Homeownership Hinders Entrepreneurship: Evidence from a Housing Lottery*

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Abstract

Does first-time homeownership affect entrepreneurship among low-income households? We address this question by exploiting random assignment from a housing lottery program in Brazil that selected 26,288 beneficiaries from 367,505 applicants across 262 public lotteries conducted over several years. Winners receive a housing unit with monthly payments set at 20% of household income—well below market rents—generating a net present-value gain equivalent to 6.5 years of annual income. We link lottery records to matched employer–employee records and Brazil's business registry, tracking formal employment and business formation for up to five years post-lottery. Being awarded a house substantially reduces entrepreneurial entry: beneficiaries are 20% less likely to start any business in the year following the lottery, with effects persisting for up to five years post-lottery. The reduction is observed at the microenterprise margin—we find no effects on small or larger firm entry at any horizon. The effect is driven by applicants with no formal occupation at the time of the lottery, spans all major sectors but concentrates within each sector in subsistence-type activities. The reduction is stronger among men and in more economically developed municipalities, where occupational alternatives are ample, and among lower pre-lottery earners, where financial pressure is most acute. We also show that marginal entrants would have registered microenterprises as low-commitment income strategies—with substantially lower upgrade rates, higher tax violation rates, and lower equity at founding than always-entrants. Our findings establish that housing programs may remove economic pressures that compel low-income households into subsistence entrepreneurship.

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1 Introduction

Homeownership is a commonplace policy instrument used to promote economic security among low-income households. Governments worldwide have invested heavily in it: the United States has allocated trillions of dollars to housing subsidies over the past century (Poterba 1992; Collinson et al. 2016; Glaeser and Shapiro 2003), and developing economies have constructed tens of millions of subsidized units through large-scale social housing programs (OECD 2020; Buckley and Kalarickal 2005). Beyond shelter, homeownership builds household wealth, stabilizes consumption, and reduces financial vulnerability (DiPasquale and Glaeser 1999; Sinai and Souleles 2005)—all of which could expand economic opportunity at the bottom of the income distribution.

A substantial literature documents that home equity appreciation relaxes collateral constraints and encourages business formation among *existing* homeowners (Adelino et al. 2015; Schmalz et al. 2017). However, much less is known about the extensive margin of homeownership among households without property. Social housing programs do not target households seeking to unlock collateral for investment; they target households for whom housing insecurity may itself be a binding constraint on economic activity. The direction of the effect is ex ante ambiguous. If housing receipt relaxes financial constraints or enables investment by reducing monthly outlays (Hausman et al. 2022; Sodini et al. 2023), entrepreneurship should rise. But if the primary effect is to reduce the subsistence pressure that compels low-income households into self-employment as a last resort (Schoar 2010), entrepreneurship could fall. Whether access to a first home affects entrepreneurship is therefore an empirical question: housing security, lower monthly costs, and reduced exposure to income shocks could each shift the calculus of whether and how to start new businesses, and the profile of the businesses we see in the data.

We study these questions using Brazil's housing lottery, which provides clean experimental variation in *first-time homeownership* among low-income households. We ask three main questions. First, does first-time homeownership increase or decrease entrepreneurship, and does the effect differ by firm size and type? Second, through what mechanism does homeownership affect entrepreneurial entry—by relaxing financial constraints and enabling investment, or by removing the subsistence pressure that would otherwise compel households into necessity-driven self-employment? Third, what kind of entrepreneurship is deterred or encouraged—do affected firms differ in quality, growth potential, and

survival from those that would have been created absent the program?

São Paulo state—accounting for 31% of Brazil's GDP and home to 46 million residents—provides our empirical setting through the housing lottery program of the Housing and Urban Development Company (*Companhia de Desenvolvimento Habitacional e Urbano*; CDHU), São Paulo state's public housing authority and one of the world's largest housing companies (CDHU 2026b). Between 2017 and 2024, CDHU conducted 262 public lotteries across 223 municipalities through cryptographically audited random draws. Three features make this an ideal setting for our research. First, treatment is randomly assigned within each lottery draw, enabling clean causal inference. Second, the program is large in scale: 26,288 housing beneficiaries were selected from a pool of 367,505 applicants across these lotteries. Third, the program operates under fiduciary transfer, whereby CDHU retains full legal title throughout the 30-year repayment period—therefore, beneficiaries have nothing to pledge as collateral. The collateral channel is thus inoperative by construction, isolating the housing security mechanism.

The treatment is substantial. The net present-value gain to a typical household amounts to roughly 6.5 years of annual income, combining a housing unit worth approximately \$37,000[1] with monthly payments set at 20% of household income typically at 0% real interest—well below prevailing market rents—generating cash-flow relief of roughly 13% of typical household income and a 39% reduction in estimated housing costs. A lenient enforcement policy requiring at least 12 months of arrears before repossession further insulates beneficiaries from income shocks.

Our data combine official CDHU lottery records—1,392 PDF documents totaling 28,252 pages, which we manually collect, parse, and standardize—with Brazilian administrative registries. A central challenge is that lottery records contain only partial CPF identifiers—Brazil's individual taxpayer number—and no demographic characteristics, precluding both direct linkage to administrative datasets and meaningful characterization of applicants. We recover full CPFs—and a rich set of individual characteristics spanning demographics, education, race, and labor market history—through a multi-source cross-referencing strategy combining electoral registries, the business registry, university admissions data, and a credit bureau distributor. We then link applicants to RAIS—the matched employer-employee dataset covering the universe of formal employment in Brazil—and to the CNPJ business registry, tracking formal employment, wages, and business formation for up to five years post-lottery.

[1] Based on the average BRL–U.S. Dollar exchange rate of R\$4.49 per dollar between 2017–2024 (Federal Reserve 2026).

Our estimation sample comprises beneficiaries and not-selected applicants only. We exclude waitlisted applicants—those ranked below the cutoff but eligible to receive a unit if a winner declines the house or is found ineligible during the due diligence process—because they remain potential recipients and therefore constitute a contaminated control group. This yields 177,175 applicants across 1,020 lottery×quota cells. Balance tests across 30 pre-lottery characteristics confirm random assignment within strata, and across beneficiary, waitlisted, and not selected applicants.

Within each lottery, units are allocated across separate *quota groups*—a general demand quota open to all eligible applicants, income restriction quotas stratified by earnings bands, a vulnerability score quota, and a special-groups quota covering elderly applicants, persons with disabilities, and households with young children. Randomization is conducted independently within each lottery×quota stratum, which defines the fixed effects in our empirical design.

Our baseline specification estimates the intent-to-treat (ITT) effect of being offered a housing unit following Kling et al. (2007) and Chetty et al. (2016), regressing indicators for firm entry and formal employment on a beneficiary indicator and lottery×quota fixed effects. The fixed effects ensure that comparisons are made exclusively among applicants who faced identical selection probabilities within the same randomization draw, while clustering standard errors at the lottery×quota level accounts for correlated outcomes among applicants in the same stratum. The ITT estimator is conservative by design: not all lottery winners ultimately receive or occupy a housing unit, so the estimated effect captures the reduced-form impact of being *offered* housing rather than the effect of housing receipt itself.

We begin by examining whether housing receipt affects entrepreneurial entry. A large literature documents that home equity appreciation encourages business formation among existing homeowners by relaxing collateral constraints (Adelino et al. 2015; Schmalz et al. 2017)—suggesting that housing wealth should raise entrepreneurship. Our setting is fundamentally different: CDHU beneficiaries are first-time homeowners for whom housing insecurity, not collateral access, is the binding constraint. We find that housing receipt substantially *reduces* business formation: in the year following the lottery, beneficiaries are 20% less likely to start any business (−0.40 percentage points relative to a mean of 2.0%), with effects persisting for up to five years post-lottery.

We decompose entry across Brazil's tax regime thresholds: microenterprises (annual revenue up to R$360,000 [$80,000]), small enterprises (R$360,000–R$4.8 million [$80,000–$1.1 million]),

and larger firms (above R$4.8 million [$1.1 million] or outside the *Simples Nacional* simplified tax regime). Entry into small enterprises and larger firms is rare in this population. Upon housing receipt, the reduction in business formation concentrates at the microenterprise margin: beneficiaries are 21% less likely to start a microenterprise at one year (−0.41 percentage points relative to a mean of 1.9%), reaching 13% at three years (−0.76 percentage points relative to a mean of 5.7%) and remaining negative and marginally significant at five years. We find no effects on small or larger firm entry at any horizon.

To understand who drives the reduction, we decompose the effect by applicants' pre-lottery occupation status: formally employed, active entrepreneurs, and those with no formal occupation. The reduction concentrates entirely among applicants with no formal occupation at the time of the lottery: beneficiaries in this group are 18% less likely to start any business within three years (−0.84 percentage points relative to a mean of 4.7%), with effects that persist across the full five-year horizon. Formally employed applicants show no significant effects at any horizon—workers with stable earnings already lack the financial pressure that drives necessity entrepreneurship, leaving housing receipt with no margin to operate on. Active pre-lottery entrepreneurs show a distinct dynamic: a significant early reduction at one year that dissipates through intermediate horizons before reemerging at five years. An ordered probit specification treating firm size as an ordered quality index confirms that among applicants with no formal occupation, housing receipt shifts the entire entry distribution toward non-entry—reducing the probability of microenterprise, small enterprise, and larger firm formation simultaneously—while leaving the distribution unchanged for formally employed applicants.

We next examine the sectoral composition of entry and the distribution of effects across industries. The industry mix of new microenterprise founders is nearly identical between beneficiaries and non-beneficiaries—both groups concentrate overwhelmingly in services, trade, and construction—confirming that housing receipt does not alter the types of businesses applicants would otherwise start, only the level of entry. The reduction is broad-based across these three sectors, with sub-industry patterns concentrating in the lowest-barrier activities within each: domestic services within services, and skilled trades such as electrical installation within construction. The pattern—broad across sectors, concentrated within sectors in the lowest-barrier activities—suggests that what housing receipt deters is not entry into any particular industry but subsistence-driven self-employment wherever it would have occurred.

The reduction in entrepreneurship raises a natural question: what do affected households do

instead? One possibility is that housing receipt enables a transition into formal wage work—residential stability may improve labor market access, and homeownership has been shown to increase labor supply in comparable settings (Hausman et al. 2022; Sodini et al. 2023). Under this channel, we would expect formal employment to rise even as entrepreneurship falls. We find no evidence of this. Formal employment rates and wages are statistically indistinguishable between beneficiaries and non-beneficiaries at every post-lottery horizon—and this null extends to applicants with no formal occupation prior to the lottery, the group driving the reduction in entrepreneurship.

Having ruled out reallocation to formal work, we ask when and where the reduction in microenterprise entry is largest. Necessity entrepreneurship arises when decent employment alternatives are unavailable and self-employment becomes a last resort for generating income (Schoar 2010; Margolis 2014): as wage employment and other income alternatives become more accessible with local economic development, the necessity motive weakens, and housing security—by relieving financial pressure—can displace what remains of it. Where alternatives are scarce regardless of housing status, however, housing security alone cannot offset the imperative to generate income through self-employment. Interacting the beneficiary indicator with municipal development and vulnerability characteristics—GDP per capita, employer density, education, and household living conditions—we find exactly this pattern: the reduction in microenterprise entry is amplified in more prosperous municipalities, where income alternatives are more accessible, and attenuated in the most constrained environments, where the imperative to generate income through self-employment persists even after housing receipt.

Individual-level heterogeneity sharpens this interpretation further. The effect is significantly stronger among men, consistent with women facing more constrained outside options (Duflo 2012; Jayachandran 2015)—where alternatives are scarce, housing security alone cannot displace the financial pressure driving subsistence entry. Among applicants with prior formal employment, the effect is attenuated for higher earners, whose pre-lottery financial pressure was already low. Together, these patterns trace a coherent gradient: housing receipt reduces subsistence entry most precisely where both conditions are met—financial pressure was acute and alternatives exist—and least where either fails.

We next ask whether housing receipt affects the quality of those who still enter into entrepreneurship. Comparing post-entry outcomes between beneficiary and non-beneficiary entrants is complicated by selection—because beneficiaries are less likely to start a business, their entrant pool may differ

systematically. We address this using Lee (2009) bounds across five outcomes: equity at founding, three-year survival, employment generation, tax compliance violations, and firm upgrade. Microenterprises in Brazil operate under two legal regimes—*Microempreendedor Individual* (MEI) and *Microempresa* (ME)—with nearly all entrants in our sample initially registering as MEI, the simplified sole-proprietorship form capping annual revenue at R$81,000 and one employee beyond the owner; firm upgrade captures the transition to ME status, which allows revenue up to R$360,000 and up to 19 employees, and reflects business growth. Point estimates are null across all outcomes, but bounds are wide and do not allow sharp inference about quality differences between the two entrant pools.

