.

1. INTRODUCTION

Despite women's significant strides in the labor force and their increased contribution to household income (Bittman et al. 2003; Brines 1994; Meisenbach 2010; Tichenor 2005), the gender wage gap remains one of the most persistent features of modern labor markets (England 2005; Gupta, Mortal and Guo, 2018; Kulich et al., 2011; Huffman Lyons and Zhang, 2023). While numerous studies have examined the mechanisms behind this gap in incumbent firms (Baron, Davis-Blake, and Bielby 1986; Elvira and Graham 2002), relatively little attention has been directed toward exploring these disparities in startups. This oversight is particularly striking, given that the entrepreneurial ecosystem—with its emphasis on innovation and disrupting entrenched structures (e.g., Barron, Burton, and Hannan, 1999; Gans, Stern, and Wu, 2019; Shane and Venkataraman, 2000)—is often seen as a potential equalizer, capable of mitigating traditional barriers to advancement (e.g., Hwang and Phillips, 2024; Pongeluppe, 2024; Yang, Kacperczyk, and Naldi, 2024). However, while startup firms might be viewed as a corrective force in the labor market, whether they amplify or mitigate gender disparities in pay remains an open question.

In this study, we shift our focus from the well-documented gender pay gap in incumbent firms to examine compensation disparities within startups. We propose that the gender pay gap is likely to be more pronounced in startups than in incumbent firms, with women capturing relatively less value in new ventures than in traditional employment. We attribute this disparity to the less transparent, more ambiguous nature of pay structures in startups, as new ventures are often exempt from disclosure and reporting obligations (Booth, 2006; Galustian, 2024). Drawing on sociological theories positing that ambiguity facilitates workplace discrimination (e.g., Castilla, 2008; Castilla and Benard, 2010; Reskin and McBrier, 2000), we expect that this greater opacity in compensation practices among startups than among incumbent firms will create opportunities for employers to discriminate against women. Specifically, we predict that gender pay disparities will be more pronounced for equity-based compensation than for cash compensation, given that equity tends to be less regulated

and more opaque (e.g., Galustian, 2024).[1] Finally, we anticipate that this inequality in equity-based compensation will result in a long-term wealth gap between women and men employed in startups.

To further explore the predicted mechanisms, we evaluate how the gender gap in equity pay varies systematically across three key factors: (a) the equity-based compensation disclosure regime, (b) the financial constraints imposed on the firm, and (c) the prominence of employer bias. First, if gender disparities in equity compensation reflect ambiguity-induced employer bias, such disparities will narrow when transparency in reporting equity compensation increases, limiting employers' ability to engage in discriminatory practices. Conversely, less transparent regimes will likely exacerbate the gender pay disparities because opacity provides more opportunities for negative stereotypes to influence the wage-setting process.

Second, we examine the impact of financial constraints imposed on the firm. Building on theories suggesting that financial pressures may compel firms to reduce costly discrimination (e.g., Becker, 1957), we hypothesize that startups facing financial constraints will be less able to afford the inefficiencies associated with discriminatory practices. Consequently, the gender gap in equity compensation will be narrower in financially constrained startups, given that these firms are more likely to allocate pay based on merit rather than gender and other ascribed characteristics.

Finally, we examine whether gender pay disparities in startups subside when employers' negative bias against women tends to diminish. First, drawing on research documenting that employers are more likely to discount women with family and childcare obligations—perceiving them as less committed to their jobs and more likely to prioritize family duties (Budig and England, 2001; Correll et al., 2007; Hochschild, 2012; England et al., 2016; Goldin, 2014)—we expect that the equity pay penalty will be mitigated for women with fewer childcare obligations. In addition, because female employees might be perceived as more legitimate in female-founded startups (Engel et al., 2023; Campero and Kacperczyk, 2021) or in startups with a higher proportion of female employees

[1] Although equity-based compensation has become a cornerstone of startup remuneration strategies (Ederer and Manso, 2013; and Marler, 2006), its allocation is often shrouded in opacity and ambiguity, as compared to allocation of short-term compensation such as cash salaries. In many countries, the process of offering stock-based compensation lacks transparency in the private market, without any requirements that private issuers disclose information regarding their capital structure or fair market value to their employees. In addition, there is often minimal regulatory oversight of stock-based compensation programs in the private market, making this form of compensation especially opaque and ambiguous (Galustian, 2024).

(Castellaneta et al., 2024), we expect gender disparities in equity pay to decline further in those environments.

Assessing gender differences in equity compensation presents several nontrivial empirical challenges. Startups often operate in dynamic and informal environments, where their compensation structures—frequently including equity components (Booth, 2006, Galustian, 2024)—are less standardized relative to those of incumbent firms. The lack of systematic data on equity compensation in private firms further complicates the accurate measurement of these pay components. Additionally, testing the predicted mechanisms behind gender disparities in compensation requires individual-level data that can track employment spells, compensation trajectories, and other relevant variables with precision.

We address these empirical challenges by leveraging employee–employer matched data from Finland, which provide comprehensive information on compensation across the entire population of early-stage startup employees. This dataset allows us to observe various individual-level compensation components, including cash payments, residual returns, and equity-based earnings. With these detailed data, it is possible to disentangle the different compensation elements and examine how startups allocate equity-based compensation to women and men. Finally, our dataset enables us to compare the compensation outcomes for employees in startups with those in incumbent firms, offering a clearer understanding of how compensation structures—and the gender disparities within them—differ across firm types. By precisely analyzing employment spells, we can evaluate how startup employment affects earnings over time, particularly with respect to long-term wealth accumulation through equity ownership.

Our study makes two contributions to the literature. First, our findings add to the growing line of research on the gender wage gap, which has primarily focused on incumbent firms (e.g., England 2005; Gupta, Mortal and Guo, 2018; Kulich et al., 2011; Huffman and Velasco 1997; Lyons and Zhang, 2023: Reskin 2000; Tomaskovic-Devey and Skaggs 2002). Whereas traditionally little attention has been devoted to startups, our findings document the critical role of transparency in influencing the gender pay gap in new ventures. We find that gender pay disparities not only persist

but are exacerbated in the startup context, affecting primarily equity-based rewards—a less transparent form of compensation.

Second, our study advances research on the temporal aspects of compensation systems (e.g., Gomez-Mejia and Balkin, 1992; Milkovich, 1988). Previous research has predominantly associated long-term compensation with fostering innovation and R&D investments (e.g., Gomez-Mejia and Balkin, 1992; Hoskisson et al., 1989; Ederer and Manso, 2013). Our analysis shifts the focus toward the distribution of long-term compensation among different demographic groups within firms, with a particular emphasis on gender. We show how firms strategically allocate long-term compensation, such as equity, across various types of workers, including women. Therefore, our findings extend ongoing conversations by documenting that equity-based pay, often seen as a tool for incentivizing risk-taking and commitment (Coff, 1997; Ederer and Manso, 2013), might inadvertently amplify and perpetuate gender inequalities. More generally, by highlighting how firms' compensation strategies might differ between men and women, we contribute to a deeper understanding of how organizational practices regarding long-term rewards impact gender equity, potentially influencing women's long-term wealth accumulation and career trajectories.

2. THEORY

2.1 Past research

Despite recent strides in narrowing the gender wage gap, a well-established body of work continues to document its persistence (England 2005; Gupta, Mortal and Guo., 2018; Huffman and Velasco 1997; Kulich et al., 2011; Lyons and Zhang, 2023). The prevalence of the gender wage gap is particularly striking because it spans a broad range of occupations, industries, and geographic regions (e.g., Cha and Weeden, 2014; Huffman and Velasco, 1997; Reskin, 2000; Tomaskovic-Devey and Skaggs, 2002). These disparities endure even when factors such as education, experience, and job performance (Lyons and Zhang, 2023) are controlled, indicating that more subtle forms of gender bias and discrimination still affect wage outcomes.

Theories of gender pay disparities emphasize two broad factors responsible for wage differences between women and men: individual attributes and structural barriers.

First, studies focused on individual attributes have highlighted gender differences in risk-taking propensity (Barbulescu and Bidwell, 2017), confidence and a sense of belonging (e.g., Blau and Kahn, 2016; Aran and Murciano-Goroff, 2021), and work experience—all of which contribute to gender sorting across occupations, industries, and tasks (e.g., Campero, 2021; Tomaskovic-Devey and Skaggs, 2002). Second, much research focused on structural factors has indicated the prevalence of external barriers that substantially disadvantage women in pay. Most prominent among these barriers are the childcare obligations and work–family conflicts, coupled with traditional gender norms and identity, which are seen as influential in maintaining wage differences between men and women (e.g., Cha 2010, Cha and Weeden 2014, Raley et al. 2012; Blair-Loy 2003, England 2010, Hochschild 2012). For example, women's disproportionate childcare responsibilities can create stark differences between men and women in hours worked or in workforce interruptions, especially for highly skilled women (e.g., Cha 2010, Hochschild 2012, Yang et al., 2024). These responsibilities also contribute to potential and current employers' biased perceptions of women's future commitment (e.g., Budig and England, 2001; Correll et al., 2007; England, 2010). Hence, this line of research suggests that working mothers face systematic barriers to advancement due to employer discrimination and institutional conditions that limit their pay and promotion chances to more lucrative and powerful positions (Budig and England, 2001; Gorman and Kmec, 2009; Hochschild, 2012; Petersen et al., 2014).

Although research has significantly advanced our understanding of the gender pay gap in established corporate environments, the nature of the gender pay gap in startups remains far from clear. The conventional wisdom suggests that startups, as innovative and disruptive environments, can successfully challenge established norms and structures, leading to social mobility and status attainment (e.g., Barron, Burton, and Hannan, 1999; Hwang and Phillips, 2024; Pongeluppe, 2024; Yang et al., 2024). For example, the flatter hierarchies and more flexible work arrangements typically associated with startups (e.g., Hurst, Lee, Frake, 2024; Lehiri et al., 2019) might lead to a more inclusive workplace, reducing gender-based disparities. In addition, the entrepreneurial ethos of innovation and meritocracy in startups might eliminate discriminatory practices, fostering more meritocratic cultures where traditional barriers to advancement are less entrenched (e.g., Wright and Zahra, 2011). As one CEO described:

> Startups are the ultimate form of meritocracy. In a sense, you eat what you kill. You have a greater ability to make a contribution that is meaningful, measurable and can provide you a great satisfaction. You can typically operate on a higher level and you don't have to work your way through all those layers of bureaucracy. (Webber, 2019)

Although the link between startup employment and reduced gender pay disparities is plausible, there are also reasons to question this view. First, sociological research has shown that ambiguity and limited transparency can increase the likelihood of employers' biased decision-making (e.g., Castilla, 2008; Castilla and Benard, 2010). Second, startups often lack the structure and processes prevalent in incumbent firms (Stinchcombe, 1965; Sine, Mitsuhashi, and Kirsch, 2006), which can further exacerbate issues of limited transparency. Thus, in tandem, these studies suggest an alternative prediction: that startup employment might exacerbate rather than reduce gender disparities in pay.

Given the lack of clear evidence that startup employment can narrow the gender gap among startup employees, we examine the alternative view emphasizing ambiguity and limited transparency. Specifically, we hypothesize that female startup employees will experience a greater pay penalty than those in incumbent firms, primarily due to the opacity surrounding startup compensation, especially equity-based pay. In what follows below, we propose that the lack of transparency in equity pay might lead to greater employer reliance on negative stereotypes about women, intensifying the gender wage gap within startups relative to incumbent firms.

2.2 Evaluative ambiguity and employers' discriminatory practices

Ample research has found that uncertain or unclear contexts can prompt employer discrimination, biasing key employment outcomes, such as promotions, negotiations, evaluations, and hiring across organizational settings (e.g., Castilla, 2008, Castilla and Benard, 2010, Cullen, 2024; Lyons and Zhang, 2023). For example, when assessment criteria are ambiguous, managers are more likely to rely on gender and racial stereotypes in making promotion decisions. This effect is particularly pronounced for positions higher in the organizational hierarchy, where job responsibilities and performance metrics are often less clearly defined (Castilla, 2008). In addition, decision-makers tend to exhibit more gender bias when the criteria for evaluating merit are ambiguous or standards are unclear (Castilla, 2010). In such situations, the veneer of objectivity provided by meritocratic values

further legitimizes employers' biased decision-making. Similarly, numerous studies found that in hiring settings where qualifications or job criteria are ambiguously stated, or job descriptions use unclear and abstract language, evaluators tend to rate male applicants as significantly more competent and suitable for the position than comparable female applicants. This bias leads to higher starting salaries and more career mentoring for male candidates (Heilman, 2001; Johnson, 2016; Moss-Racusin et al., 2012). Thus, ambiguity in job requirements triggers the use of stereotypes to fill in the gaps, resulting in gender-based discrimination in hiring decisions and subsequent career support. Finally, in the context of negotiations, women who initiated negotiations were penalized relative to men, when the appropriateness of negotiating for higher compensation was ambiguous (e.g., Bowles, 2005; Kray, Thompson, and Galinsky, 2001).

Collectively, these studies demonstrate that the absence of clear, evaluative criteria creates a permissive environment for the expression of employers' implicit bias and stereotypes, particularly in high-stakes decisions that can significantly impact individuals' compensation and career trajectories. Important to the question at hand, the potential of ambiguity and lack of transparency to foster reliance on negative gender stereotypes might lead to disproportionately wider pay gaps in startups relative to more mature firms. In particular, we propose that new ventures are likely to have pay structures characterized by greater ambiguity and lower transparency compared to incumbent firms, which may contribute to a wider gender pay gap in these fledgling ventures.

2.3 Gender pay gap in startups: The role of equity compensation

We propose that pay structures in startups are likely to be characterized by greater ambiguity and lower transparency than incumbent firms for at least three reasons: (a) the lack of formalized compensation processes, (b) limited public disclosure, and (c) the reliance on equity-based compensation.

First, due to the absence of formalized processes and structures, along with the fluidity of job roles (e.g., Sine, Mitsuhashi and Kirsch, 2006; Stinchcombe, 1965), new ventures often lack structured compensation frameworks with well-documented, standardized pay scales and promotion criteria (Bhide, 1992; Weber, 1978). Indeed, research indicates that startups prioritize agility and competitiveness in attracting top talent (Honore and Ganco, 2023), frequently making ad-hoc

compensation decisions, with founders and early-stage leaders focusing more on talent acquisition than on establishing clear pay policies. Consistent with this claim, Colaiacovo (2023), using surveys and experimental methods, found that instead of relying on paid consultants or wage benchmarking data, compensation decisions in startups are deeply founder-driven—heavily influenced by available information, word of mouth, and the founder's prior experience. Importantly, the lack of clear benchmarks or internal systems for evaluating and managing pay is likely to introduce ambiguity, which may increase employers' (intentional as well as unintentional) reliance on gender stereotypes in determining compensation.

Second, unlike public companies, private startups are generally not required to disclose detailed financial information (Palmer and Weiss, 2022; Oranburg, 2015). This lack of financial transparency, coupled with the absence of standardized reporting requirements, makes it difficult for employees to benchmark compensation offers against market norms (Ewens and Farre-Mensa, 2020). Yet, when compensation decisions are less transparent, employees have fewer opportunities to make comparisons, making it difficult to detect discriminatory practices and unfair treatment. Thus, the lack of transparency and disclosure in startups will likely foster significant pay gaps, potentially leading to greater reliance on gender stereotypes in these new ventures.

Finally, the ambiguity surrounding compensation in startups is further exacerbated by the employers' reliance on risk-bearing compensation schemes, such as equity grants and stock options (Coff, 1997; Hall and Murphy, 2003). Equity compensation is an efficient tool for incentivizing performance (Anderson et al., 2000; Ederer and Manso, 2013), recruiting top talent without depleting cash reserves (Hellmann and Thiele, 2019; Wasserman, 2012), and retaining key employees and managers over the long term (e.g., Frye, 2004; Ittner et al., 2003; Sesil et al., 2007). However, this kind of compensation might also introduce a high degree of uncertainty for employees (Booth, 2006), in part because regulatory frameworks governing startup compensation —particularly equity-based pay—are often less developed compared to those for standard wages or compensation in public companies (e.g., Fried and Ganor, 2006). Therefore, the value of stock options or grants remains

highly speculative, especially in early-stage startups (Carpenter, 1998).[2] Indeed, one recent study shows that employees' understanding of the value of equity-based compensation is often limited, especially among entry-level workers, who particularly struggle to assess the value of their compensation packages in relation to equity (Arat and Mucriano-Goroff, 2023). This lack of understanding of equity compensation leaves many employees uninformed about their financial entitlements and allows employers to exploit this ambiguity, potentially justifying pay disparities without facing employee resistance.

Overall, the combination of fluid roles, evolving company priorities, the lack of disclosure requirements, and a reliance on uncertain and difficult-to-value equity stakes makes compensation more opaque in startups than in incumbent firms. This opacity is likely to create conditions ripe for employer discrimination, reducing employer accountability and contributing to a greater gender pay gap in startups. Hence, we anticipate that compared with incumbent firms, startups will amplify gender pay disparities, with women capturing less value in new ventures than in traditional corporate employment relative to men. We also expect this disparity to be systematically more pronounced in equity-based compensation than in cash-based compensation, given that the former is generally less transparent and more ambiguous:

> Hypothesis 1 (H1): *Gender pay will be amplified in startups relative to incumbent firms, with women earning less than men.*
>
> Hypothesis 2 (H2): *The gender pay gap will be more pronounced in equity than in cash compensation in startups relative to incumbent firms.*

2.4 Mechanisms: Cross-sectional heterogeneity

We conduct additional analyses examining how the predicted gender gap in equity pay varies systematically with three key factors: (a) compensation disclosure, (b) firm financial constraints, and (c) the prominence of employer bias. If ambiguity and limited transparency in startup firms promote employer compensation bias, we expect gender disparities to be less pronounced under the following conditions: (a) increased disclosure of pay, particularly regarding equity compensation, making it

[2] Unlike publicly traded companies, where stock prices provide a clear market-based valuation, startups often have complex capital structures involving multiple funding rounds, preferred stock, and liquidation preferences—all of which obscure the true value of equity compensation (Gornall and Strebulaev, 2020).

more difficult for employers to apply subjective judgments in determining compensation; (b) stronger financial constraints on startups, which raise the cost of discrimination against women (Becker, 1965); and (c) a diminishing employers' reliance on negative stereotypes against women.

First, ample research has demonstrated that organizations that increase pay transparency often witness significant declines in gender and racial gaps in performance-based rewards (Cullen, 2024; Lyons and Zhang, 2023; Rivera and Tilcsik, 2019). We therefore expect increased transparency in equity-based pay to reduce biased decision-making around its allocation, leading to a decrease in the gender equity pay gap in new ventures:

> Hypothesis 3 (H3): *The gender pay gap in equity compensation within startups will decrease with increased transparency of equity compensation.*

Second, Becker's (1957) theory of discrimination posits that discrimination is a costly pursuit for employers. Thus, we anticipate that as financial constraints increase, the willingness to discriminate against women will become more costly for startups, potentially outweighing any preference for this biased behavior. Indeed, when labor markets are tight and companies face difficulties in filling positions, experiencing a form of constraint, they tend to refrain from using discriminatory hiring practices because discriminatory behavior becomes prohibitively costly (Dechief and Oreopoulos, 2012). Extending this logic to compensation practices in startups, we expect that when startups face stronger financial constraints, they will be less likely to penalize women in terms of pay during the hiring process:

> Hypothesis 4 (H4): *The gender pay gap in equity compensation within startups will decrease as startups face greater financial constraints.*

Finally, a prominent source of employer bias is women's childcare obligations. Prior research has shown that employers are especially prone to discounting women with childcare obligations, perceiving them as less committed to their work and more willing to prioritize family responsibilities at the expense of their job duties (Budig and England 2001; Correll et al. 2007; England et al. 2016; Goldin 2014; Hochschild 2012). Even when mothers demonstrate high competence and commitment, they face discrimination in hiring and promotion decisions due to perceived violations of ideal-worker norms (Bernard and Correll, 2010), based on stereotypes about women's lack of work dedication and the belief that they prioritize family responsibilities over career (Budig and England 2001; Correll et

al. 2007; England et al. 2016; Hochschild 2012). Importantly, these negative perceptions are especially relevant in startups, where long hours and significant human capital investment are critical for developing new products and acquiring early customers (Honore and Ganco, 2023; Kacperczyk, Younkin and Rocha, 2022). We therefore stipulate that the gender gap in equity compensation will be less pronounced for women with fewer childcare obligations, given that these women are generally less vulnerable to employer bias regarding work commitment.