We address this directly using the Kling et al. (2007) decomposition, which exploits the fact that under monotonicity, all beneficiary entrants are always-entrants—individuals who would start a business regardless of lottery outcome—so that the not-selected entrant pool can be decomposed into always-entrants and marginal entrants, with the latter's characteristics recovered residually. We find that marginal entrants have lower equity at founding, substantially lower firm upgrade rates (2.1% vs. 6.7% for always-entrants), and markedly higher tax violation rates (28.1% vs. 17.3%)—the profile of entrepreneurs registering a microenterprise as a low-commitment income strategy under financial pressure rather than pursuing genuine business opportunity (Schoar 2010). Taken together, these results show that the decline in entrepreneurship upon housing receipt reflects fewer households at the margin where self-employment is a last resort for subsistence rather than an occupational choice.

Our paper contributes to three streams of literature. First, we advance research on homeownership and entrepreneurship. A substantial literature documents that home equity appreciation relaxes collateral constraints and encourages business formation among existing homeowners (Hurst and Lusardi 2004; Adelino et al. 2015; Schmalz et al. 2017; Kerr and Nanda 2009), and recent work shows that allowing home-based production reduces fixed costs and increases entry (Agarwal et al. 2024). Both mechanisms, however, operate on existing or aspiring homeowners with entrepreneurial intent. We study a fundamentally different margin: first-time homeowners for whom housing insecurity, not collateral access or entry costs, is the binding constraint. Our findings complement Hausman et al. (2022) and Sodini et al. (2023) by documenting that the pathway from housing to economic activity among low-income households runs through the necessity motive rather than investment or cost reduction.

Second, we contribute to the literature on necessity entrepreneurship in developing countries.

Prior work establishes that low-income self-employment is driven primarily by the absence of income alternatives rather than entrepreneurial opportunity (Schoar 2010; Margolis 2014; La Porta and Shleifer 2008, 2014), and that businesses founded under financial pressure remain trapped in subsistence (Campello et al. 2026). We provide causal evidence on what removes the necessity motive by exploiting random assignment from a housing lottery, documenting that a large, permanent reduction in housing costs is sufficient to deter necessity entry without altering the types of businesses applicants would otherwise start or expanding their formal labor market attachment. The concentration of effects where financial pressure was most acute and income alternatives most accessible, together with the lower quality of the marginal entrant deterred, jointly confirm that the decline reflects a contraction of subsistence entry rather than a crowding out of opportunity-driven entrepreneurship (Hussam et al. 2022).

Finally, our paper contributes to the literature on the causal effects of social housing programs on household outcomes. A growing body of lottery-based evidence from developing countries finds that housing programs that relocate beneficiaries to peripheral areas generate zero or negative effects on adult economic outcomes, as gains in housing quality are offset by distance from jobs and social networks (Barnhardt et al. 2017; Franklin 2025; Picarelli 2019; Machado and Rachter 2023; Belchior et al. 2023). Effects on children are more positive and depend critically on program design and location (Camacho et al. 2022; Agness and Getahun 2026; Kumar 2021). In developed countries, evidence on the labor supply effects of housing assistance is similarly mixed (Jacob and Ludwig 2012; Kling et al. 2007). We contribute to this literature in a new direction: in addition to employment effects, we examine how housing receipt shapes the decision to start a business. Our setting is distinctive in that CDHU units are distributed across municipalities throughout São Paulo state—beneficiaries are not systematically relocated to peripheral areas—so the entrepreneurship effects we document are not driven by displacement from labor markets. Instead, they operate through a necessity channel that is orthogonal to the relocation mechanism emphasized in the prior literature, and that extends the economic returns to social housing beyond shelter and consumption smoothing.

The remainder of the paper is organized as follows. Section 2 describes the CDHU program and financing structure. Section 3 covers data construction and sample selection. Section 4 presents the ITT empirical strategy and balance tests. Sections 5 to 8 examine entrepreneurial entry, labor market effects, mechanisms, and post-entry firm quality, respectively. Section 9 concludes.

2 Institutional Background

The CDHU housing lottery program provides our empirical setting. We describe its key institutional features in turn, focusing on the aspects most relevant for interpreting our results.

2.1 The CDHU Housing Program

The Companhia de Desenvolvimento Habitacional e Urbano do Estado de São Paulo (CDHU) is São Paulo state's public housing authority and the largest promoter of affordable housing in Brazil, having built and sold over 550,000 units across 639 of the state's 645 municipalities since its founding in 1949 (CDHU (2026b)). CDHU's scale reflects a financing model unique among Brazilian states: since 1989, São Paulo has earmarked 1% of its ICMS (value-added tax) revenue exclusively for social housing programs (formalized under São Paulo State Law 6.556/1989), generating a stable, state-controlled funding stream independent of federal transfers and sustaining annual investments of approximately R$1.5 billion (Secretaria de Estado da Habitação de São Paulo (2012)).

São Paulo accounts for roughly 31% of Brazil's national GDP yet faces a housing deficit of approximately 1.25 million units—the largest in absolute terms among all Brazilian states, representing 7.5% of the state's occupied housing stock (Fundação João Pinheiro 2024). Notably, over 74% of the deficit concentrates among households earning up to R$2,640 per month, the income range targeted by CDHU. CDHU constructs standardized housing developments and distributes units through public lotteries—formally audited random drawings that ensure transparent and equitable allocation. Between 2017 and 2024, CDHU conducted 262 lotteries across 223 municipalities in the state, selecting 26,288 beneficiaries from a pool of 367,505 applicants.

2.2 Eligibility, Quota System, and Lottery Mechanism

Applicants must satisfy several baseline eligibility requirements: monthly gross household income between one and ten minimum wages; no current or prior residential property ownership anywhere in Brazil (verified through national property registries); at least five years of residency or formal employment in the lottery municipality; and one entry per family unit.

Within each lottery, units are allocated across separate *quota groups*, each subject to an independent random draw. The four main quota types are: a general demand quota (*demanda geral*), open to all eligible applicants; an income restriction quota, stratified into bands of 1–3, 3–5, and 5–10 minimum wages; a vulnerability score quota (*critérios de prioridade*), which ranks applicants by the number of national and state eligibility criteria met on a 0–6 scale; and a special-groups quota (*cotas especiais*), covering elderly applicants (aged 60 and above), persons with disabilities, police officers, households with young children (*primeira infância*), and single-person households.[2] Not all quota types appear in every lottery; their presence and relative size are specified in each lottery's official rules (*edital*).

Beneficiary selection is governed by State Law 10.310/1999, as amended by State Law 13.094/2008, which mandates public random selection among pre-registered eligible applicants as the sole criterion for unit allocation. Selection is conducted through a public lottery employing cryptographically secure random number generation, held either electronically with public audit or in physical ceremonies attended by municipal officials and applicants.[3] The draw produces a ranked list of winners and alternates within each quota group; if a winner declines, the next-ranked alternate receives the offer. Randomization is conducted strictly *within* each lottery × quota cell.

The typical timeline from public lottery to house delivery spans approximately 12–18 months. Following the lottery, CDHU verifies eligibility and conducts due diligence; winners who decline or are found ineligible forfeit the unit to the next-ranked alternate. Contract signing and financing formalization follow, after which house delivery takes place upon construction completion. Payment obligations begin upon key delivery, not at lottery date.

2.3 Housing Units and Financing

CDHU constructs standardized single-story houses of approximately 38–40 square meters, featuring two bedrooms, a combined living and dining area, a kitchen, a bathroom, and a laundry space. All units include basic infrastructure—water, sewage, electricity, and paved street access; Figure 1 presents photographs of representative units and Figure IA1 shows the standard floor plan. Minimal variation in unit

[2] The six vulnerability score criteria—three national and three state-level—are described in Table IA2.

[3] Figure IA2 shows key delivery ceremonies attended by São Paulo State Governor Tarcísio de Freitas, illustrating the political salience and public transparency of the program.

Figure 1: Visual Examples of CDHU Housing Units in São Paulo State

A: Ground-Level View of Housing Units



B: Aerial View of a Housing Development



This figure shows examples of standardized housing units provided through São Paulo's public housing lottery program. Panel A displays a ground-level view of typical units. These single-story homes typically feature similar floor plans. Panel B presents an aerial view of a completed housing development in Franca, São Paulo.

design across lotteries and municipalities ensures that treatment effects reflect access to *homeownership* rather than differences in housing quality.

The financing structure is heavily subsidized. Beneficiaries receive upfront government grants of R$10,000–R$40,000 depending on income bracket; monthly payments are set at 20% of verified household income and adjusted annually with the minimum wage; interest rates are 0% real for families earning 1–5 minimum wages and 4% real for those earning 5–10 minimum wages—well below Brazil's prevailing market mortgage rates of 10–12% real—over a 30-year term. Table IA1 quantifies these benefits for a typical two-minimum-wage household: the net present-value gain—combining the housing asset and avoided rental costs, net of program payments—amounts to roughly R$236,000, or approximately 6.5 years of annual income.

2.4 Title Structure, Collateral Restrictions, and Enforcement

The financing structure operates under fiduciary transfer (*alienação fiduciária*, Law 9.514/1997 (Brasil 1997)), whereby CDHU retains full legal title (*propriedade fiduciária*) throughout the repayment period; beneficiaries hold only direct possession rights (*posse direta*) and cannot legally encumber or pledge the unit as collateral to any third party (CDHU 2026c). Full, unencumbered legal title transfers to the benefi-

ciary only upon completion of all payments at the end of the 30-year term. Beneficiaries may renovate the unit or pass it to heirs during the payment period, and may prepay at any time without penalty; in practice, however, CDHU staff we consulted report that nearly all beneficiaries maintain the full 30-year term.

This feature has a direct and important implication for our empirical design. The collateral channel that dominates the existing literature on homeownership and entrepreneurship—whereby home equity appreciation relaxes borrowing constraints and enables business investment (Adelino et al. 2015; Schmalz et al. 2017)—is structurally inoperative by construction in our setting: because beneficiaries hold no legal title during the repayment period, they have nothing to pledge as collateral. Any effect we document on entrepreneurship must therefore operate through a distinct channel, most plausibly the security and cash-flow relief that possession provides.

CDHU's enforcement policy is deliberately lenient. Beneficiaries receive an automatic 30-day grace period on missed payments, after which CDHU issues a notification and invites renegotiation before initiating any proceedings (CDHU 2026a). While beneficiaries are formally classified as delinquent under the National Housing Finance System after three missed payments, CDHU staff we consulted report that legal action for repossession is initiated only after at least 12 consecutive months of arrears, followed by extra-judicial notice and, only then, potential court action—a process that in practice extends housing security. This graduated forbearance reflects both the program's social welfare objectives and the practical and political costs of evicting low-income families, and implies that beneficiaries retain secure housing tenure even during extended periods of income disruption.

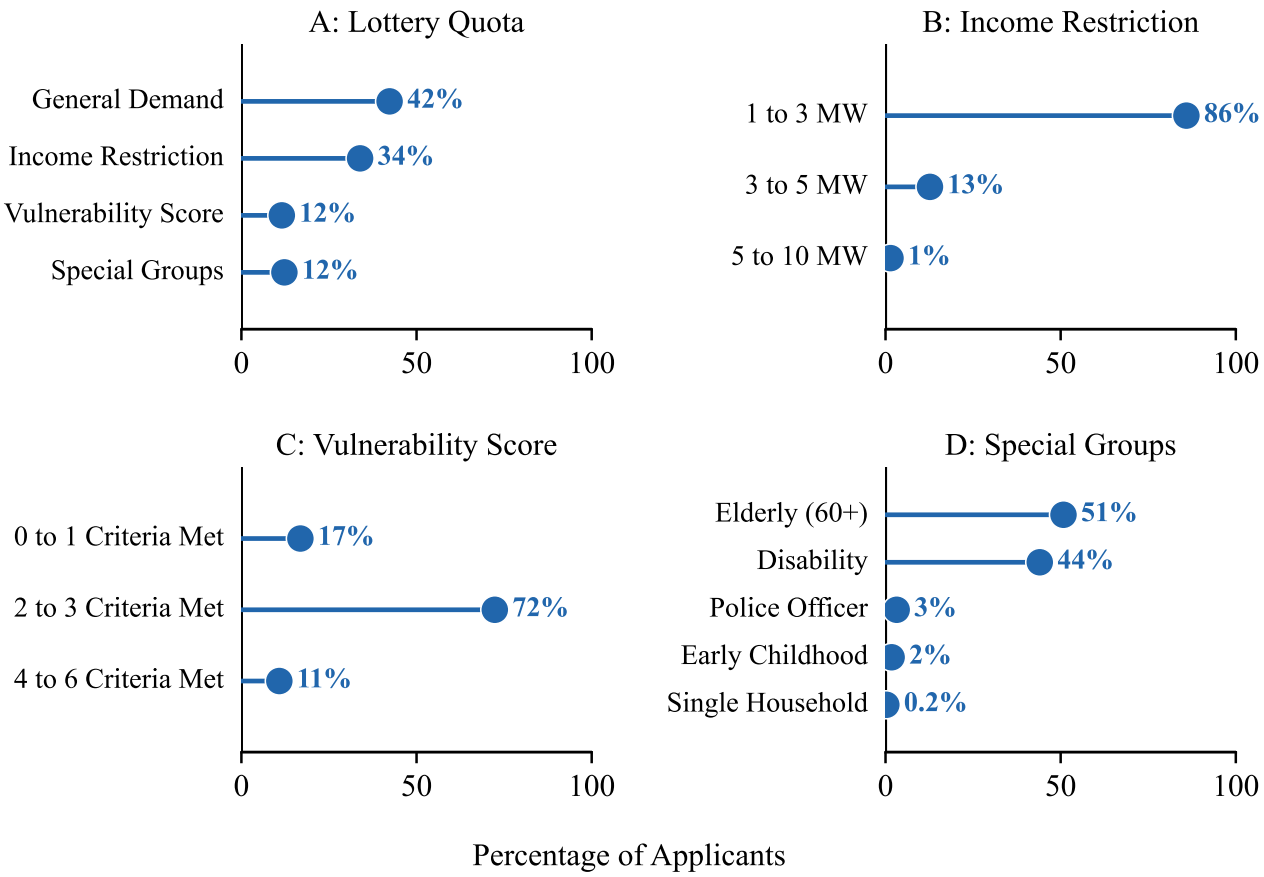
3 Data

We construct our analysis dataset by linking CDHU lottery records to a set of Brazilian administrative registries. We describe each data source, our identification strategy for linking applicants across datasets, and the construction of our estimation sample in turn.