As an additional condition influencing employer bias, we consider women's perceived legitimacy in startups. Consistent with the homophily principle (McPherson, Smith-Lovin and Cook, 2001), women founders are more likely to recruit other women as employees, perceiving them as more legitimate or better suited hires for startup roles (Campero and Kacperczyk, 2020, Engel et al., 2023). For example, Campero and Kacperczyk (2020) found that women job candidates in high-tech labor markets were more attracted to women-founded startups, presumably because they expected better recruitment prospects due to gender homophily. Similarly, women may face a smaller pay discount in startups with a larger share of women employees, as negative bias is less likely to affect employer decisions in such settings. For example, Engel et al. (2023) show that female job candidates were more attracted to startup jobs with a higher representation of women, viewing these employers as less discriminatory and thus more attractive or more appealing. Therefore, we expect the gender gap in equity compensation to be mitigated for women working in female-founded startups or in startups with a higher share of female employees.

> Hypothesis 5 (H5): *The gender pay gap in equity compensation within startups will be mitigated for (a) women with fewer childcare obligations, (b) women working in startups founded by women rather than men, and (c) women working in startups with a higher representation of female employees.*

3. DATA AND METHODS

Empirically assessing differences in startup compensation by gender is challenging because it is often difficult for researchers to observe equity pay and detailed employment spells in privately owned firms. We address these empirical challenges by exploiting matched employee–employer data from Finland that permit the observation of short-term (i.e., cash payments) and long-term (i.e., equity-based) earnings for the entire population of startup and nonstartup employees. This dataset includes

detailed information on salaries, equity shares, residual returns, and employment spells. Thus, our data provide a unique and advantageous setting in which employment spells can be precisely measured and compared with expected earnings from traditional and startup employment. The core data for our analysis come from the Finnish FOLK contract-level dataset, which includes all employment contracts between firms and their employees in Finland. We supplement these data with the firm-level Financial Statement Statistics, which contain annual financial data for all active Finnish firms. Additionally, we incorporate individual-level share ownership data from the FLOWN share ownership panel, which provides a linked firm-individual annual panel of ownership shares for all Finnish firms. We exclude holding companies between firms and their owners before merging the data. Finally, we include individual-level background information from other FOLK datasets, offering detailed personal, educational, income, and family information for all working-age individuals living in Finland.

Our target sample consists of 2,212,504 unique workers, who represent 63% of all active workers in Finland between 2006 and 2018. Of those workers, 556,542 individuals worked at a startup at least once. Finally, 34% of startups offered equity compensation to employees, and 43% of all startup joiners in our data joined these equity-granting startups.

3.1 Dependent variables

3.1.1 Total earnings

The outcome of primary interest is the individual's *total earnings*, measured as the sum of salaried earnings and residual returns (i.e., capital gains) from the focal employer. We track salaried earnings for the individual's full duration in the workforce, even after transitioning to other employers. Because residual returns are firm-specific, we track only those residual returns associated with the focal employer, including any returns that continue after the individual leaves the company (as detailed below).

3.1.2 Residual returns

The *residual returns* to entrepreneurship are the capital gains earned from the focal employer, which can consist of dividends from the focal firm or capital income in the year shares owned in the focal firm are sold. Shares can be sold at any point, even when the worker is no longer associated with the

focal employer. Therefore, in our main analysis, we monitor these income streams for as long as the worker remains an active participant in the workforce. For example, if an individual left employer A in 2013 to move to employer B, we would continue tracking the individual's residual returns from employer A even after 2013, while they are employed at employer B.

3.1.3 Cash compensation

We measure long-term cash compensation (*salaried earnings*) as the total salary earned after the start of the focal employment stint and for the entire duration that the worker remains in the workforce. For startup joiners, we also assess short-term cash compensation (*startup salary*): the salary earned during the first full year at the focal startup. We focus on first-year compensation because research has shown that employer bias is more acute at the entry stage due to the weak signals of employee productivity (e.g., Altonji and Pierret, 2001). As a control, we include *previous salary* which refers to the salaried income earned in the year before joining the focal firm. Long-term salaried earnings are drawn from an annual panel for all future years of the worker. Residual returns are collected for all future years for the worker–firm pair. Nevertheless, our results are robust to a panel approach in which residual returns are observed only for the years of employment at the focal firm (Appendix Table A5).

3.1.4 Equity

We also consider the *equity share* allocated to a worker at the time of hire or during the first year of employment. This variable could be affected by the increased presence of employer bias at the entry stage. In addition, a significant portion of an employee's equity is granted upon joining the company, given that equity as compensation is taxed as income, with the tax amount dependent on the company's current value. Thus, the initial equity grant serves as a useful proxy for the long-term equity allocation. Nonetheless, our estimates remain robust when we use alternative measures of employee equity allocation beyond the point of hire. We compute the initial equity share by dividing the worker's shares owned in the focal firm at the end of the first year by the total shares outstanding in the focal firm at the end of that first year.

3.2 Independent variables

We define our first three independent variables consistent with Sorenson et al. (2021). First, we define *startups* as firms that are less than five years old and have fewer than 50 employees. This dummy variable equals 1 if an individual joins a startup and 0 otherwise. Second, we account for the instances of joining *successful startups* (i.e., large startups), defined as firms less than five years old with more than 50 employees. Third, we account for instances of joining *small established firms*, defined as firms more than five years old with fewer than 50 employees. Finally, the variable *female* equals 1 if an individual identifies as female and 0 otherwise.

3.3 Analytical strategy

Our analyses focus on all workers in Finland who changed jobs and joined a new employer at least once between 2006 and 2018. The sample encompasses individuals who joined various types of companies: startups, successful startups (young firms with more than 50 employees), small established firms (mature firms with fewer than 50 employees), and incumbent firms (mature firms with more than 50 employees). By incorporating a diverse range of firms, we estimate the effects of company age and size on gender pay disparities. Consistent with the well-established definition of startups (e.g., Conti, Kacperczyk and Valentini, 2021; Sorenson et al., 2021), startup joiners were employed at a firm that had been operating for no more than five years and had fewer than 50 employees at the time of joining. To further ensure that we differentiate startup employees from founders, individuals in our dataset must have an employment relationship with the focal startup and must not be founding board members of the startup. Finnish limited liability companies are required to assign a board of directors at founding, presenting an effective way to identify the first individuals associated with the startup.

For H1 and H2, following Burton et al. (2018) and Sorenson et al. (2021), we compare the earnings of individuals who worked at a startup with those hired by incumbent firms. To ensure the comparability of startup joiners with other workers, we consider workers joining startups versus incumbent firms in the year they joined the employer, at the same worker age, at the same prior income level, with the same educational credentials, and the same previous occupation. That is, our models include the individual's year of joining, age, years of education, and previous occupation fixed

effects.[5] They also include controls for the worker's salaried income the year before joining the focal employer and for all capital income in the three years preceding the move. In the analyses focusing on the startup subsample (H3–H5), we additionally control for the joining stage using employee number fixed effects. Importantly, because we account for the worker's prior career history, our sample excludes those entering the labor market for the first time and focuses on workers with prior employment history.

Our primary analysis is cross-sectional at the individual-spell level, where each observation represents a unique event of joining a new employer, defined as a job switch between an individual and a firm. Here, similar to Sorenson et al.'s (2021) study, joining a startup represents a treatment on long-term earnings, whereas joining an incumbent firm represents a control. The benefit of using the cross-sectional approach at the individual spell level is that we can easily track all the residual returns from the focal firm even after the worker switches jobs. Our main specification for H1 and H2 is as follows:

$$Y_{ij} = \alpha_j + \alpha_a + \alpha_o + \alpha_e + \alpha_t + \beta_0 \times \text{Startup} + \beta_1 \times \text{Female} + \beta_2 \times \text{Startup} \times \text{Female} + \gamma X_i + \epsilon_{ij} \quad (1)$$

where *i* represents individuals, *j* represents firms, *a* is the joiner's age, *o* is the occupation, *e* is years of education, and *t* refers to years (α_j, α_a, α_o, α_e and α_t are the fixed effects, respectively). *X* represents the vector of covariates, including previous salary, capital income from the previous three years, joining a startup with more than 50 employees, and joining a small established firm (older than five years with fewer than 50 employees). The dependent variable *Y* is defined as total earnings (salary and residual returns), salaried earnings, or residual returns. The sample includes all job switchers in Finland between 2006 and 2018. The coefficient of interest, *Startup* × *Female*, directly tests our prediction. Our hypotheses state that startups will exhibit greater gender disparities in pay (H1), with a larger disparity in equity compensation (H2). Therefore, a negative coefficient on *Startup* × *Female* for total earnings and residual returns would support our hypotheses.

[5] We use the two-digit International Standard Classification of Occupations code.

To test H3, we leverage exogenous variation in transparency elicited by the implementation of the EU's Fourth Anti-Money Laundering Directive (2015/849/EU).[8] Adopted by Finland on July 3, 2017, this directive mandated increased disclosure requirements, specifically requiring all privately owned firms to report the share ownership of beneficial owners and persons with significant control to a centralized public register. As a result, all companies in Finland, including private firms and startups, were required to identify and report their beneficial owners and controlling stakeholders. This information was submitted to a centralized public register managed by the Finnish Trade Register and made publicly accessible, representing a substantial increase in transparency regarding ownership structures. Crucially for our identification strategy, the implementation of this directive constitutes an exogenous shock to transparency in startup ownership structures because it was an externally imposed regulation that was unrelated to firm-specific factors, such as the internal dynamics of equity allocation between men and women. The abrupt introduction of these rules created a quasi-natural experiment, allowing us to observe the effects of increased transparency on equity compensation practices absent the confounding influence of endogenous factors. Before the directive, only specific industries considered at higher risk for money laundering (e.g., financial institutions, gambling, legal and accounting services, real estate, and those involved in high-value goods trading) were subject to such transparency requirements. The 2017 implementation extended these regulations to a broader range of industries, making this an ideal setting to study the effects of transparency on gender disparities in equity compensation. To quantify the impact, we estimate the following difference-in-differences specification:

$$Y_{ij} = \alpha_j + \alpha_a + \alpha_o + \alpha_e + \alpha_s + \alpha_t + \beta_0 \times \text{Female} + \beta_1 \times \text{Treatment} \times \text{PostAML} + \beta_2 \times \text{Treatment} \times \text{Female} + \beta_3 \times \text{PostAML} \times \text{Female} + \beta_4 \times \text{Treatment} \times \text{PostAML} \times \text{Female} + \gamma X_i + \epsilon_{ij} \quad (2)$$

where *i* indexes individuals, *j* represents startups, *a* is the joiner's age, *o* is occupation, *e* is years of education, *s* is the startup's size (the number of employees), and *t* is years. The dependent variable in our analysis is either *Equity Share* or *Startup Salary*. Our primary independent variable is the interaction between the treatment group (*Treatment*) and the post-

[8] See the report at the Finnish Parliament's website: https://www.eduskunta.fi/FI/naineduskuntatoimii/kirjasto/aineistot/kotimainen_oikeus/LATI/Sivut/rahanpesulainsaadannon-kokonaisuudistus.aspx

regulation period (*PostAML)* where *PostAML* equals 1 if the worker's date of joining the startup was after the July directive and the startup operates in one of the industries affected by the new transparency regulations. *Treatment* equals 0 if the joining date was before the directive within the treated industries; it always equals 0 for individuals joining startups in the control group industries, which were regulated before the directive.[9] To mitigate the concern that industries regulated before the reform might differ fundamentally from industries subject to the reform, we refine our treatment group by including only industries within the same two-digit Nace Revision 2 code as our control group of already-regulated industries. For robustness, we include all industries and find consistent results (Table A1, Models 2 and 3). By comparing the effects on firms newly subjected to transparency requirements with those in already regulated industries, we can estimate the impact of the transparency shock on the gender pay gap in equity compensation. The independent variable of primary interest is the interaction between *Treatment*, *PostAML*, and *Female*, which enables a direct test of our hypothesis regarding the gender pay gap in equity compensation. The main effects of *Treatment* and *PostAML* are absorbed by startup fixed effects and year fixed effects, respectively. *X* represents the vector of covariates, including prior salary and capital income from the previous three years. We further restrict the analysis to a subsample of individuals who joined small startups, defined as young firms with fewer than 50 employees. Our hypothesis is that gender disparities in equity compensation will be reduced following the adoption of the regulation. We expect that the increased transparency mandated by the regulations will limit opportunities for employer bias and promote more equitable practices in the allocation of equity, particularly benefiting women in treated startups after the regulation's implementation. Thus, our hypothesis would be supported by a positive coefficient on *Treatment* × *Female*.

[9] The already-regulated industries are central banking (6411); other monetary intermediation (6419); activities of holding companies (6420); trusts, funds, and similar financial entities (6430); other credit granting (6492); life insurance (6511); non-life insurance (6512); reinsurance (6520); administration of financial markets (6611); security and commodity contracts brokerage (6612); other activities auxiliary to financial services and insurance (6619); renting and operating of own or leased real estate (6820); real estate agencies (6831); management of real estate on a fee or contract basis (6832); legal activities (6910); accounting, bookkeeping, auditing activities, and tax consultancy (6920), wholesale of watches and jewelry (4648); retail sale of watches and jewelry in specialized stores (4777); other retail sale of new goods in specialized stores (4778); and gambling and betting activities (9200).

For H4, we examine the effect of financial constraints on the gender pay gap in startups by leveraging the geopolitical shock induced by the Russian invasion of Crimea in 2014. Following the invasion, the European Union imposed trade sanctions on Russia, which had a significant economic impact on Finnish firms, particularly those in Eastern Finland, where economic ties with Russia were stronger.[11] Startups were especially likely to be affected by this geopolitical disruption due to their inherent vulnerability to market changes. This negative effect was most pronounced for startups in Eastern Finland, which relied more heavily on trade with Russian firms and consumers because of their proximity to the border.[12]

To test H4, we reestimate the baseline specifications used for H3 but use a continuous treatment variable. Specifically, we identify startups' proximity to the Russian border using their headquarters' easting (the longitudinal coordinate in a map projection).[12] We estimate the effect on startups in Eastern Finland through the interaction between *Easting* and *PostCrimea* which represents the timing of an individual joining the startup relative to the start of the Crimea invasion (February 24, 2014). *PostCrimea* equals 0 if an individual joined the focal startup before the invasion and equals the easting value if the individual joined the startup after the invasion. We interact this variable with the *Female* dummy variable (1 = female) to estimate the effect of the shock on the gender pay gap in startups. Our independent variable of interest is the interaction between *Easting*, *PostCrimea*, and *Female*, which allows us to test our hypothesis regarding the gender pay gap in equity compensation. The dependent variable is *Equity Share* (Models 1–3) or *Startup Salary* (Models 4–6). Our hypothesis posits that gender disparities in equity compensation should be reduced in startups in Eastern Finland following the Crimea invasion due to the more pronounced financial constraints in the region. Therefore, our hypothesis would be supported by a positive coefficient on *Easting* × *PostCrimea* × *Female*.

[11] Ministry for Foreign Affairs report: https://um.fi/sanctions-and-russia-s-invasion-of-ukraine

[12] Simola (2024), described the impact of the more recent trade sanctions as follows: "Finland's bilateral trade with Russia, as well as the Russia trade of many other European countries, collapsed with the invasion of Ukraine. Over 2,000 Finnish firms exported to Russia in 2019, but that number had fallen to around 100 by the end of 2023. While the withering of trade has had limited effect on most sectors or the Finnish economy as a whole, prices of Russian inputs on which Finnish producers have heavily relied have increased faster."

[12] The corresponding longitudinal coordinates range from 19 degrees east (Finland's west coast) to 31 degrees east (Russian border).

Finally, to test H5, we estimate the effect of the following interaction terms on women's *Equity Share* and *Startup Salary* for the subsample of startups: *Female* × *Childcare Obligations*, *Female* × *Female Founder*, and *Female* × *Share of Female Employees*. We proxy for *Childcare Obligations* with a continuous variable measuring the worker's number of children under 18 at the time of joining. *Female Founder* is a dummy variable that equals 1 if at least one of the founders of the focal startup is female (member of the founding board) and 0 otherwise. *Share of Female Employees* is the ratio of female employees to all employees previously hired by the firm. The coefficient of interest is *Female* × *Childcare Obligations* for H5a, *Female* × *Female Founder* for H5b, and *Female* × *Share of Female Employees* for H5c. H5a, which states that childcare obligations will amplify discrimination, would be supported by a negative coefficient of the relevant interaction term. By contrast, H5b and H5c, which posit that bias would be reduced in startups with, respectively, female founders and a higher share of female employees, would be supported by a positive coefficient of the relevant interaction terms.

4. RESULTS

4.1 Descriptive statistics

Table 1 presents a comprehensive comparison of key variables between men and women who join startups as employees, revealing striking gender disparities across various dimensions. Women's educational attainment is higher than men's, at 13.48 versus 13.23 years, on average. Women in startups also tend to be younger (34.24 years) than men (36.38 years). Most strikingly, however, the average long-term salaried earnings for women who joined startups were €157,532, compared with €210,831 for men—a substantial gap of 25%. Although this wage gap is similar to that observed in incumbent firms (26%), the disparity becomes more pronounced for residual returns. Average residual returns for women in startups were €3,555, compared with €14,023 for men—a gap of nearly 75%. This disparity in long-term earnings highlights the critical divide in financial outcomes based on gender.

A further decomposition of pay into short-term and long-term components reveals additional insights. During the study period, women in startups earned an average annual salary of €25,230,

considerably less than the €32,677 earned by men—a difference of 23%. However, the more significant difference lies in equity pay allocation. On average, women own only 4% of the startup, less than half of the 9% owned by their male counterparts. This disparity in equity ownership is particularly striking because it has profound implications for long-term wealth accumulation in the startup ecosystem, where equity often accounts for a substantial portion of overall compensation.[13]

Overall, these descriptive statistics provide strong initial evidence that startup employment seems to exacerbate the traditional pay gaps often documented in incumbent firms. However, these initial analyses suggest that this amplification effect is primarily driven by disparities in equity allocation, rather than differences in cash allocation, with the latter being relatively smaller and more comparable to those observed in traditional employment. These descriptive findings are consistent with our hypothesis that equity-based compensation is less transparent and more ambiguous, possibly leaving greater room for startup employers' biased decision-making. The inequitable allocation of equity shares likely compounds gender disparities over time, contributing to a wider gender gap in financial outcomes in startups than in more established corporate environments.