3.1 CDHU Lottery Records

Our primary data source consists of the official lottery records published by CDHU. For each lottery event, CDHU publishes at least three documents: the official rules (*edital*), which specifies the quota

Figure 2: Lottery Quota Characteristics in São Paulo's Housing Program



This figure presents the distribution of CDHU housing lottery applicants across quota categories, restricting to beneficiaries and not-selected applicants in our sample. Panel A shows the overall share of applicants by quota type. Panels B–D decompose three of these quotas, each rescaled to sum to 100% within the quota group. Panel B breaks down the income restriction quota by income band, measured in multiples of the minimum wage (MW). Panel C breaks down the vulnerability score quota by the number of national and state vulnerability criteria met, ranging from 0 to 6; see Table IA2 for a description of each criterion. Panel D breaks down the special-group quota (*cotas especiais*) by group type, including elderly applicants (60+), persons with disabilities, families with young children, police officers, and single-person households. The general demand quota (*demanda geral*) has no additional eligibility requirement beyond the program's income ceiling.

structure, eligibility criteria, and number of units available; a list of applicants (*inscritos*); and a list of selected beneficiaries (*sorteados*), including each applicant's quota group and ranking within the draw. We manually collect and process these and other available documents for each of the 262 lottery events held between 2017 and 2024, spanning 223 municipalities in the state of São Paulo. The raw records are published as PDF documents—totaling 1,392 documents with 28,252 pages—which we parse, standardize, and link into a single applicant-level panel.

Quota groups reflect the priority categories described in Section 2; randomization is conducted separately *within* each quota group, defining the lottery × quota cells that form the strata for our empirical design. Figure 2 documents the distribution of applicants across quota types in our sample. Panel A shows that the general demand quota accounts for the largest share of applicants (42%), followed by the income restriction quota (34%), with vulnerability score and special-group quotas each representing 12%. Panel B reveals that the income restriction quota is heavily concentrated at the lowest income band: 86% of income-restricted applicants fall in the 1–3 minimum wage bracket, with only 13% in the 3–5 MW band and 1% above 5 MW. Panel C shows that within the vulnerability score quota, the middle band—2 to 3 criteria met—accounts for the large majority of applicants (72%), with the lowest (0–1 criteria, 17%) and highest (4–6 criteria, 11%) bands each representing smaller shares. Panel D decomposes the special-groups quota, where elderly applicants (51%) and persons with disabilities (44%) together account for nearly all of this category, with police officers (3%), early childhood households (2%), and single households (0.2%) making up the remainder.

By combining and reconciling these documents, we precisely reconstruct each applicant's selection status—beneficiary, waitlisted, or not selected—along with their rank within the draw. For each individual, we also recover their name, partial CPF identifier, municipality of application, lottery year, quota group assignment, income bracket, and the number of eligibility criteria met at the time of application.

3.2 Individual Identification

A central challenge in this project is linking lottery applicants—whose records contain only partial identifiers—to the administrative datasets that contain our outcome variables, which are organized by CPF (Cadastro de Pessoas Físicas), Brazil's individual taxpayer registry number. CDHU records do not report full CPFs directly. We recover CPFs through a multi-source cross-referencing strategy, combining exact and partial matching across several large administrative registries.

Our primary matching sources are: (i) the TSE electoral registries, comprising records on political candidates, party affiliates, campaign donors, campaign suppliers, and party donors; (ii) the CNPJ business registry, which identifies individuals as firm owners or responsible parties; and (iii) the MEC SISU university admissions database. For individuals not identified through these public sources,

we supplement identification with a data distributor linked to one of Brazil's major credit bureaus.

Our matching strategy proceeds in two steps. In the first step, we attempt an exact match on the full CPF whenever it is available in both the CDHU record and the reference registry. In the second step, for unmatched individuals, we apply a partial match combining digits 4–9 of the CPF (when available in masked form in CDHU records), the individual's full name standardized against the Receita Federal registry, and the municipality code. A partial match is accepted only when it produces a unique link in both datasets. We construct a master individual registry that consolidates matches across all sources, resolving conflicts hierarchically and tracking the coverage and source of each identification.

3.3 Outcome Variables

Entrepreneurship. Our primary outcomes are constructed from the CNPJ business registry, maintained by the Receita Federal. The CNPJ records the universe of formally registered firms in Brazil, including the date of opening and closure, legal structure, sector (CNAE classification), municipality, and the responsible individual's CPF. We match lottery applicants to CNPJ records using exact CPF matches for firms where the applicant appears as the responsible individual (*empresário individual*, or IE), and additionally through shareholder records (*quadro de sócios e administradores*) for partnerships and limited liability companies. For sole proprietorship firms, we also employ the partial matching strategy described above. We construct indicators for whether each applicant started a new firm within $t = 1, 2, 3, 4, 5$ years of the lottery, separately for microenterprises (MEI and ME) and other legal structures, as well as performance outcomes for those who enter—including equity capital at registration, survival, and tax compliance. We further link registered firms to RAIS employment records to recover firm-level outcomes such as number of employees, average wages, and workforce composition.

Formal Employment. Labor market outcomes are constructed from RAIS (Relação Anual de Informações Sociais), the matched employer-employee dataset maintained by the Ministry of Labor. RAIS covers the near-universe of formal employment relationships in Brazil at annual frequency. For each applicant, we construct indicators for formal employment in each year relative to the lottery, as well as average monthly wages and weekly hours worked, for up to five years post-lottery and up to three years pre-lottery. These outcomes—employment status, wages, and hours—serve a dual role in the analysis:

pre-lottery records enter as control variables in the balance tests and as conditioning variables in the heterogeneity analysis, while post-lottery records constitute a set of labor market outcomes of direct interest alongside the entrepreneurship results.

3.4 Covariates and Municipal Characteristics

Demographic characteristics are assembled from every administrative source used in the CPF identification pipeline. The CDHU application records provide income bracket, quota group, number of vulnerability criteria met, and head-of-household status. The TSE electoral registries contribute education, race/ethnicity, date of birth, nationality, and marital status for applicants who appear as political candidates or party affiliates. The CNPJ business registry and RAIS employment records supply additional demographic information—including education and age—for applicants identified through firm ownership or formal employment. Where the same attribute is available from multiple sources, we harmonize across them using a hierarchical priority rule, favoring the source closest in time to the lottery year. Gender is imputed using IBGE first-name gender tables, which assign a male/female classification based on the national frequency distribution of each given name; we classify applicants as female if their first name is classified as female with at least 80 percent frequency in the IBGE records. The breadth of demographic coverage in our final dataset is thus a direct byproduct of the multi-source strategy—each administrative linkage that recovers a CPF also delivers a richer set of individual characteristics.

All monetary variables—including monthly wages from RAIS and equity capital (*capital social*) from the CNPJ registry—are deflated to constant 2024 Brazilian reais using the IPCA consumer price index (*Índice Nacional de Preços ao Consumidor Amplo*), sourced from IBGE.

Municipal-level characteristics used in the heterogeneity analysis are drawn from several sources. GDP per capita and population come from IBGE municipal accounts and population estimates. Vulnerability indicators—including the share of adults with zero income, illiteracy rates, overcrowding, and the share of the vulnerable population—are taken from IPEA's Atlas de Vulnerabilidade Social (IPEA 2015).

3.5 Sample Construction

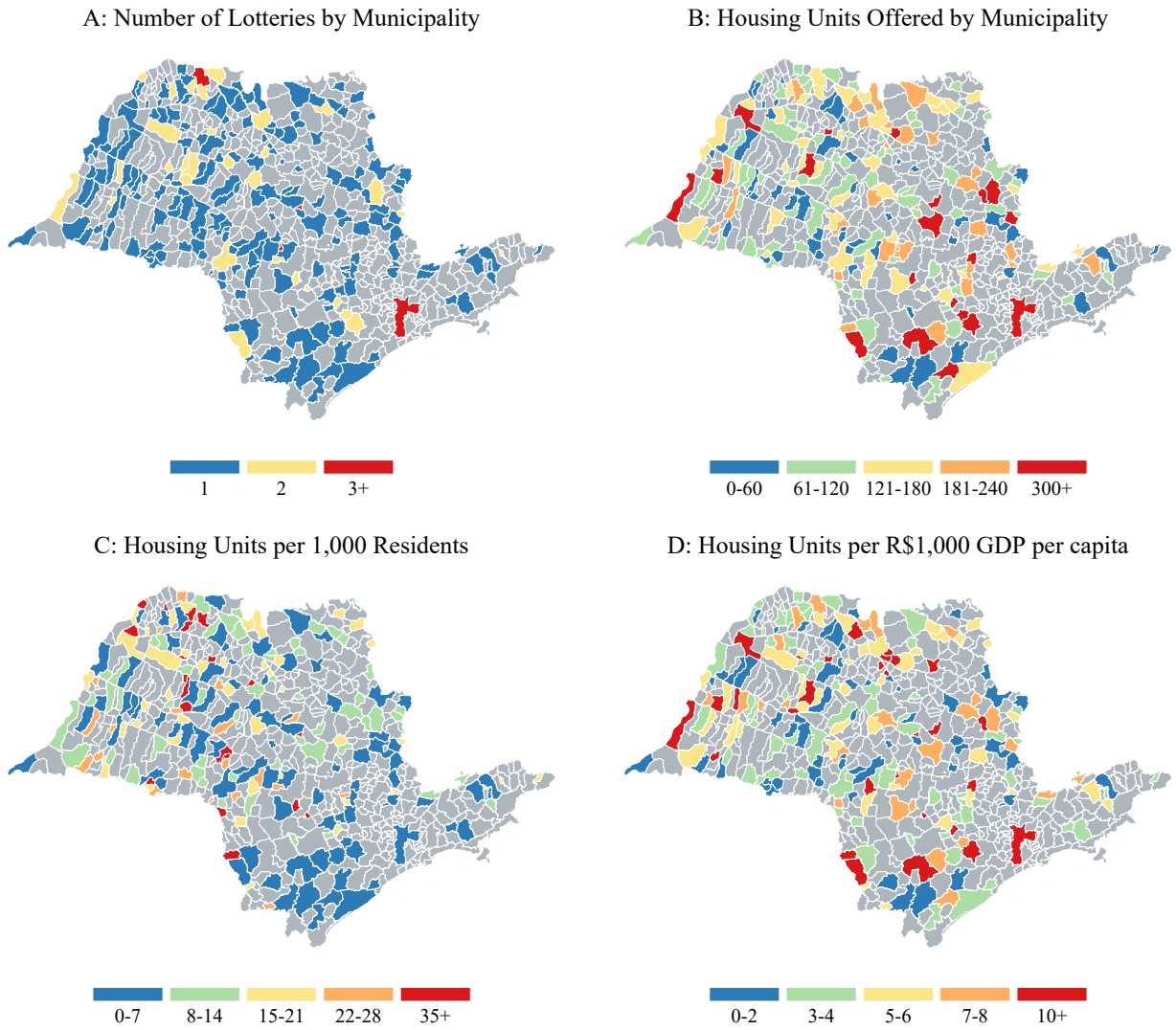
Our estimation sample consists of all applicants belonging to either the beneficiary group or the not-selected group across the 262 lottery events in our data, spanning 223 municipalities in the state of São Paulo. We exclude waitlisted applicants, who remain eligible to receive a unit through beneficiary attrition and therefore constitute a contaminated control group. The full sample comprises 177,175 applicants—26,288 lottery beneficiaries and 150,887 not-selected applicants—across 1,020 lottery × quota cells. The effective regression sample varies by post-lottery horizon due to eligibility gating: applicants in lotteries held fewer than t years before the end of our data window (2025) are excluded from t-year outcome regressions, yielding 160,238 observations at three years, and 119,152 at five years.

Figure 3 shows the geographic distribution of the program across São Paulo state. Panel A reveals that lottery activity is concentrated in interior municipalities rather than the capital region, with several cities hosting three or more lotteries over the sample period. Panel B shows total units allocated by municipality, while Panels C and D normalize by local population and GDP per capita, respectively, revealing substantial variation in program intensity that is not simply a function of city size or economic weight. Figure IA3 documents the program's temporal profile. Panel A shows the number of lotteries conducted each year, which peaked at 107 in 2020 before falling sharply to just 4 in 2021. Panel B mirrors this pattern for housing units offered, with annual allocations peaking at 11,000 units in 2020 and collapsing to under 500 the following year—reflecting both construction cycles and state budgetary fluctuations. Figure 4 characterizes the size and competitiveness of individual lotteries in our sample. Panel A shows that the most common lottery size is 50–100 units (36% of lotteries), with a mean of 115 and median of 89 units. Panel B reveals considerable variation in how competitive lotteries are: while the mean selection rate is 13.2%, nearly a quarter of lotteries have selection rates below 5%, and 21% exceed 20%—indicating that the degree of randomization varies substantially across draws.

4 Empirical Design

Our identification strategy exploits the random assignment of housing units through the CDHU lottery program. Within each lottery, applicants are randomly selected as beneficiaries, conditional on their quota group. This randomization ensures that, in expectation, lottery winners and non-winners are

Figure 3: Housing Lottery Programs in São Paulo State

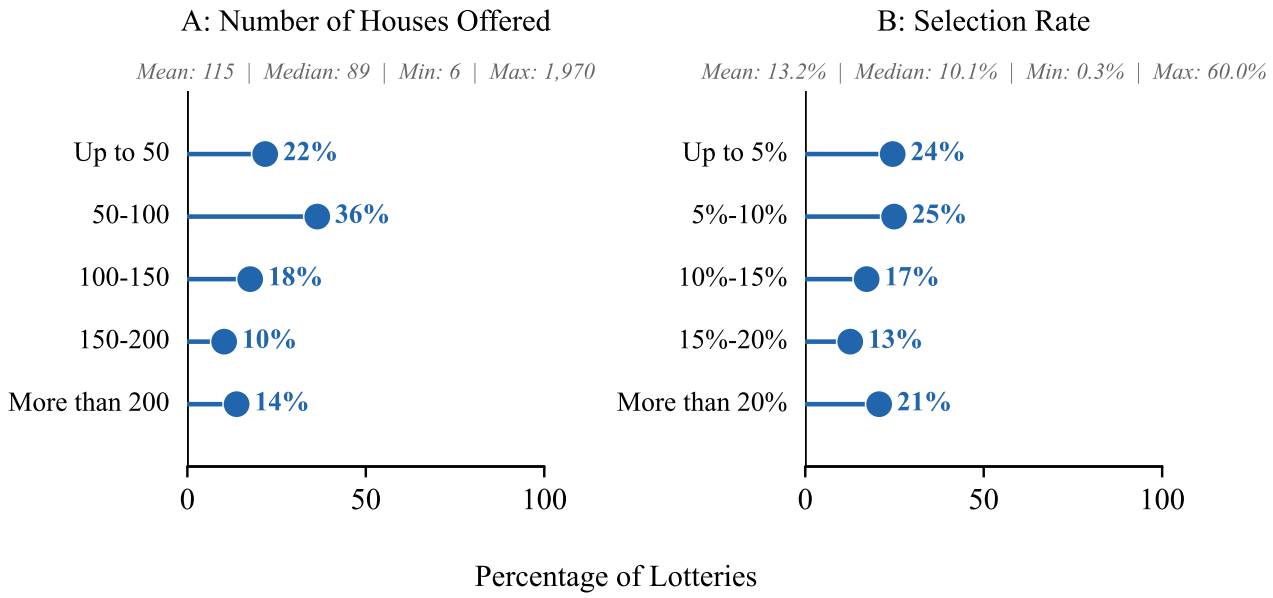


This figure shows the geographic distribution of housing lottery programs across São Paulo state municipalities between 2017 and 2024. Panel A displays the number of lotteries conducted in each municipality. Panel B shows the total housing units allocated through the program. Panel C presents housing units per 1,000 residents, measuring the relative program intensity. Panel D shows housing units per R$1,000 GDP per capita. Municipalities without lotteries are displayed in light gray.

identical on both observable and unobservable characteristics, allowing us to estimate the causal effect of housing access on entrepreneurship outcomes by directly comparing the two groups.

Our baseline specification follows the intent-to-treat (ITT) approach standard in the housing

Figure 4: Lottery Size and Competitiveness in São Paulo's Housing Program



This figure presents the distribution of housing lotteries by size and competitiveness, restricting to lotteries in our sample. Summary statistics are reported above each panel. Panel A shows the distribution of lotteries by the number of housing units offered, grouped into five size categories. Panel B shows the distribution by selection rate, defined as the number of housing units divided by the number of applicants. A lower selection rate indicates a more competitive lottery.

lottery literature (Chetty et al. 2016; Kling et al. 2007):

$$Y_i = \beta \cdot \mathbb{1}\{\text{Beneficiary}\}_i + \alpha_{\ell q} + \varepsilon_i, \tag{1}$$

where Y_i is the outcome of interest for individual i (e.g., an indicator for starting a business within t years of the lottery), $\mathbb{1}\{\text{Beneficiary}\}_i$ is an indicator equal to one if the individual was selected as a housing beneficiary, and $\alpha_{\ell q}$ denotes lottery × quota fixed effects. Under random assignment, $\hat{\beta}$ is simply the difference in mean outcomes between the two groups within each stratum—the ITT effect of being *offered* a housing unit. Standard errors are clustered at the lottery × quota level to account for correlated outcomes among applicants who faced the same randomization draw.

The inclusion of lottery × quota fixed effects ensures that comparisons are made exclusively among applicants who faced the same randomization draw—that is, who applied to the same lottery and belonged to the same priority group—while also improving estimation precision by reducing residual

variance (Kling et al. 2007). This is analogous to the randomization site fixed effects in Kling et al. (2007) and the lottery fixed effects in Chetty et al. (2016).

Because the CDHU lottery directly assigns treatment status, our ITT estimates are not confounded by self-selection into treatment. Not all lottery winners ultimately receive or occupy a housing unit, so β captures the reduced-form effect of being *offered* housing rather than the effect of housing receipt itself. This interpretation is conservative: the ITT dilutes the true effect across those who received housing and those who did not, understating the magnitude of the effects we document. The ITT estimator is the natural choice in our setting, as it is identified directly from random assignment without additional assumptions about the take-up process (Banerjee et al. 2015).

4.1 Covariate Balance

A necessary condition for our identification strategy is that lottery assignment is uncorrelated with pre-determined characteristics. Table 1 verifies this by comparing beneficiaries and not-selected applicants on a comprehensive set of pre-lottery covariates, controlling for lottery × quota fixed effects.[4] Across approximately 30 covariates spanning demographics, race, education, labor market history, entrepreneurship history, and political candidacy, we find that the two groups are well balanced. The large majority of differences are small in magnitude and statistically insignificant. Of the 30 comparisons, one yields a p-value below 0.05—below the 1.5 rejections one would expect by chance under the null of perfect balance (Kling et al. 2007)—and no single panel exhibits a systematic pattern of imbalance.

PLACE TABLE 1 ABOUT HERE

In particular, pre-lottery entrepreneurship outcomes—including whether the applicant was an active entrepreneur, had ever started a business, or had recently founded a firm—are all precisely balanced between the two groups ($p > 0.24$ in every case), confirming that our main results are not driven by differential selection into entrepreneurship prior to the lottery.

[4] Table IA3 shows that balance is maintained when waitlisted applicants are included in the control group. Table IA4 presents joint balance tests across all three groups—beneficiaries, waitlisted, and not-selected—and confirms that the three groups are indistinguishable on pre-lottery characteristics, with statistically insignificant joint F-statistics for most covariates.

5 Results on Entrepreneurship Entry

5.1 Main Results

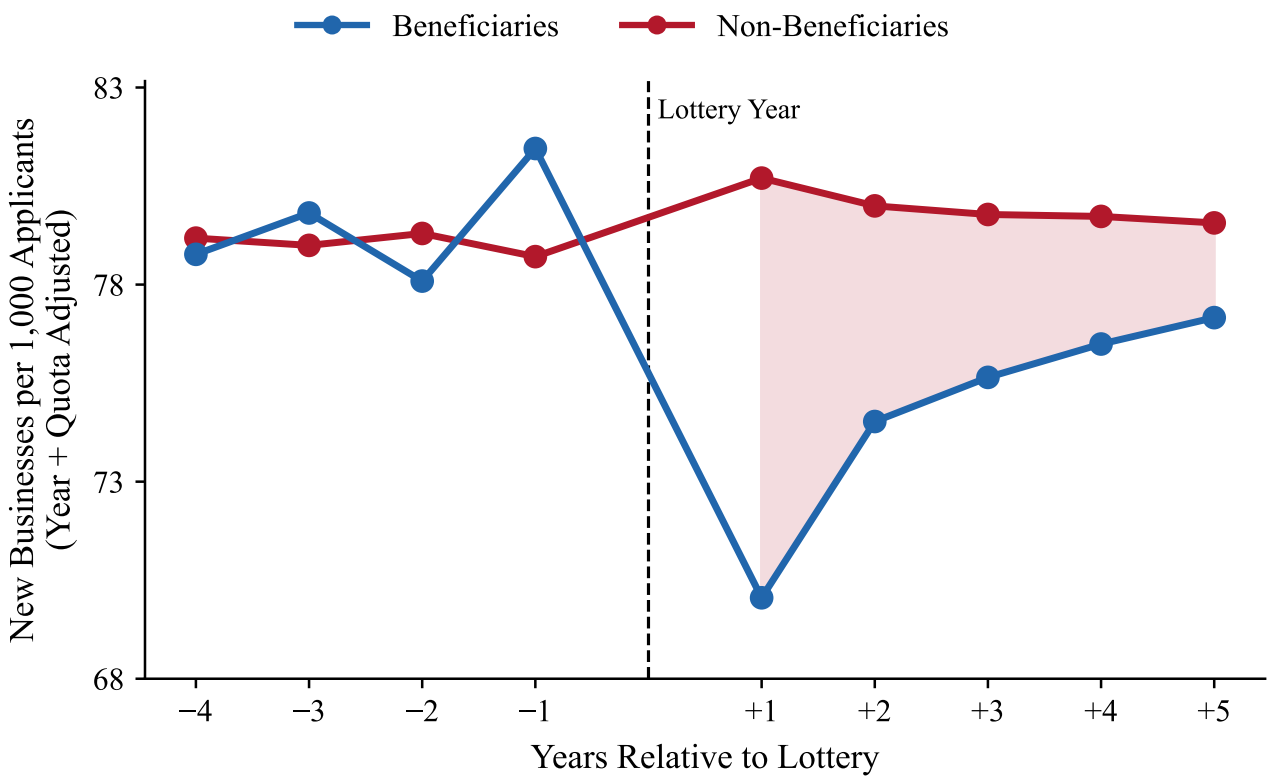
Figure 5 provides a first look at business formation rates around the lottery year. In the four years prior to the lottery, beneficiaries and non-beneficiaries exhibit virtually identical business formation rates—hovering around 80 new businesses per 1,000 applicants annually—with no discernible pre-trend. In the years that follow a housing lottery, however, the two series diverge sharply: beneficiaries experience a steep drop in business formation in the first year after the lottery, followed by a persistent and widening gap relative to non-beneficiaries through $t = +5$. The shaded region captures this post-lottery gap, which is largest in the year immediately following the lottery and narrows over the subsequent horizon as beneficiaries gradually resume business formation activity. This pattern provides a first piece of visual evidence that receiving a housing unit causally reduces entrepreneurship entry among lottery applicants.

Figure 6 formalizes this evidence through an event-study design. Pre-lottery estimates—serving as placebo tests of parallel trends—are uniformly small and statistically indistinguishable from zero across all four panels, confirming that the two groups were on identical trajectories prior to the lottery. Post-lottery, the estimates turn negative and grow in magnitude over time. Panels A and B, corresponding to any business and microenterprises respectively, show a clear and persistent decline in cumulative entry among beneficiaries that strengthens through the five-year horizon. Panels C and D, corresponding to small enterprises and larger firms, show coefficients that remain flat and centered on zero throughout the post-lottery window, indicating the housing effect concentrates at the microenterprise margin.