4.2 Gender pay disparities in equity compensation

Table 2 presents the results from a multivariate regression estimating differences in earnings between men and women in startups and incumbent firms for all workers who switched jobs while accounting for observable characteristics through fixed effects and additional controls. Model 1 in Table 2 presents the estimates for total earnings (salaried earnings and residual returns). The coefficient on *Startup* is positive and statistically significant at the 1% level, indicating that among those who join a new employer, employees generally capture more overall value in startups than in incumbent firms. This finding might reflect the lucrative, yet skewed rewards for startup joiners in exchange for the increased risk inherent in startup employment. However, a critical finding emerges when we examine the interaction between startup employment and gender. The negative *Startup* × *Female* interaction reveals that this pay premium is diminished for female employees. More specifically, the premium in startups relative to incumbent firms is €37,377 for men but only €20,440 for women. At the respective

[13] The average equity share in incumbent firms is 0 for both men and women. The residual returns in incumbent firms are fairly minimal, at €253 for women and €779 for men.

average long-term total earnings levels for men and women in incumbent firms, the startup premium is 9.3% for men but only 5.6% for women. This gender disparity suggests that the financial rewards of working in startups are unevenly distributed, with women receiving a lower share of the potential upside associated with startup employment, consistent with H1.

In the absence of a deeper investigation, one might easily conclude that women simply earn lower cash compensation in startups than in incumbent firms. To explore this disparity further, we decompose total earnings into two components: long-term salaried earnings (Model 2) and income derived from dividends and the sale of shares (residual returns) from the focal company (Model 3). The Model 2 results show significantly lower salaries for women across all types of firms, as reflected by the negative coefficient on *Female*. More specifically, salaries are €33,110 or (8.3%) lower for women than for similar men. However, the results show no difference in the gender gap for salaried earnings between startups and incumbent firms, as indicated by the coefficient on *Startup* × *Female* in Model 2. This finding suggests that the amplified gender income disparities in startups are not primarily driven by differences in base salaries or other forms of direct compensation, such as bonuses. Model 3 re-estimates the baseline specifications but focuses on residual returns as the key outcome variable. The results are striking, highlighting the crux of gender pay disparity in startups. Women who join startups earn an average of €13,793 less in residual returns than men in similar positions. Hence, the core of the gender disparity in startup compensation lies not in direct salaried earnings but rather in the allocation of equity and other long-term financial rewards.[14]

These findings provide compelling evidence in support of our initial predictions. Startup employment amplifies gender pay disparities, consistent with H1, but not through the mechanism one might initially expect—namely, base salaries. Instead, the key driver of these disparities lies in differences in long-term, equity-based compensation rather than short-term or salaried earnings, consistent with H2. Therefore, although startups do not exacerbate gender differences in base pay,

[14] As an additional test of the difference in the gender gap in salary (Model 2) and equity (Model 3) among startups, we apply a difference-in-coefficients test. The objective is to assess whether the coefficient on *Startup* × *Female* differs significantly between Models 2 and 3. This test involves calculating the standard error of the difference by combining the variances of the coefficients from the two models. The resulting z-value is 3.99 (p-value = 0.00006657), indicating that the difference between the coefficients is statistically significant and providing strong evidence that the *Startup* × *Female* effect differs meaningfully across the two models.

they significantly disadvantage women in terms of equity allocation and, by extension, their potential for long-term wealth accumulation.

4.3 Cross-sectional heterogeneity: Share ownership and transparency

We next test H3, which hypothesizes that the disparity in equity pay will systematically decrease as transparency and disclosure requirements for equity compensation increase. We leverage an exogenous shock to equity pay transparency: the implementation of the EU's Fourth Anti-Money Laundering Directive (2015/849/EU) in Finland. This analysis focuses on treatment industries classified under the same two-digit NACE Revision 2 code as the control industries.

Models 1–3 in Table 3 examine the impact of transparency on equity share, and Models 4–6 focus on startup salaries. Models 1 and 4 investigate a window from one year before to one year after the reform; Models 2 and 5 extend this window to two years before through two years after; and Models 3 and 6 cover three years before through three years after the reform.[15] As predicted, the increased transparency in ownership and equity reporting reduced the gender pay gap in equity compensation, as indicated by the positive three-way interaction terms in Models 1–3. For example, results for Model 1 show that the equity pay gap between men and women narrowed by 3.58 percentage points in treated industries after the Anti-Money Laundering Directive took effect in Finland. The three-way interactions in Models 4–6 indicate that the increased transparency had a weaker impact on the startup salary differences between men and women. However, this finding is expected, given that the transparency shock we leveraged pertained to equity pay rather than cash compensation. For robustness, we re-estimated our baseline specifications for all industries and found consistent results (see Table A1, Models 2 and 3). These findings therefore indicate the positive impact of transparency in mitigating gender disparities in startup equity compensation, providing strong support for H3. Increased disclosure requirements appear to level the playing field, particularly for long-term wealth accumulation through equity, but have a less pronounced effect on immediate salary differences between men and women.

4.4 Mitigating effect of startup financial constraints

[15] Because 2018 is the final year in our data, the two- and three-year windows are truncated in the post-period.

We next test the effect of startup financial constraints on the gender pay gap in equity compensation. Theories of discrimination have long suggested that discriminating against employees is costly for firms because discrimination based on ascribed characteristics limits a firm's pool of potentially fit and valuable employees, discounting talented individuals from discriminated groups (Becker, 1967). Importantly, these theories predict that as financial constraints increase, employers might be more likely to reduce costly biases and reallocate equity to women to retain and attract talent more efficiently.

We begin with a firm-level analysis to validate that the Crimean invasion imposed significant financial constraints on the affected startups in Eastern Finland. Models 4 and 5 in Table A1 indicate that for every kilometer (0.62 miles) the startup is located to the east, the trade sanctions reduced Finnish startups' revenues and assets by an additional €766 and €851, respectively. The data for Models 4 and 5 in Table A1 come from an annual panel of financial statements for all startups in Finland. Model 4 in Table A1 estimates the effect on revenues, and Model 5 estimates the effect on assets. Consistent with our predictions, the coefficient on *PostCrimea* × *Easting* is negative for both revenues and assets, indicating a negative impact of the Crimea invasion on startups in Eastern Finland.

Next, in Table 4, we turn to an individual-level (job switcher) analysis to estimate the effect of the Crimea invasion on the individual's equity (Models 1–3) and salary (Models 4–6). The window ranges from one year before to one year after the invasion in Models 1 and 4, from two years before to two years after in Models 2 and 5, and from three years before to three years after in Models 3 and 6. In Models 4–6, the sample is limited to startup joiners who remained at the startup for at least one year, allowing for a more precise estimate of the annual salary earned at the focal startup. The estimates in Table 4 reveal several patterns that support our predictions. First, the coefficient on *PostCrimea* × *Easting* × *Female* is positive in Models 1–3, suggesting that women received more equity in startups in Eastern Finland after the Crimea invasion. Interestingly, Models 4–6 show that the treatment had no effect on the salary offered to new hires. Notably, the invasion had a negative effect on men's equity compensation in startups in Eastern Finland, perhaps reflecting a redistribution

of equity ownership from less discriminated groups (men) to more discriminated groups (women) following the geopolitical shock.

Overall, these findings align with the employer discrimination mechanism, suggesting that geopolitical events and subsequent economic shocks can influence startup compensation structures, particularly for women. We find that startups are more likely to respond to financial strains by adjusting their equity-based compensation strategies—which are more ambiguous than cash compensation—leading to increased equity allocations for previously undervalued women.

4.5 Prominence of bias

Finally, to test H5, we investigate whether gender disparities in equity pay are reduced for (a) women with fewer childcare obligations, (b) women in startups with a female founder, and (c) women in startups with a larger share of female employees. In Models 2, 4, and 6 of Table 5, we extend the investigation by estimating the baseline specification for salary. Estimates from these models reveal striking patterns that align with our hypothesized mechanism. First, Model 2 indicates that annual salaries in startups are, on average, €3,473 lower for women than men. This baseline gender disparity provides the context for understanding how parenthood interacts with gender to influence compensation. Interestingly, Model 2 also shows that each underage child is associated with a €403 higher annual startup salary for both men and women. Consistent with prior research, this finding suggests that parenthood is correlated with higher salaries, possibly reflecting the perception of increased financial needs or greater stability during parenthood (e.g., Yang, Kacperczyk, and Naldi, 2024). However, the equity compensation patterns show an opposite trend. The results for Model 1 show that women receive 1.6 percentage points less equity than men, underscoring a sizable gender gap in long-term, potentially high-value compensation. Furthermore, the impact of parenthood on equity compensation diverges sharply between men and women. For men, each underage child is associated with a 0.77 percentage point increase in equity compensation. In stark contrast, for women, each underage child is associated with a 0.8 percentage point decrease in equity compensation. This divergence supports the prediction that motherhood is perceived differently than fatherhood in the startup context, potentially due to assumptions about long-term commitment and availability. These findings suggest that although parenthood is generally correlated with higher salaries, it has opposing

effects on long-term compensation—such as equity and residual returns—for men and women. The positive association between fatherhood and increased equity might reflect perceptions of fathers as more stable or committed employees. Conversely, the negative association for mothers likely stems from assumptions about reduced availability or commitment due to childcare responsibilities.

Next, we explore whether the startup founder's gender and the proportion of women employees within a startup systematically moderate gender disparities in equity allocation. If our results are driven by employer bias, we would expect gender disparities in equity allocation to be less pronounced in startups with women founders or a higher share of women employees because an increased representation of women in leadership and workforce composition might weaken negative biases against women. Model 3 shows an equity pay gap of approximately 2 percentage points in startups with male-only founding teams but only 0.3 percentage points in startups with at least one female founder. This difference represents an 85% reduction in the gender equity pay gap. We find similar results for the effect of female founders on startup salary. Model 4 suggests that the gender pay gap in startup salary is 47% smaller in startups with at least one female founder, highlighting the potential moderating role of female leadership in reducing gender disparities in equity and cash compensation. The results concerning startups with a larger proportion of women employees appear to be noisier. Model 6 suggests that the gender pay gap in startup salary is smaller in startups with a higher share of female employees, but Model 5 does not reveal a similar effect on the equity pay gap. These mixed findings suggest that broader organizational dynamics might override the effect on equity pay among startups with other female employees.

4.6 Additional Analyses and Robustness Checks

Equity and residual returns. In Model 1 of Table A1 (Appendix), we estimate the economic impact of equity on residual returns among startup joiners. The coefficient on equity share is positive, reflecting the strong link between equity ownership and residual returns. A one percentage point increase in equity ownership is associated with a €966 increase in residual returns.