Table 2 presents the ITT estimates underlying these patterns. Results under Columns (1)–(3) of Panel A show that housing lottery winners are significantly *less* likely to start any business within one, two, and three years of the lottery, with the effect remaining negative and significant through four years and precision declining at five years as the sample shrinks due to horizon gating.[5] To identify which firm types drive this result, Panels B–D decompose the effect by size classification. Columns (1)–(5)

[5] Including waitlisted applicants in the control group attenuates the estimates—Column (3) of Panel B of Table IA5 yields −0.321 percentage points at three years, compared to −0.764 in the main specification—consistent with a housing-security mechanism: waitlisted controls who may still receive a unit through beneficiary attrition partially dilute the estimated effect. Table IA6 presents a difference-in-differences specification stacking pre- and post-lottery periods with individual and lottery×quota×period fixed effects, yielding a coefficient of −3.326 percentage points on the beneficiary×post interaction for microenterprise entry and corroborating the main results under a more demanding design.

Figure 5: Business Formation Rates Around the Housing Lottery



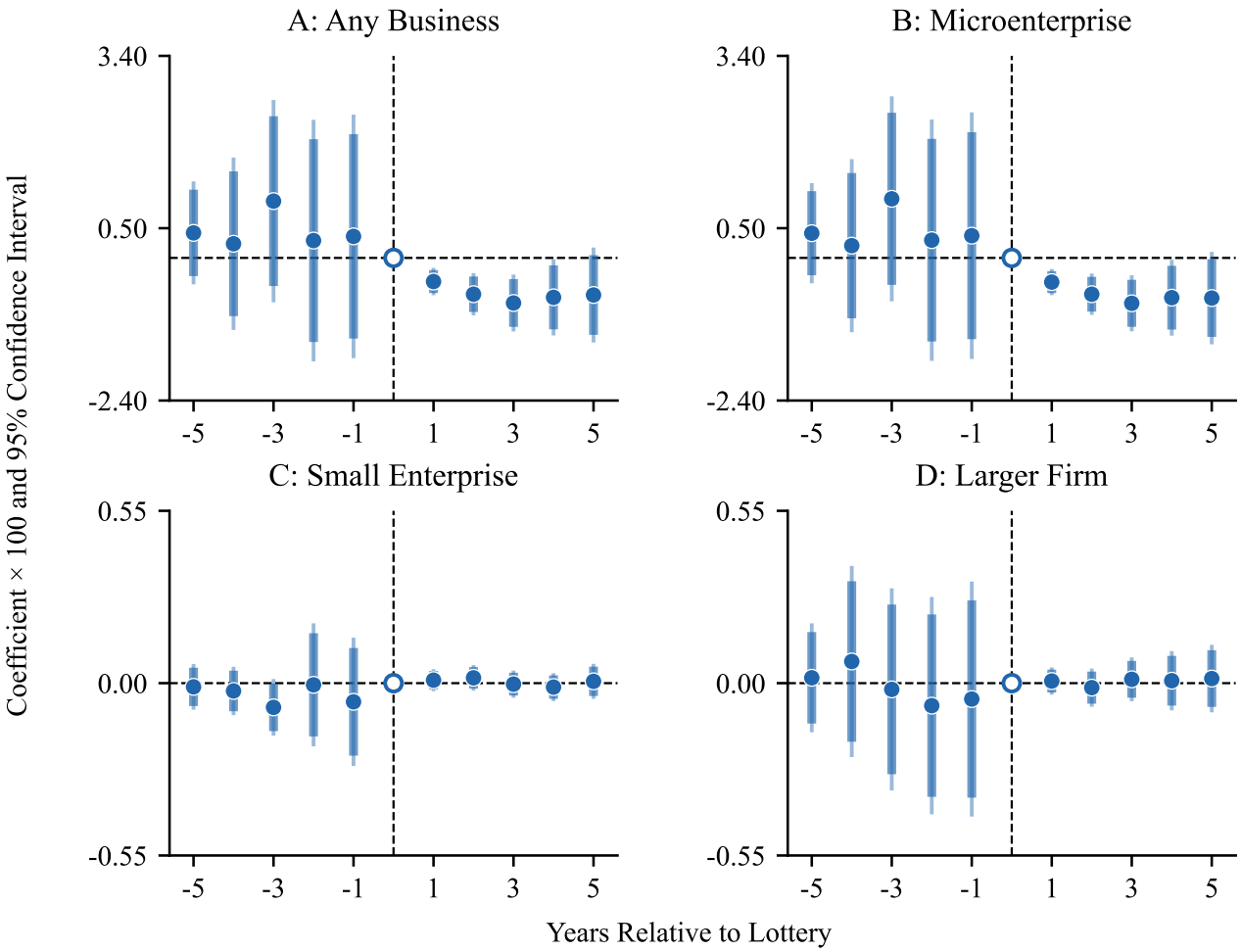
This figure plots annual business formation rates for beneficiaries and non-beneficiaries relative to the lottery year. Each data point represents the share of applicants who started a new business in that calendar year. To isolate within-lottery variation, the beneficiary series is constructed as the raw non-beneficiary mean plus the average within-lottery-cell gap (beneficiaries minus non-beneficiaries), averaged across lottery×quota cells. The sample is restricted to beneficiaries and not-selected applicants, excluding applicants with pre-existing firms. Lottery year and quota type fixed effects are absorbed. The dashed vertical line marks the lottery year ($t = 0$). The shaded region denotes the gap between the two series in the post-lottery period.

of Panels C and D show coefficients near zero and consistently insignificant across all horizons, ruling out any role for small or larger firm entry. Panel B, in contrast, delivers microenterprise results that are virtually identical in magnitude and significance to the any-business estimates across every column, establishing that the overall effect concentrates entirely at the microenterprise margin.

PLACE TABLE 2 ABOUT HERE

The reduction in microenterprise entry is sharpest immediately after the lottery and grows in absolute magnitude as the horizon extends. Column (1) of Panel B indicates that beneficiaries are 21% less likely to have started a microenterprise within one year (−0.407 percentage points relative to a

Figure 6: Event Study: Impact of Housing Lottery on Entrepreneurship Entry



This figure presents event-study estimates of the effect of housing lottery selection on firm entry. For each horizon t, the dependent variable is a cumulative entry indicator equal to one if the individual has ever started a firm of the specified type by year t relative to the lottery year. Each estimate is obtained by regressing this cumulative indicator on $\mathbb{1}\{\text{Beneficiary}\}$, absorbing lottery×quota fixed effects. The control group is restricted to individuals not waitlisted. The reference period is the lottery year, normalized to zero. Pre-lottery estimates serve as placebo tests of the parallel trends assumption; post-lottery estimates capture the cumulative effect of receiving a housing unit on entrepreneurship. Panels A–D correspond to any business, microenterprises, small enterprises, and larger firms, respectively. Coefficients are multiplied by 100. Thick and thin horizontal bars denote 90% and 95% confidence intervals, respectively, based on standard errors clustered at the lottery×quota level.

non-beneficiary mean of 1.91%). Column (2) shows the gap widening to 15% at two years (−0.611 percentage points relative to a mean of 3.99%), and Column (3) shows a 13% reduction at three years (−0.764 percentage points relative to a mean of 5.73%). The effect persists significantly at four years, Column (4), with precision declining at five years as the regression sample contracts.

Our findings stand in contrast to the prevailing evidence in the housing and entrepreneurship literature, which has focused on the intensive margin of housing wealth. Studies such as Fairlie and Krashinsky (2012) and Adelino et al. (2015) document that increases in home equity—through housing price appreciation—expand entrepreneurship by relaxing collateral constraints, consistent with the liquidity channel. In those settings, homeowners leverage existing wealth to fund new ventures. Our setting differs fundamentally: CDHU applicants are renters with no prior property ownership, and the lottery assigns them their *first* residential asset. The reduction in entrepreneurship we document therefore speaks to a distinct margin—the extensive margin of homeownership access—rather than variation in the value of collateral already held. To our knowledge, ours is the first paper to isolate this margin.

5.2 Sources of Entry by Pre-Lottery Occupation

To understand who drives the reduction in entrepreneurship, we decompose the main effect by applicants' pre-lottery occupation status. Table 3 presents three-year entry estimates separately for individuals who were formally employed, formally self-employed (active entrepreneurs), and those with no formal occupation in the lottery year. The results reveal a striking pattern. Column (3) of Panel A shows that the effect is concentrated entirely among applicants with no formal occupation at the time of the lottery: beneficiaries in this group are 18% less likely to start any business within three years (−0.835 percentage points relative to a mean of 4.65%). Column (3) of Panel B confirms the same pattern holds for microenterprise entry, at 19% (−0.851 percentage points relative to a mean of 4.58%). In contrast, Columns (1) and (2) show no significant effects for formally employed applicants or active entrepreneurs at the three-year horizon across both panels.[6]

PLACE TABLE 3 ABOUT HERE

Table 4 tracks these patterns dynamically across all five post-lottery horizons for microenterprise entry. Panel C confirms that the effect among applicants with no formal occupation is not only significant at three years but persists robustly across the full horizon: Column (1) shows a 27%

[6]Tables IA7 and IA8 redefine pre-lottery occupation using the lottery year or the year prior to account for potential year-specific misclassification; results are nearly identical across both the three- and five-year horizons. Tables IA9 and IA10 confirm these patterns using an ordered probit specification that treats firm size as an ordered quality index; Tables IA11 and IA12 extend this to the five-year horizon. Results are consistent across all specifications.

reduction at one year (−0.460 percentage points relative to a mean of 1.70%), and the effect remains negative and significant through Column (5), where beneficiaries are 11% less likely to have entered at five years (−0.728 percentage points relative to a mean of 6.60%). The effect among active pre-lottery entrepreneurs in Panel B follows a different trajectory: Column (1) shows a significant early reduction at one year (63%, −0.689 percentage points relative to a mean of 1.09%), which dissipates through the intermediate horizons before reemerging at five years in Column (5) (37%, −2.125 percentage points relative to a mean of 5.75%). This pattern is consistent with housing receipt prompting existing entrepreneurs to temporarily exit or delay new ventures, with a larger longer-run reduction emerging as the horizon extends. Panel A shows no significant effects for formally employed applicants at any horizon, with coefficients that are economically small and statistically indistinguishable from zero throughout.

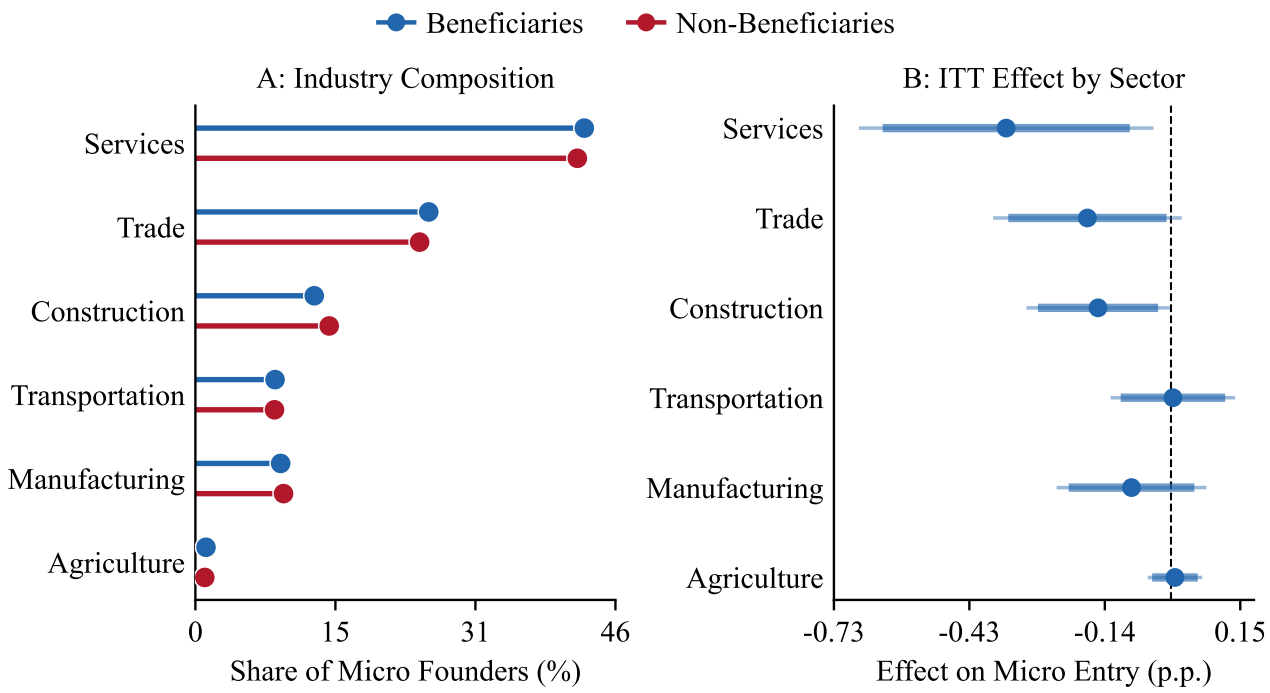
PLACE TABLE 4 ABOUT HERE

Taken together, these results point to a necessity-driven mechanism. Applicants with no formal occupation at the time of the lottery are the most economically precarious in the sample—lacking both the income security of formal employment and the established activity of active entrepreneurs. For this group, microenterprise formation is plausibly a margin of last resort: a way to generate income in the absence of stable earnings or secure housing. Receiving a housing unit removes a key source of financial pressure, reducing the urgency of starting a business as a means of economic survival. The lenient enforcement policy described in Section 2 reinforces this interpretation: because beneficiaries face no credible near-term threat of repossession even if payments lapse, housing receipt provides durable income-shock insurance that further dampens the necessity motive. The absence of any effect among formally employed applicants is consistent with this reading—workers with stable wages already have a reliable income source and thus face no necessity motive to start a business in the first place.

5.3 Industry Composition

Figure 7 examines the sectoral composition of microenterprise entry and the distribution of lottery effects across sectors. Panel A shows that the industry mix of new microenterprise founders is nearly identical between beneficiaries and non-beneficiaries: both groups concentrate overwhelmingly in

Figure 7: Industry Composition and Lottery Effects on Microenterprise Entry by Sector



Panel A shows the share of microenterprise founders in each sector, separately for beneficiaries and non-beneficiaries, for firms started within three years of the lottery. Panel B reports the coefficient on $\mathbb{1}\{\text{Beneficiary}\}$ from a separate linear probability regression for each sector, where the dependent variable is an indicator for starting a microenterprise in that sector within three years, with lottery×quota fixed effects absorbed and standard errors clustered at the lottery×quota level. Thick and thin horizontal bars denote 90% and 95% confidence intervals, respectively. Coefficients multiplied by 100.

services—primarily restaurants, hair and beauty, and domestic services—followed by trade, construction, and smaller shares in manufacturing, transportation, and agriculture. The close alignment across groups confirms that housing receipt does not alter the types of businesses applicants would otherwise start—the composition of entry is unaffected, only its level.

Panel B shows that the reduction in microenterprise entry is broad-based across sectors, with negative effects in services, trade, and construction—the three sectors that together account for the large majority of microenterprise formation in this population. The sub-industry patterns in Table IA13 reveal that within each sector, the reductions concentrate in the low-barrier activities: domestic services within services, and electrical installation within construction—activities that workers can register as solo microenterprises with minimal startup requirements, and that people turn to when they need income and have no better option (Schoar 2010; Margolis 2014). The breadth across sectors and the

concentration within sectors in subsistence-type activities tell the same story: housing receipt reduces the necessity motive for entrepreneurship, removing the pressure that would otherwise push financially precarious households into low-barrier, subsistence-oriented self-employment.

6 Labor Market Effects

The documented reduction in microenterprise entry raises a natural question: what do beneficiaries do instead? One possibility is that housing receipt enables a transition into formal wage work. Residential stability from homeownership may improve labor market access (Aaronson 2000), and homeownership has been shown to increase labor supply among low-income households in comparable public housing privatization settings (Hausman et al. 2022; Sodini et al. 2023). Under this channel, we would expect formal employment to rise among beneficiaries even as entrepreneurship falls—housing would be reallocating activity from self-employment to wage work rather than reducing overall economic engagement. An alternative interpretation is that no such reallocation occurs: housing receipt removes the subsistence pressure that would have pushed households into self-employment, but does not expand access to formal employment, leaving beneficiaries with more economic security but no more formal labor market attachment. We test between these interpretations using RAIS, examining whether housing lottery winners are more likely to appear as formal employees and earn higher wages in the years following the lottery.

Table 5 presents ITT estimates for formal employment and average monthly wages in each of the three post-lottery years for which RAIS data are available. Panel A shows that beneficiaries are no more or less likely to appear as formal employees in any post-lottery year: the coefficients in Columns (1)–(3) are economically small and statistically indistinguishable from zero throughout, against a baseline employment rate of roughly 15–16%. Panel B shows similarly null effects on average monthly wages conditional on formal employment, with point estimates that are positive at one year but shrink toward zero by year three and remain insignificant throughout. Housing receipt neither expands nor contracts formal labor market participation.

PLACE TABLE 5 ABOUT HERE

Table 6 decomposes these null results by pre-lottery occupation status. Panel A shows no signifi-

cant effect on formal employment for those already employed before the lottery at any horizon—housing receipt leaves ongoing formal employment relationships undisturbed. Panel B shows a marginally significant negative effect at one year for pre-lottery entrepreneurs (−20%, −1.752 percentage points relative to a mean of 8.80%), which dissipates entirely by years two and three, consistent with a short-run disruption as existing entrepreneurs adjust their activity following housing receipt rather than any lasting reallocation. Panel C shows no significant effects for applicants with no prior formal occupation at any horizon.

PLACE TABLE 6 ABOUT HERE

These results therefore rule out a reallocation channel. Beneficiaries are no more likely to hold formal jobs or earn higher wages than non-beneficiaries in any post-lottery year, indicating that the reduction in entrepreneurship entry is not offset by a corresponding expansion of formal employment.

7 Mechanisms

The results so far establish that housing receipt reduces microenterprise entry without expanding formal employment. We now examine the mechanism. If the reduction reflects a necessity channel—housing security removing the financial pressure that compels subsistence self-employment—the effect should be strongest where that pressure was most acute and where income alternatives exist to absorb it, and weakest where subsistence pressure is so severe that housing security alone cannot offset it. We test this using two sources of variation.

First, we use cross-municipality variation in local economic development and vulnerability. If the necessity channel is operative, the effect should be largest in more developed municipalities—where income alternatives are more accessible and housing security can meaningfully displace the need for self-employment—and attenuated in the most constrained environments, where subsistence pressure may be too severe for housing security alone to offset. Second, we use individual-level variation in gender and pre-lottery labor market outcomes. If necessity drives the reduction, it should be concentrated among those with the fewest outside options.

7.1 Municipal Characteristics

Table 7 presents results from a series of separate regressions, each interacting the beneficiary indicator with a standardized municipal characteristic. The baseline coefficient in each row gives the main treatment effect at the sample mean of the characteristic; the interaction coefficient captures how the effect varies as the characteristic moves one standard deviation above the mean.

PLACE TABLE 7 ABOUT HERE

Panel A examines municipal development indicators. The interaction coefficients are uniformly negative—GDP per capita, employer share, primary education completion, household electrification, and life expectancy—indicating that the reduction in microenterprise entry is amplified in more developed municipalities. For instance, the interaction with GDP per capita shows that the effect strengthens by 65% (-0.552 percentage points relative to a baseline of -0.845) for each standard deviation increase in local income per capita. In more developed local economies, income alternatives are more accessible, so housing security is more effective at displacing the necessity motive for self-employment.

Panel B examines municipal vulnerability indicators. The interaction coefficients reverse sign throughout—share of adults with zero income, illiteracy rate, share of vulnerable population, overcrowding, and fertility rate all attenuate the treatment effect. In the most constrained municipalities, where income alternatives are fewest and subsistence pressure is most acute, housing security alone is insufficient to fully offset the imperative to generate income through self-employment.[7]

The two panels together trace a coherent pattern: the housing lottery effect is largest precisely where necessity entrepreneurship is most responsive to income security, and smallest where financial constraints bind most tightly. This might seem surprising given the null formal employment results in Section 6, but it is consistent with Brazil's labor market structure. Informal employment accounts for the majority of the workforce among low-income households (Perry et al. 2007; Ulyssea 2018), and informal income opportunities are more accessible in more economically developed municipalities (Jonasson and Helfand 2010). Housing security is therefore sufficient to displace the necessity motive for self-employment where alternatives exist. In contrast, in the most constrained environments, where

[7]The full set of results across all 20 municipal characteristics at both horizons is reported in Table IA14.

both formal and informal alternatives are fewest (Dix-Carneiro and Kovak 2017, 2019), even housing security leaves households with too little slack to reduce their reliance on self-employment.

7.2 Individual Characteristics

Table 8 examines heterogeneity by individual characteristics. Panel A shows that the reduction in microenterprise entry is significantly stronger for men than for women. The main coefficient of −1.236 percentage points captures the effect for men, while the significant interaction of +0.939 percentage points implies a substantially attenuated effect for women—reducing the treatment effect by roughly three-quarters.[8] This is consistent with women facing more constrained wage employment alternatives (Duflo 2012; Jayachandran 2015): housing security alone is insufficient to displace the necessity motive where outside options remain scarce regardless of housing. Panel B examines pre-lottery labor market conditions among the subset of applicants with formal employment history. Monthly salary carries a positive and significant interaction: higher pre-lottery earners show a smaller reduction in microenterprise entry, consistent with higher-wage workers facing a weaker necessity motive to begin with—housing receipt has less margin to operate on where the pressure to self-employ was already low.[9]

PLACE TABLE 8 ABOUT HERE

Taken together, the individual-level heterogeneity patterns are consistent with the necessity channel. The housing lottery effect is concentrated among men and lower pre-lottery earners—precisely those most likely to rely on low-barrier self-employment as a strategy of last resort.

8 Microenterprise Quality and Entrant Composition

Housing receipt substantially reduces the rate of microenterprise entry—but does it also affect the quality of those who still enter? We examine this question from two complementary angles. First, we compare average post-entry outcomes between beneficiary and non-beneficiary entrants using Lee

[8] Table IA15 shows the gender interaction is significant and growing across all five post-lottery horizons, confirming that the attenuation for women is not a short-run or horizon-specific artifact.

[9] Table IA16 reports the full set of individual characteristics including demographics, education, pre-lottery entrepreneurship history, and prior firm equity, across all firm size categories and at both horizons.

bounds to address sample selection. Second, we characterize the marginal entrant deterred by housing receipt using the Kling et al. (2007) decomposition.

8.1 Average Post-Entry Outcomes

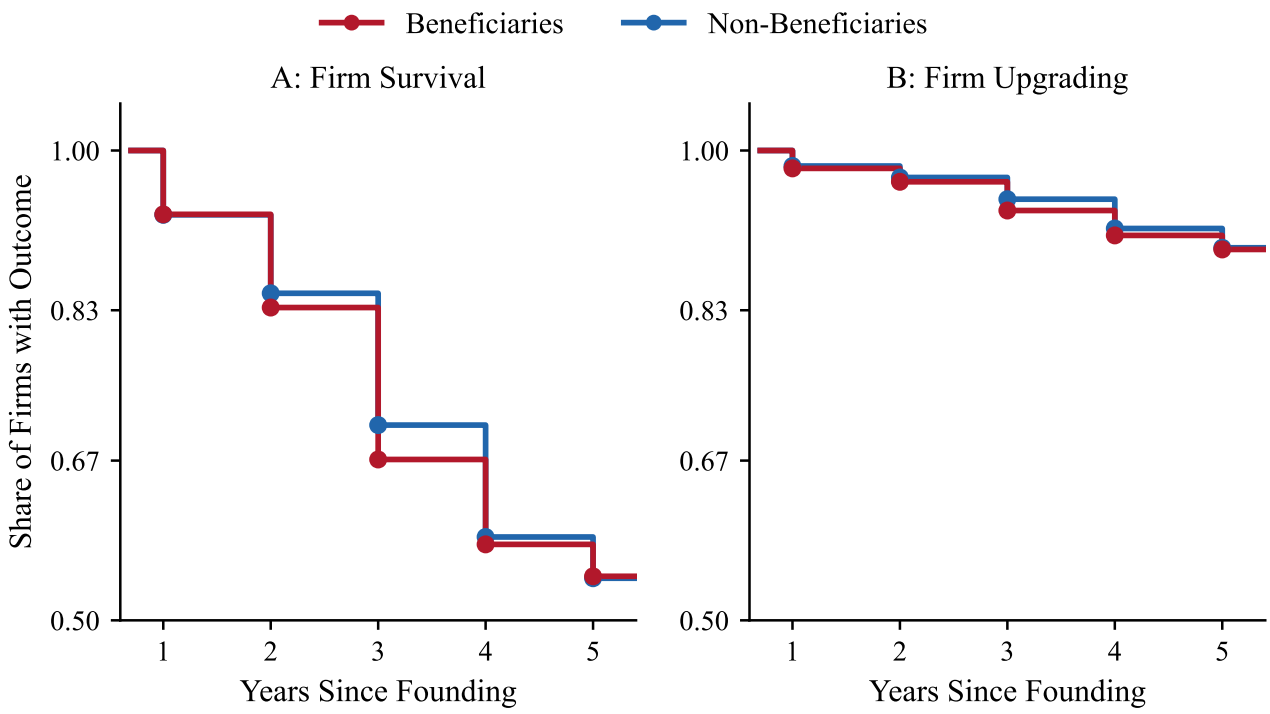
Comparing outcomes conditional on entry is complicated by sample selection: because beneficiaries are less likely to start a business, their entrant pool is selected relative to non-beneficiaries. We address this using Lee (2009) bounds under the monotonicity assumption that lottery selection can only weakly discourage entry, and examine five post-entry outcomes: equity at founding, three-year survival, firm upgrade, employment generation, and tax compliance violations. Firm upgrade refers to the transition out of MEI (*Microempreendedor Individual*) registration—Brazil's simplified sole-proprietorship regime for the smallest businesses, which caps annual revenue at R$81,000 and limits the firm to one employee beyond the owner. A firm that exceeds either threshold must transition to the ME (*Microempresa*) category, which involves higher taxation and compliance requirements. Upgrade therefore captures real business growth rather than simply a regulatory choice.