Excluding startups without equity. In Table A2 in the Appendix, we exclude all startups (less than five years old with fewer than 50 employees) that did not offer equity compensation to any

employees. This restriction reduces startups in the sample by 53%. Our estimates are consistent with our main findings. As expected, the effects are even stronger, suggesting that equity-offering startups might exhibit more pronounced gender disparities. Importantly, these additional results confirm that our findings are not driven by startups that do not allocate equity shares to their workers.

Excluding lifestyle businesses. In Table A3 in the Appendix, we remove lifestyle businesses and focus only on growth-oriented startups. We define growth orientation by whether the startup received a government growth grant.[18] Although grants at the earliest stage are not selective and do not impose performance requirements,[19] they require startups to submit a growth plan, making this measure an effective proxy for growth intent. Again, our results are consistent, indicating that growth-oriented startups exhibit similar patterns of gender disparity in equity compensation.

Firm-occupation fixed effect. In Table A4 in the Appendix, we apply a more stringent comparison by estimating a within-firm occupation effect, controlling for both the firm and the employee's specific role. Comparing employees within the same firm and with the same occupation further mitigates concerns that differences in equity compensation are merely a result of variations in job roles within firms, providing a more precise analysis of gender disparities. The results of this within-firm-occupation analysis are consistent with our main findings. This stricter comparison reinforces the idea that the observed gender disparities in equity allocation are not driven by differences in the types of jobs men and women hold within firms but instead reflect underlying biases or structural inequities in the allocation of equity, even within the same organizational and occupational context.

Equity over time. Our main analysis focuses on the equity received in the first year of employment at the focal startup, because employer bias is strongest at the entry stage and because a large portion of an employee's equity is reported upon joining the company. Models 4 and 5 of Appendix Table A5 investigate how the number of shares and the startup salary evolve during an

[18] The Finnish government has a generous startup grant system, with grants ranging from €4,500 to hundreds of thousands of euros, depending on the stage of the startup.

[19] For example, the Innovation Voucher (worth €4,500) requires the startup to have a new idea with an internationalization plan. It must also be less than five years old, have fewer than 50 employees, have less than €10 million in annual revenues (or in balance sheet total), and have no negative credit history. See https://www.businessfinland.fi/en/for-finnish-customers/services/funding/research-and-development/innovation-voucher

employment spell. In Model 4, *Year* and *Year* × *Female* are zero, suggesting that neither men nor women experience significant changes in their shareholdings during an employment spell. However, Model 5 suggests that male and female startup joiners experience a salary increase of approximately €728 per year.

5. DISCUSSION

A well-established finding in labor market research is that women tend to be underpaid relative to men in wage work (England 2005; Gupta, Mortal and Guo, 2018; Kulich et al., 2011; Lyons and Zhang, 2023). However, most studies have focused on employees in incumbent firms, with relatively little attention devoted to gender disparities among nonfounding employees or joiners in entrepreneurial ventures (Roach and Sauermann, 2015). Conventional wisdom suggests that startups, often seen as disruptors of traditional organizational structures, might mitigate well-known gender pay disparities due to their reputation for innovation and progressive practices (Barron, Burton, and Hannan, 1999; Hwang and Phillips, 2024; Pongeluppe, 2024; Yang et al., 2024). However, we propose that characteristics of startups—such as ambiguity in pay structures, less formalized compensation practices, and a lack of transparency (e.g., Booth, 2006, Stinchcome, 1965)—create conditions that are more prone to employer bias. Our hypotheses draw on sociological and organizational research indicating that environments with greater ambiguity and limited disclosure provide fertile ground for employer bias, often leading to disadvantages for women and other minority groups (Castilla, 2008; Castilla and Benard, 2010; Uhlmann and Cohen, 2005). We propose that employer negative bias resulting from women's perceived de-commitment to wage work will disproportionately impact women, especially regarding equity compensation, which is typically more ambiguous and less transparent than cash compensation (Booth, 2006). Importantly, we hypothesize that women joining startups as nonfounding employees will experience greater equity-based pay discounts than women working in incumbent firms. Finally, we test this theory by leveraging large-scale employee–employer data from Finland, which permit the precise observation and measurement of cash compensation and equity pay.

Consistent with our predictions, we find that gender disparities in pay are amplified in startups relative to incumbent firms. Relative to their male counterparts, women earn lower returns

when working in startups than in more mature firms. However, this gender gap is primarily driven by differences in equity pay rather than cash salary, given that the former tends to be more prevalent but more ambiguous in startups. Moreover, our results indicate that these gender disparities in equity-based pay are mitigated when (a) disclosure and transparency of equity pay increase, (b) startup firms face greater financial constraints, and (c) employer bias is less likely to be present because women have fewer childcare obligations and the focal startup has female founders. Overall, our findings support the theorized mechanism that gender differences in returns to startup employment at least partly reflect employer bias triggered by ambiguity.

Our study makes several key contributions. First, we extend research on gender disparities in returns to startup employment by identifying factors responsible for these stark differences. Whereas much of the scholarly focus has been on the gender gap at the founding stage (Castellaneta et al., 2020; Kacperczyk and Guzman, 2019; Kim et al., 2006), less attention has focused on potential disparities within startups themselves. Our study advances this emerging area of research on startup compensation (Sorenson et al., 2021; Kim, 2018; Arat and Mucriano-Goroff, 2023) and contributes to the broader strategic human capital literature (e.g., Honore and Ganco, 2023; Hietaniemi et al., 2024) by providing empirical evidence that greater transparency in pay can reduce gender disparities in startup compensation. More broadly, our findings highlight the importance of expanding the theoretical framework to better understand gender pay disparities in both mature firms and startups.

Second, our study contributes to research on the timing and structure of compensation systems (e.g., Gomez-Mejia and Balkin, 1992; Milkovich, 1988). Whereas past studies have primarily linked long-term compensation to encouraging innovation and R&D investment (e.g., Gomez-Mejia and Balkin, 1992; Ederer and Manso, 2013; Hoskisson et al., 1989), our analysis shifts attention to the distribution of long-term compensation across various demographic groups, with a particular focus on gender. We offer new insights into the ways firms allocate long-term incentives, such as equity, to different types of employees, including women. In doing so, our study broadens the conversation by showing that equity-based compensation, often viewed as a tool to encourage risk-taking and commitment (Coff, 1997; Ederer and Manso, 2013), might also reinforce and exacerbate gender disparities. More broadly, by examining how firms' long-term compensation strategies vary between

men and women, we enhance the understanding of how these practices influence gender equity, potentially shaping women's long-term financial outcomes and career advancement.

Despite offering compelling evidence of gender pay disparities within startup employment and highlighting factors that might mitigate such disparities, our study has some important limitations. First, our large-scale registry data are specific to the institutional context of Finland. Given that the country is often regarded as having relatively high gender equity (e.g., Miettinen, Basten, and Rotkirch, 2011), the patterns we observe might be even more pronounced in settings where gender inequality in the labor market presents a more significant challenge. Therefore, future research should aim to replicate and extend our findings in different institutional contexts or other countries, including especially those with lower gender equity. Additionally, although the large-scale data we use have many advantages, they provide limited opportunities to observe more granular, micro-level mechanisms. For example, we could not directly observe employer bias and had to infer it from broader macro-level patterns. To address this limitation, future studies could incorporate additional data sources, such as surveys or experiments, to explore the specific mechanisms behind the tendency of startups to offer lower pay to women, especially in terms of equity compensation. For example, future research could more precisely delineate the roles of employer decision-making and employee willingness to accept equity. We leave these important questions for future investigation.

From a policy perspective, our findings offer critical insights for addressing gender pay disparities within startups. A key takeaway is the pivotal role of transparency in reducing these disparities. Our research demonstrates that increased transparency, particularly in equity compensation, substantially narrows the gender pay gap. Thus, policy measures aimed at fostering greater transparency in compensation structures could be a highly effective tool for promoting gender equity in pay within startup employment. Our findings imply that without policy intervention, the lack of standardized pay practices and the inherent opacity in startup compensation might continue to disproportionately disadvantage women. By identifying how gender biases in compensation are perpetuated, our study therefore offers valuable insights into the design of future policies and interventions that could help cultivate a more inclusive and equitable startup ecosystem.