Figure 8 offers a first look using Kaplan–Meier curves for survival and upgrading among microenterprises started in the post-lottery period. The curves are nearly indistinguishable between beneficiaries and non-beneficiaries across all five years, suggesting that conditional on entry, the post-founding trajectories of the two groups are similar. The same pattern holds across all firm types, including small and larger companies (see Figure IA4).

Table 9 formalizes this using Lee bounds. Point estimates are null across all five outcomes—equity at founding, three-year survival, firm upgrade, employment generation, and tax violations—indicating that beneficiary entrants are on average observationally similar to non-beneficiary entrants in terms of post-entry performance. The Lee bounds are wide, reflecting the large trimming fraction imposed by the substantial reduction in entry among beneficiaries, and do not allow us to draw sharp conclusions about the quality of the marginal entrant deterred by housing receipt. Taken together, the evidence suggests that average post-entry performance is similar between the two entrant pools, though the wide bounds do not allow sharp inference about the quality of the entrepreneurs that housing receipt specifically deters.[10]

[10] Tables IA17 to IA21 report the full Lee bounds results separately by outcome and across all post-founding horizons.

Figure 8: Firm Survival and Upgrading After the Housing Lottery: Microenterprises



This figure plots Kaplan–Meier curves for firms started by beneficiaries and non-beneficiaries of the housing lottery among microenterprises only. Panel A shows firm survival, where the event is firm closure. Panel B shows firm upgrading, where the event is the first observed upgrade. In both panels, the sample is restricted to firms started in the post-lottery period by beneficiaries and not-selected applicants. Firms that do not experience the event by year five are censored. Curves are estimated separately for each group without covariate adjustment.

PLACE TABLE 9 ABOUT HERE

8.2 Marginal Entrant Composition

While average outcomes do not differ detectably between entrant pools, the Lee bounds analysis leaves open the question of who the deterred entrants are. We address this directly using the Kling et al. (2007) decomposition. Under monotonicity, all beneficiary entrants are always-entrants—individuals who would start a microenterprise regardless of lottery outcome. The not-selected entrant pool is a mixture of

Results are broadly consistent with the null finding in the main text: bounds include zero for survival, equity, and tax violations across all horizons. For firm upgrade and employment generation, point estimates are positive throughout but statistically indistinguishable from zero, consistent with the absence of systematic quality differences between beneficiary and non-beneficiary entrants.

always-entrants (share p_0) and marginal entrants (share $1-p_0$), where p_0 is the ratio of the beneficiary to not-selected entry rate, computed within each lottery×quota cell and averaged across cells. The marginal entrant mean is then recovered as $\bar{Y}^M = (\bar{Y}^C - p_0\bar{Y}^A)/(1-p_0)$, where $\bar{Y}^C$ and $\bar{Y}^A$ are the not-selected and always-entrant means, respectively. The average retention fraction $p_0 = 0.736$ implies that marginal entrants account for roughly 26% of not-selected entrants—the pool deterred by housing receipt.

Table 10 presents the results. Marginal entrants have lower equity at founding (R$7.84K vs. R$8.88K for always-entrants), substantially lower upgrade rates (2.1% vs. 6.7%), and markedly higher tax violation rates (28.1% vs. 17.3%). The higher raw survival rate among marginal entrants (76.8% vs. 62.1%) likely reflects persistence in dormant MEI registration rather than business success—because deregistration requires an active step, administrative registries systematically retain inactive registrants who have stopped operating without formally closing (McKenzie and Paffhausen 2019)—consistent with their lower upgrade and employment rates.[11] The portrait that emerges is of entrepreneurs who register a microenterprise as a low-commitment income strategy, unlikely to grow, unlikely to employ others, and more likely to fall out of tax compliance—the profile of entry driven by subsistence pressure rather than opportunity (Schoar 2010). Taken together, these results show that the decline in entrepreneurship we document upon housing receipt reflects fewer households at the margin where self-employment is a last resort rather than a choice.[12]

PLACE TABLE 10 ABOUT HERE

9 Concluding Remarks

This paper asks whether first-time homeownership affects entrepreneurship among low-income households, and through what mechanism. Exploiting random assignment from São Paulo state's CDHU housing lottery, we find that housing receipt substantially reduces microenterprise entry—by 20% in

[11] Using panel surveys across twelve developing countries, McKenzie and Paffhausen (2019) show that administrative firm registries systematically overstate survival because closure requires owners to actively report having shut down—a step many dormant operators never take. They document that roughly 40% of owners whose firms have closed reopen a new firm within three years, further underscoring that registry-based survival conflates active operation with mere registration persistence.

[12] Full results across all post-founding horizons and firm types are reported in Tables IA22 to IA24. The pattern of lower upgrade rates and higher tax violations among marginal entrants is consistent across horizons.

the year following the lottery—with effects that persist across our full five-year horizon. The reduction concentrates entirely among applicants with no formal occupation at the time of the lottery, spans all major sectors but concentrates within each sector in the lowest-barrier, subsistence-type activities, and is amplified in more economically developed municipalities where income alternatives are most accessible. Individual-level heterogeneity confirms the pattern: effects are strongest among men and lower earners—those most likely to rely on self-employment as a strategy of last resort. Formal employment shows no corresponding increase, ruling out a reallocation from self-employment to wage work.

Our findings advance the understanding of homeownership and entrepreneurship in two important ways. First, they establish that the margin on which housing operates matters for its effect on economic activity. The collateral and investment channels documented for existing homeowners are simply not operative for first-time owners in low-income social housing programs; the relevant mechanism is security, not wealth. Second, housing security deters not just any entrepreneurship but specifically the lowest-quality variety: the marginal entrant deterred by housing receipt would have registered a microenterprise as a low-commitment income strategy—unlikely to grow, unlikely to employ others, and more likely to fall out of tax compliance. The decline in entrepreneurship that housing receipt produces is therefore not a cost of the program. It reflects fewer households at the margin where self-employment is a last resort rather than an occupational choice or response to an opportunity.

References

Aaronson, Daniel, 2000, A Note on the Benefits of Homeownership, *Journal of Urban Economics* 47, 356–369.

Adelino, Manuel, Antoinette Schoar, and Felipe Severino, 2015, House Prices, Collateral, and Self-Employment, *Journal of Financial Economics* 117, 288–306.

Agarwal, Sumit, Tien Foo Sing, Changcheng Song, and Jian Zhang, 2024, Liberalizing Home-Based Business, *Management Science* 70, 8217–8239.

Agness, D., and T. Getahun, 2026, Housing and Human Capital: Condominiums in Ethiopia, Discussion paper, STEG Working Paper, CEPR Growth Research Programme.

Banerjee, Abhijit, Esther Duflo, Rachel Glennerster, and Cynthia Kinnan, 2015, The Miracle of Microfinance? Evidence from a Randomized Evaluation, *American Economic Journal: Applied Economics* 7, 22–53.

Barnhardt, Sharon, Erica Field, and Rohini Pande, 2017, Moving to Opportunity or Isolation? Network Effects of a Randomized Housing Lottery in Urban India, *American Economic Journal: Applied Economics* 9, 1–32.

Belchior, Carlos Alberto, Gustavo Gonzaga, and Gabriel Ulyssea, 2023, Unpacking Neighborhood Effects: Experimental Evidence from a Large-Scale Housing Program in Brazil, Discussion Paper, 16113 IZA Discussion Paper.

Brasil, 1997, Lei n.º 9.514, de 20 de novembro de 1997: Dispõe sobre o Sistema de Financiamento Imobiliário, Diário Oficial da União Accessed April 4, 2026.

Buckley, Robert M., and Jerry Kalarickal, 2005, Housing Policy in Developing Countries: Conjectures and Refutations, *World Bank Research Observer* 20, 233–257.

Camacho, Adriana, Valentina Duque, Michael Gilraine, and Fabio Sanchez, 2022, The Effects of Public Housing on Children: Evidence from Colombia, Discussion Paper, 30090 NBER Working Paper.

Campello, Murillo, Guilherme Junqueira, and Spyridon Lagaras, 2026, Entrepreneurship on a Safety Net: Evidence from the World's Largest Cash Transfer Program, Working paper.

CDHU, 2026a, Frequently Asked Questions (Perguntas Frequentes), Institutional website, Companhia de Desenvolvimento Habitacional e Urbano Accessed April 4, 2026.

CDHU, 2026b, Institutional Profile (Quem Somos), Institutional website, Companhia de Desenvolvimento Habitacional e Urbano Accessed March 30, 2026.

CDHU, 2026c, Instrumento Particular de Compra e Venda: Termos Gerais do Contrato, Institutional document, Companhia de Desenvolvimento Habitacional e Urbano Accessed April 4, 2026.

Chetty, Raj, Nathaniel Hendren, and Lawrence F. Katz, 2016, The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment, *American Economic Review* 106, 855–902.

Collinson, Robert, Ingrid Gould Ellen, and Jens Ludwig, 2016, Low-Income Housing Policy, in Robert A. Moffitt, ed.: *Economics of Means-Tested Transfer Programs in the United States, Volume II* . pp. 59–126 (University of Chicago Press: Chicago).

DiPasquale, Denise, and Edward L. Glaeser, 1999, Incentives and Social Capital: Are Homeowners Better Citizens?, *Journal of Urban Economics* 45, 354–384.

Dix-Carneiro, Rafael, and Brian K. Kovak, 2017, Trade Liberalization and Regional Dynamics, *American Economic Review* 107, 2908–2946.

Dix-Carneiro, Rafael, and Brian K. Kovak, 2019, Margins of Labor Market Adjustment to Trade, *Journal of International Economics* 117, 125–142.

Duflo, Esther, 2012, Women Empowerment and Economic Development, *Journal of Economic Literature* 50, 1051–1079.

Fairlie, Robert W., and Harry A. Krashinsky, 2012, Liquidity Constraints, Household Wealth, and Entrepreneurship Revisited, *Review of Income and Wealth* 58, 279–306.

Federal Reserve, 2026, Brazilian Reais to U.S. Dollar Spot Exchange Rate, FRED Economic Data Accessed March 30, 2026.

Franklin, Simon, 2025, The Demand for and Impacts of Government Housing: Evidence from Ethiopian Lotteries, Discussion Paper, 19944 CEPR Discussion Paper Paris and London.

Fundação João Pinheiro, 2024, Déficit Habitacional no Brasil, Discussion paper, Fundação João Pinheiro Belo Horizonte.

Glaeser, Edward L., and Jesse M. Shapiro, 2003, The Benefits of the Home Mortgage Interest Deduction, *Tax Policy and the Economy* 17, 37–82.

Hausman, Naomi, Tamar Ramot-Nyska, and Noam Zussman, 2022, Homeownership, Labor Supply, and Neighborhood Quality, *American Economic Journal: Economic Policy* 14, 193–230.

Hurst, Erik, and Annamaria Lusardi, 2004, Liquidity Constraints, Household Wealth, and Entrepreneurship, *Journal of Political Economy* 112, 319–347.

Hussam, Reshmaan, Natalia Rigol, and Benjamin N. Roth, 2022, Targeting High Ability Entrepreneurs Using Community Information: Mechanism Design in the Field, *American Economic Review* 112, 862–906.

IPEA, 2015, Atlas da Vulnerabilidade Social nos Municípios Brasileiros, Discussion paper, Instituto de Pesquisa Econômica Aplicada Brasília Based on 2010 Brazilian Demographic Census microdata.

Jacob, Brian A., and Jens Ludwig, 2012, The Effects of Housing Assistance on Labor Supply: Evidence from a Voucher Lottery, *American Economic Review* 102, 272–304.

Jayachandran, Seema, 2015, The Roots of Gender Inequality in Developing Countries, *Annual Review of Economics* 7, 63–88.

Jonasson, Erik, and Steven M. Helfand, 2010, How Important are Locational Characteristics for Rural Nonagricultural Employment? Lessons from Brazil, *World Development* 38, 727–741.

Kerr, William R., and Ramana Nanda, 2009, Democratizing Entry: Banking Deregulations, Financing Constraints, and Entrepreneurship, *Journal of Financial Economics* 94, 124–149.