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TABLES AND FIGURES

Figure 1. Salaried Earnings

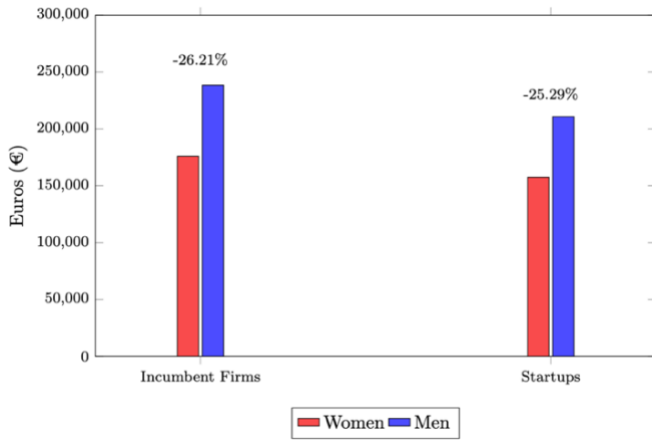


Figure 2. Residual Returns

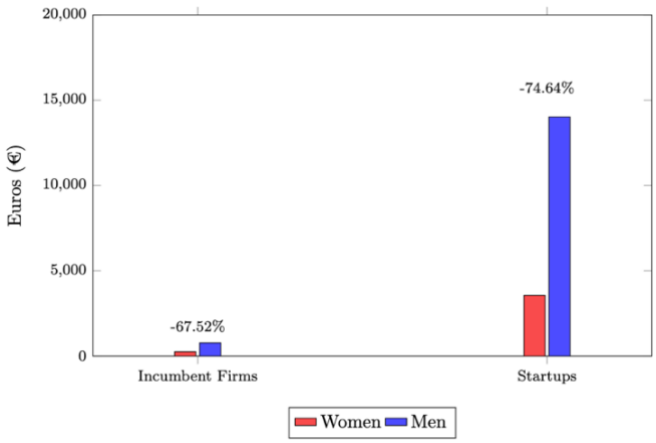


Table 1. Descriptive statistics

	Women		Men	
VARIABLES	Mean	SD	Mean	SD
Startups				
Equity share	0.04	0.18	0.09	0.26
# of underage children	0.91	1.11	0.93	1.16
Education (years)	13.48	2.17	13.23	2.11
Age	34.24	12.38	36.38	12.22
Previous salary (€)	18,714	17,577	26,284	27,435
Capital income (€)	3,164	34,341	10,179	170,796
Startup size at joining (# of employees)	8.23	10.74	7.68	10.38
Startup salary (€)	25,230	19,433	32,677	26,175
Long-term salaried earnings (€)	157,532	155,605	210,831	291,455
Residual returns (€)	3,555	55,917	14,023	296,452
Long-term total earnings (€)	161,087	172,684	224,854	524,491
Incumbent Firms				
Equity share	0.00	0.01	0.00	0.01
# of underage children	0.82	1.06	0.81	1.08
Education (years)	13.58	2.21	13.47	2.24
Age	32.35	12.11	33.60	11.95
Previous salary (€)	18,958	18,130	27,441	30,730
Capital income (€)	1,549	52,503	4,064	118,240
Firm size at joining (# of employees)	1,798	3,041	1,622	3,171
Firm salary (€)	28,112	18,574	39,295	29,856
Long-term salaried earnings (€)	175,997	163,426	238,464	257,984
Residual returns (€)	253	84,161	779	79,972
Long-term total earnings (€)	176,250	184,407	239,243	273,536

Table 2. Gender pay gap in startup compensation

Model:	(1)	(2)	(3)	(4)	(5)	(6)
DV:	Total earnings	Salaried earnings	Residual Returns	Total earnings	Salaried earnings	Residual Returns
Startup	39,221	12,602	26,619	37,377	8,832	28,545
	(7,508)	(4,597)	(3,357)	(9,386)	(5,225)	(4,605)
Female	-29,001	-28,911	-90.46	-33,498	-33,110	-387.9
	(929.7)	(887.1)	(198.1)	(952.9)	(898.5)	(213.0)
Startup x Female	-17,110	-4,581	-12,528	-16,937	-3,144	-13,793
	(2,755)	(1,652)	(1,312)	(3,572)	(1,943)	(1,832)
Previous salary	3.115	3.008	0.107	2.654	2.616	0.0380
	(0.105)	(0.0925)	(0.0356)	(0.128)	(0.119)	(0.0187)
Capital income	0.151	0.0109	0.147	0.0879	0.000539	0.0874
	(0.0716)	(0.0109)	(0.0684)	(0.0292)	(0.0120)	(0.0217)
Small established firm	9,291	9,998	-706.8	11,788	11,576	212.5
	(4,132)	(2,567)	(1,808)	(5,150)	(2,934)	(2,487)
Successful startup	-7,391	-12,194	4,802	-4,901	-8,909	4,008
	(4,292)	(2,784)	(2,423)	(5,928)	(3,240)	(3,622)
Constant	336,995	333,054	3,941	400,369	398,670	1,698
	(4,254)	(3,438)	(1,320)	(14,057)	(13,784)	(1,842)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Education FE	No	No	No	Yes	Yes	Yes
Age FE	No	No	No	Yes	Yes	Yes
Occupation FE	No	No	No	Yes	Yes	Yes
Observations	4,468,634	4,468,634	4,468,634	3,396,293	3,396,293	3,396,293
R-squared	0.397	0.575	0.074	0.418	0.607	0.074

Standard errors clustered at the firm-level

Table 3. Effect of transparency on equity pay gap in startups

Window	+/- 1 yr.	+/- 2 yrs.	+/- 3 yrs.	+/- 1 yr.	+/- 2 yrs.	+/- 3 yrs.	Dynamic
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
DV:	Equity share	Equity share	Equity share	Startup salary	Startup salary	Startup salary	Equity share
Female	-0.0212	-0.0034	-0.0041	-3,441	-5,697	-4,894	-0.0363
	(0.0090)	(0.0073)	(0.0064)	(2,305)	(1,885)	(1,434)	(0.0049)
Treatment x PostAML	-0.0287	-0.0388	-0.0407	252.4	541.4	624.6	
	(0.0085)	(0.0082)	(0.0080)	(2,196)	(1,984)	(1,829)	
Treatment x Female	-0.0076	-0.0065	-0.0097	-282.2	2,761	2,258	0.0068
	(0.0083)	(0.0075)	(0.0104)	(2,224)	(2,785)	(1,691)	(0.0057)
PostAML x Female	-0.0294	-0.0398	-0.0459	-4,403	2,152	-2,717	
	(0.0101)	(0.0091)	(0.0092)	(2,387)	(2,139)	(2,704)	
Treat. x PostAML x Fem.	0.0358	0.0498	0.0591	1,973	-16.09	365.4	
	(0.0125)	(0.0111)	(0.0110)	(3,827)	(3,321)	(3,008)	
Treatment x AML(-1)							0.0005
							(0.0109)
Treatment x AML(0)							-0.0053
							(0.0104)
Treatment x AML(1)							0.0046
							(0.0116)
Treat. x Female x AML(-1)							0.0003
							(0.0107)
Treat. x Female x AML(0)							0.0180
							(0.0104)
Treat. x Female x AML(1)							0.0152
							(0.0118)
Previous salary	9.22e-08	1.50e-07	2.05e-07	0.483	0.458	0.461	4.78e-07
	(1.15e-07)	(8.23e-08)	(8.37e-08)	(0.0725)	(0.0556)	(0.0445)	(7.48e-08)
Capital income	8.13e-08	3.33e-08	3.29e-08	-0.00175	0.0120	0.0121	3.47e-08
	(5.06e-08)	(2.26e-08)	(3.29e-08)	(0.0171)	(0.0078)	(0.0058)	(1.58e-08)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupation FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Startup size FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,624	21,138	26,855	5,097	8,596	11,980	92,206
R-squared	0.865	0.806	0.783	0.847	0.841	0.848	0.827

Standard errors clustered at the firm-level

Table 4. Effect of financial constraints on equity pay gap in startups

Window	+/- 1 year	+/- 2 years	+/- 3 years	+/- 1 year	+/- 2 years	+/- 3 years	Dynamic
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
DV:	Equity share	Equity share	Equity share	Startup salary	Startup salary	Startup salary	Equity share
Female	-0.0208	-0.0166	-0.0011	-3,564	-3,463	-2,706	-0.0166
	(0.00605)	(0.00439)	(0.00403)	(1,451)	(678.4)	(858.6)	(0.0022)
PostCrimea x Easting	1.18e-08	1.38e-07	1.83e-07	2.10e-07	-0.00457	-0.00266	
	(1.19e-08)	(1.02e-08)	(9.82e-09)	(0.00186)	(0.00137)	(0.00118)	
Easting x Female	-1.99e-08	-2.55e-08	-4.30e-08	0.00339	0.00227	0.000713	-9.12e-09
	(1.66e-08)	(1.14e-08)	(1.03e-08)	(0.00328)	(0.00185)	(0.00146)	(5.74e-09)
PostCrimea x Female	-0.0201	-0.0327	-0.0363	-730.3	404.4	902.0	
	(0.00664)	(0.00524)	(0.00488)	(1,282)	(863.7)	(734.5)	
East. x PostC. x Female	5.11e-08	9.69e-08	1.04e-07	0.000704	-0.000548	0.000621	
	(1.19e-08)	(1.50e-08)	(1.37e-08)	(0.00335)	(0.00220)	(0.00185)	
Easting x Female (-1)							7.11e-09
							(6.64e-09)
Easting x Female (0)							-4.23e-08
							(7.59e-09)
Easting x Female (1)							1.04e-08
							(7.03e-09)
Easting x Female (2+)							1.12e-08
							(7.19e-09)
Previous salary	1.86e-07	2.42e-07	2.81e-07	0.421	0.375	0.401	4.58e-07
	(1.98e-08)	(1.50e-08)	(1.37e-08)	(0.00335)	(0.00220)	(0.00185)	(3.30e-08)
Capital income	1.84e-08	2.77e-08	9.49e-09	-0.00950	-0.00383	-0.00224	2.41e-08
	(7.87e-08)	(5.36e-08)	(4.08e-08)	(0.0971)	(0.0509)	(0.0375)	(1.26e-08)
Constant	0.157	0.153	0.155	15,498	18,229	10,946	0.0810
	(0.0580)	(0.0374)	(0.0271)	(13,936)	(8,482)	(12,067)	(0.0199)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupation FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Startup size FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	69,391	138,473	212,856	41,165	81,890	125,686	556,542
R-squared	0.866	0.822	0.783	0.793	0.809	0.807	0.8244

Standard errors clustered at the firm-level

Table 5. Effect of prominence of bias on equity pay gap in startups

Model	(1)	(2)	(3)	(4)	(5)	(6)
DV:	Equity share	Startup salary	Equity share	Startup salary	Equity share	Startup salary
Female	-0.0164	-3.473	-0.0199	-3.146	-0.0139	-3.906
	(0.00128)	(301.0)	(0.000929)	(207.6)	(0.00165)	(338.2)
Childcare obligations	0.00768	402.5				
	(0.000612)	(102.7)				
Female x Childcare	-0.00805	-40.40				
	(0.000848)	(152.9)				
Female founder x Female			0.0169	1,670		
			(0.00266)	(799.3)		
Share of female employees					-0.0265	-163.1
					(0.00327)	(574.7)
Share female x Female					0.000585	1,451
					(0.00330)	(671.1)
Previous salary	3.78e-07	0.427	4.58e-07	0.421	4.54e-07	0.421
	(3.75e-08)	(0.0349)	(3.29e-08)	(0.0275)	(3.29e-08)	(0.0275)
Capital income	2.14e-08	-0.000468	2.39e-08	-0.000336		-0.000333
	(1.22e-08)	(0.00217)	(1.25e-08)	(0.00201)		(0.00201)
Constant	0.0984	9,327	0.0809	10,673	0.0877	10,600
	(0.0230)	(4,447)	(0.0200)	(3,388)	(0.0200)	(3,414)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes	Yes	Yes
Occupation FE	Yes	Yes	Yes	Yes	Yes	Yes
Startup size FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	412,409	243,085	556,542	315,628	556,542	315,628
R-squared	0.846	0.837	0.825	0.827	0.825	0.827

Standard errors clustered at the firm-level

APPENDIX

Table A1. Additional analyses and robustness checks

Model:	(1)	(2)	(3)	(4)	(5)
DV:	Residual returns	Equity share	Startup salary	Startup revenues	Startup assets
Equity share	96,584				
	(5,375)				
Female		-0.00164	-6,621		
		(0.00678)	(1,986)		
Treatment x PostAML		-0.0455	-2,199		
		(0.00269)	(677.1)		
Treatment x Female		-0.00813	3,380		
		(0.00692)	(1,995)		
PostAML x Female		-0.0422	-3,125		
		(0.00802)	(2,261)		
Treatment x PostAML x Female		0.0505	3,035		
		(0.00827)	(2,409)		
PostCrimea x Easting				-0.766	-0.851
				(0.156)	(0.265)
Previous salary	0.302	2.03e-07	0.420		
	(0.149)	(3.88e-08)	(0.0854)		
Capital income	0.0655	1.50e-08	0.00543		
	(0.0442)	(7.31e-09)	(0.00864)		
Constant	13,238	0.0448	19,605	164,355	392,702
	(6,150)	(0.0131)	(3,122)	(48,010)	(88,621)
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	No	No
Age FE	Yes	Yes	Yes	No	No
Occupation FE	Yes	Yes	Yes	No	No
Startup size FE	Yes	Yes	Yes	Yes	Yes
Observations	556,542	123,622	49,014	92,852	83,222
R-squared	0.226	0.790	0.764	0.901	0.982

Standard errors clustered at the firm-level

Table A2. Robustness: Startups with equity compensation

	Incumbent firms vs startups giving equity			Startups giving equity	
Model:	(1)	(2)	(3)	(4)	(5)
DV:	Total earnings	Salaried earnings	Residual returns	Equity share	Equity share
Startup	74,057	24,527	49,530		
	(14,191)	(7,876)	(6,672)		
Female	-36,321	-35,666	-655.1	-0.00475	-0.00733
	(1,095)	(1,036)	(206.1)	(0.0122)	(0.00857)
Startup x Female	-30,280	-7,294	-22,986		
	(6,087)	(3,329)	(2,944)		
Treatment x PostAML				-0.0847	
				(0.0154)	
Treatment x Female				-0.0192	
				(0.0146)	
PostAML x Female				-0.0733	
				(0.0155)	
Treatment x PostAML x Female				0.0885	
				(0.0198)	
PostCrimea x Easting					-3.29e-07
					(1.62e-08)
Easting x Female					-4.04e-08
					(2.30e-08)
PostCrimea x Female					-0.0659
					(0.0105)
PostCrimea x Easting x Female					1.79e-07
					(2.97e-08)
Previous salary	3.028	2.908	0.120	4.62e-07	7.92e-07
	(0.132)	(0.122)	(0.0194)	(1.64e-07)	(1.06e-07)
Capital income	0.0802	0.00188	0.0783	7.57e-08	5.81e-08
	(0.0268)	(0.0118)	(0.0193)	(3.15e-08)	(1.96e-08)
Small established firm	11,961	11,424	537.6		
	(5,574)	(3,276)	(2,531)		
Successful startup	-8,616	-11,825	3,209		
	(6,172)	(3,650)	(3,407)		
Constant	364,146	359,859	4,287	0.0828	0.332
	(4,610)	(3,865)	(1,359)	(0.103)	(0.0507)
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes	Yes
Occupation FE	Yes	Yes	Yes	Yes	Yes
Startup size FE	No	No	No	Yes	Yes
Observations	3,317,290	3,317,290	3,317,290	9,929	67,185
R-squared	0.389	0.573	0.069	0.794	0.799

Standard errors clustered at the firm-level

Table A3. Robustness: Growth-oriented startups

	Incumbent firms vs growth startups			Growth startups	
Model:	(1)	(2)	(3)	(4)	(5)
DV:	Total earnings	Salaried earnings	Residual returns	Equity share	Equity share
Startup	46,959	16,422	30,537		
	(13,118)	(7,395)	(6,094)		
Female	-35,903	-35,325	-577.9	-0.000561	-0.00184
	(1,096)	(1,037)	(206.6)	(0.00910)	(0.00461)
Startup x Female	-25,216	-9,900	-15,316		
	(6,130)	(3,332)	(2,950)		
Treatment x PostAML				-0.0615	
				(0.0113)	
Treatment x Female				-0.0170	
				(0.0113)	
PostAML x Female				-0.0549	
				(0.0130)	
Treatment x PostAML x Female				0.0741	
				(0.0157)	
PostCrimea x Easting					-1.80e-07
					(1.17e-08)
Easting x Female					-3.11e-08
					(1.18e-08)
PostCrimea x Female					-0.0415
					(0.00590)
PostCrimea x Easting x Female					1.11e-07
					(1.67e-08)
Previous salary	3.032	2.924	0.108	3.67e-07	5.78e-07
	(0.134)	(0.124)	(0.0191)	(1.75e-07)	(8.41e-08)
Capital income	0.0751	0.00256	0.0726	2.13e-07	1.02e-07
	(0.0278)	(0.0129)	(0.0193)	(1.54e-07)	(3.96e-08)
Small established firm	13,792	12,211	1,581		
	(5,186)	(3,104)	(2,328)		
Successful startup	-9,807	-12,351	2,545		
	(5,838)	(3,526)	(3,213)		
Constant	362,383	358,831	3,551	0.950	0.195
	(4,496)	(3,825)	(1,274)	(0.0728)	(0.0449)
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes	Yes
Occupation FE	Yes	Yes	Yes	Yes	Yes
Startup size FE	No	No	No	Yes	Yes
Observations	3,348,396	3,348,396	3,348,396	9,255	81,743
R-squared	0.384	0.570	0.050	0.690	0.720

Standard errors clustered at the firm-level

Table A4. Robustness: Firm × occupation fixed effects

	All firms			Startups	
Model:	(1)	(2)	(3)	(4)	(5)
DV:	Total earnings	Salaried earnings	Residual returns	Equity share	Equity share
Startup	29,484	10,316	19,168		
	(11,811)	(6,342)	(5,846)		
Female	-31,243	-30,948	-295.1	0.00206	-0.00716
	(1,016)	(962.4)	(191.7)	(0.00986)	(0.00525)
Startup x Female	-17,625	-7,730	-9,895		
	(4,944)	(2,556)	(2,542)		
Treatment x PostAML				-0.0410	
				(0.0106)	
Treatment x Female				-0.0109	
				(0.0111)	
PostAML x Female				-0.0421	
				(0.0129)	
Treatment x PostAML x Female				0.0546	
				(0.0151)	
PostCrimea x Easting					-1.43e-07
					(1.34e-08)
Easting x Female					-1.03e-08
					(1.40e-08)
PostCrimea x Female					-0.0248
					(0.00655)
PostCrimea x Easting x Female					7.77e-08
					(1.93e-08)
Previous salary	2.637	2.561	0.0766	3.20e-07	3.20e-07
	(0.155)	(0.141)	(0.0233)	(1.15e-07)	(1.03e-07)
Capital income	0.0727	0.00312	0.0696	7.25e-08	-1.25e-08
	(0.0314)	(0.0150)	(0.0225)	(4.49e-08)	(2.49e-08)
Small established firm	11,897	9,185	2,712		
	(5,517)	(3,104)	(2,663)		
Successful startup	-7,580	-8,275	695.5		
	(6,058)	(3,326)	(3,818)		
Constant	373,569	370,550	3,019	0.0570	0.476
	(5,478)	(4,630)	(1,614)	(0.0621)	(0.217)
Firm x Occupation FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes	Yes
Startup size FE	No	No	No	Yes	Yes
Observations	3,396,293	3,396,293	3,396,293	21,138	138,473
R-squared	0.546	0.694	0.308	0.887	0.910

Standard errors clustered at the firm-level

Table A5. Individual-level panel with individual fixed effects

	All firms			Startups	
Model:	(1)	(2)	(3)	(4)	(5)
DV:	Total earnings	Salaried earnings	Residual returns	Number of shares	Startup salary
Startup	1,416	338.7	1,077		
	(85.09)	(72.58)	(45.36)		
Startup x Female	-1,289	-468.0	-821.0		
	(86.43)	(71.94)	(47.80)		
Year				-1,675	728.0
				(2,101)	(23.52)
Year x Female				1,988	-2.19
				(2,343)	(0.448)
Previous salary	0.504	0.482	0.0228	0.416	0.323
	(0.0293)	(0.0280)	(0.00569)	(0.415)	(0.0152)
Capital income	0.00138	0.00104	0.00148	0.0229	-0.00560
	(0.00186)	(0.000611)	(0.00178)	(0.0253)	(0.000558)
Small established	-668.9	739.5	70.90		
	(128.7)	(110.8)	(62.93)		
Successful startup	2,221	1,961	259.6		
	(121.2)	(108.6)	(49.99)		
Constant	15,624	15,206	417.2	3.369e+06	-1.441e+06
	(685.0)	(684.2)	(145.4)	(4.214e+06)	(46,927)
Individual FE	Yes	Yes	Yes	-	-
Year FE	Yes	Yes	Yes	No	No
Occupation FE	Yes	Yes	Yes	No	No
Firm x Individual FE	No	No	No	Yes	Yes
Observations	1,759,592	1,759,592	1,759,617	875,536	875,523
R-squared	0.727	0.791	0.473	0.167	0.853

Standard errors clustered at the firm-level.