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

Kumar, Tanu, 2021, The Housing Quality, Income, and Human Capital Effects of Subsidized Homes in Urban India, *Journal of Development Economics* 153, 102738.

La Porta, Rafael, and Andrei Shleifer, 2008, The Unofficial Economy and Economic Development, *Brookings Papers on Economic Activity* 2008, 275–352.

La Porta, Rafael, and Andrei Shleifer, 2014, Informality and Development, *Journal of Economic Perspectives* 28, 109–126.

Lee, David S., 2009, Training, Wages, and Sample Selection: Estimating Sharp Bounds on Treatment Effects, *The Review of Economic Studies* 76, 1071–1102.

Machado, Cecilia, and Laisa Rachter, 2023, Better Neighborhoods or Better Houses? The Effects of Housing Policies on Poor Households in Brazil, Discussion paper, PUC-Rio Working Paper.

Margolis, David, 2014, By Choice and by Necessity: Entrepreneurship and Self-Employment in the Developing World, *The European Journal of Development Research* 26, 419–436.

McKenzie, David, and Anna Luisa Paffhausen, 2019, Small Firm Death in Developing Countries, *Review of Economics and Statistics* 101, 645–657.

OECD, 2020, Social Housing: A Key Part of Past and Future Housing Policy, Discussion paper, OECD Publishing Paris.

Perry, Guillermo E., William F. Maloney, Omar S. Arias, Pablo Fajnzylber, Andrew D. Mason, and Jaime Saavedra-Chanduvi, 2007, *Informality: Exit and Exclusion* . World Bank Latin American and Caribbean Studies (World Bank: Washington, DC).

Picarelli, Nathalie, 2019, There Is No Free House, *Journal of Urban Economics* 111, 35–52.

Poterba, James M., 1992, Taxation and Housing: Old Questions, New Answers, *American Economic Review* 82, 237–242.

Schmalz, Martin C., David A. Sraer, and David Thesmar, 2017, Housing Collateral and Entrepreneurship, *The Journal of Finance* 72, 99–132.

Schoar, Antoinette, 2010, The Divide between Subsistence and Transformational Entrepreneurship, *Innovation Policy and the Economy* 10, 57–81.

Secretaria de Estado da Habitação de São Paulo, 2012, Plano Estadual de Habitação de São Paulo: PEH-SP 2011–2023, Discussion paper, Secretaria de Estado da Habitação de São Paulo Documento Final, Revisão Dezembro de 2012.

Sinai, Todd, and Nicholas S. Souleles, 2005, Owner-Occupied Housing as a Hedge Against Rent Risk, *Quarterly Journal of Economics* 120, 763–789.

Sodini, Paolo, Stijn Van Nieuwerburgh, Roine Vestman, and Ulf von Lilienfeld-Toal, 2023, Identifying the Benefits from Homeownership: A Swedish Experiment, *American Economic Review* 113, 3173–3212.

Ulyssea, Gabriel, 2018, Firms, Informality, and Development: Theory and Evidence from Brazil, *American Economic Review* 108, 2015–2047.

Table 1: Covariate Balance: Beneficiaries versus Non-Beneficiaries

	Beneficiaries				Not Selected				Diff.	
	Mean	Median	SD	N (Th.)	Mean	Median	SD	N (Th.)	Diff.	p-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Demographics										
1{Female}	52.04	100.00	49.96	26.0	51.29	100.00	49.98	149.0	0.63	0.23
1{18–24 Years Old}	12.61	0.00	33.20	10.3	12.36	0.00	32.91	60.5	0.08	0.88
1{25–34 Years Old}	40.99	0.00	49.18	10.3	41.14	0.00	49.21	60.5	−1.50	0.06
1{35–44 Years Old}	28.75	0.00	45.26	10.3	28.69	0.00	45.23	60.5	−0.38	0.61
1{45–54 Years Old}	12.58	0.00	33.16	10.3	12.49	0.00	33.07	60.5	1.33	0.01
1{55–64 Years Old}	4.19	0.00	20.04	10.3	4.28	0.00	20.24	60.5	0.52	0.10
1{65+ Years Old}	0.83	0.00	9.05	10.3	0.99	0.00	9.92	60.5	−0.07	0.63
Panel B: Race/Ethnicity										
1{White}	77.23	100.00	41.94	9.9	78.16	100.00	41.32	58.6	1.34	0.05
1{Brown/Mixed}	17.82	0.00	38.27	9.9	16.42	0.00	37.05	58.6	−0.73	0.24
1{Black}	4.75	0.00	21.27	9.9	5.19	0.00	22.18	58.6	−0.56	0.13
1{Asian}	0.15	0.00	3.89	9.9	0.13	0.00	3.67	58.6	−0.01	0.94
1{Indigenous}	0.05	0.00	2.25	9.9	0.10	0.00	3.09	58.6	−0.05	0.35
Panel C: Education (At Lottery)										
Years of Schooling	10.65	12.00	2.57	10.3	10.66	12.00	2.45	60.5	−0.03	0.45
1{Illiterate}	0.55	0.00	7.42	10.3	0.42	0.00	6.49	60.5	0.00	0.97
1{Elementary}	10.08	0.00	30.11	10.3	9.31	0.00	29.06	60.5	0.52	0.27
1{Middle School}	23.98	0.00	42.70	10.3	24.59	0.00	43.06	60.5	−0.06	0.93
1{High School}	61.94	100.00	48.56	10.3	63.09	100.00	48.26	60.5	−0.60	0.44
1{College}	3.44	0.00	18.22	10.3	2.58	0.00	15.87	60.5	0.14	0.60
1{Masters}	0.01	0.00	0.99	10.3	0.00	0.00	0.41	60.5	−0.00	0.84
Panel D: Labor Market (At or Pre-Lottery)										
1{Was Employed in Lottery Year}	12.95	0.00	33.57	26.3	10.86	0.00	31.11	150.9	0.16	0.60
1{Was Employed in Past 3 Yrs. Pre-Lottery}	22.39	0.00	41.69	26.3	20.98	0.00	40.72	150.9	0.55	0.19
Weekly Work Hours (Mean 3 Yrs. Pre-Lottery)	42.58	44.00	4.57	5.9	42.75	44.00	4.51	31.7	−0.05	0.61
Monthly Salary (R$, Mean 3 Yrs. Pre-Lottery)	499.87	449.02	241.70	5.9	496.26	447.94	409.22	31.7	−13.63	0.08
Panel E: Entrepreneurship (At or Pre-Lottery)										
1{Was an Entrepreneur in Lottery Year}	9.69	0.00	29.58	26.3	9.29	0.00	29.03	150.9	0.34	0.26
1{Has Been an Entrepreneur}	11.82	0.00	32.28	26.3	12.37	0.00	32.92	150.9	0.37	0.27
1{Has Been a Microenterprise Entrepreneur}	11.05	0.00	31.35	26.3	11.68	0.00	32.12	150.9	0.38	0.24
1{Has Been a Small Enterprise Entrepreneur}	0.19	0.00	4.40	26.3	0.18	0.00	4.20	150.9	−0.03	0.51
1{Has Been a Larger Firm Entrepreneur}	1.18	0.00	10.80	26.3	1.03	0.00	10.11	150.9	0.07	0.48
1{Started a Business in Past 3 Yrs. Pre-Lottery}	5.01	0.00	21.82	26.3	5.42	0.00	22.64	150.9	0.08	0.74
Last Pre-Lottery Firm Equity (R$ Thousands)	12.70	2.89	30.18	3.1	11.26	2.00	28.04	18.7	−0.36	0.68
Last Pre-Lottery Firm Survival (Years)	7.14	6.00	5.68	3.1	6.51	5.00	5.42	18.7	−0.10	0.56
Panel F: Political Candidacy (Pre-Lottery)										
1{Ever Ran for Office}	2.05	0.00	14.16	26.3	1.41	0.00	11.78	150.9	0.03	0.80
1{Ran for Office in Last Election}	0.30	0.00	5.47	26.3	0.34	0.00	5.83	150.9	−0.04	0.54

This table presents balance tests for pre-lottery covariates comparing lottery beneficiaries to not-selected applicants. Columns (1)–(4) report the mean, median, standard deviation, and sample size (in thousands) for lottery beneficiaries; columns (5)–(8) report the same for not-selected applicants. Column (9) reports the difference in means from a regression of each covariate on a beneficiary indicator absorbing lottery-drawing-by-quota fixed effects. Column (10) reports the corresponding p-value based on OLS standard errors. Percentage-point variables are multiplied by 100.

Table 2: Impact of Housing Lottery on Entrepreneurship Entry

Dependent Variable:	$\mathbb{1}\{$Started Business Within t Years of Lottery$\}$				
Years Post-Lottery:	1 Year	2 Years	3 Years	4 Years	5 Years
	(1)	(2)	(3)	(4)	(5)
Panel A: Any Business					
$\mathbb{1}\{$Beneficiary$\}$	-0.398^{***}	-0.611^{***}	-0.759^{***}	-0.664^{**}	-0.624
	(-3.39)	(-3.37)	(-3.10)	(-2.03)	(-1.53)
Observations	175,605	161,005	160,238	120,344	119,152
Mean Dependent Variable	1.96	4.09	5.86	8.42	9.81
Adjusted R^2	0.00	0.01	0.01	0.01	0.01
Panel B: Microenterprise					
$\mathbb{1}\{$Beneficiary$\}$	-0.407^{***}	-0.611^{***}	-0.764^{***}	-0.669^{**}	-0.676^{*}
	(-3.62)	(-3.44)	(-3.18)	(-2.05)	(-1.70)
Observations	175,605	161,005	160,238	120,344	119,152
Mean Dependent Variable	1.91	3.99	5.73	8.26	9.62
Adjusted R^2	0.00	0.01	0.01	0.01	0.01
Panel C: Small Enterprise					
$\mathbb{1}\{$Beneficiary$\}$	0.009	0.017	-0.003	-0.013	0.006
	(0.53)	(0.81)	(-0.14)	(-0.55)	(0.20)
Observations	175,605	161,005	160,238	120,344	119,152
Mean Dependent Variable	0.02	0.03	0.04	0.06	0.07
Adjusted R^2	0.00	0.00	0.00	0.00	0.00
Panel D: Larger Firm					
$\mathbb{1}\{$Beneficiary$\}$	0.007	-0.014	0.012	0.008	0.015
	(0.30)	(-0.46)	(0.34)	(0.16)	(0.27)
Observations	175,605	161,005	160,238	120,344	119,152
Mean Dependent Variable	0.04	0.08	0.12	0.15	0.18
Adjusted R^2	0.01	0.00	0.01	0.01	0.00
Lottery×Quota FE	✓	✓	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓	✓	✓

This table presents intent-to-treat (ITT) estimates of the effect of housing lottery selection on entrepreneurship entry, decomposed by Receita Federal firm size classification. $\mathbb{1}\{$Beneficiary$\}$ equals one if the individual was selected as a housing recipient in the CDHU lottery. The dependent variable is an indicator for founding a firm within the specified horizon after lottery application. The control group is restricted to individuals definitively not selected in the lottery, ensuring no overlap in expected housing outcomes between treated and control groups. Microenterprise denotes firms with annual gross revenue up to R$360,000; Small Enterprise denotes R$360,000–R$4.8 million; Larger Firm includes firms above R$4.8 million and entities not classified under Simples Nacional. All specifications include lottery×quota fixed effects. Coefficients are multiplied by 100. t-statistics based on standard errors clustered at the lottery×quota level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 3: Impact of Housing Lottery on 3-Year Entrepreneurship Entry by Pre-Lottery Occupation

Pre-Lottery Occupation:	Formal Employment (1)	Formal Entrepreneurship (2)	No Formal Occupation (3)
Panel A: Dependent Variable = $\mathbb{1}\{$*Started Any Business Within 3 Years*$\}$			
$\mathbb{1}\{$Beneficiary$\}$	−0.494	−1.037	−0.835***
	(−0.37)	(−1.18)	(−3.31)
Observations	19,307	7,422	92,162
Mean Dependent Variable	16.93	3.68	4.65
Adjusted R^2	0.02	0.00	0.00
Panel B: Dependent Variable = $\mathbb{1}\{$*Started Microenterprise Within 3 Years*$\}$			
$\mathbb{1}\{$Beneficiary$\}$	−0.511	−1.030	−0.851***
	(−0.40)	(−1.22)	(−3.37)
Observations	19,307	7,422	92,162
Mean Dependent Variable	16.73	3.18	4.58
Adjusted R^2	0.01	0.00	0.00
Panel C: Dependent Variable = $\mathbb{1}\{$*Started Small Enterprise Within 3 Years*$\}$			
$\mathbb{1}\{$Beneficiary$\}$	−0.091*	0.056	0.024
	(−1.65)	(0.26)	(0.99)
Observations	19,307	7,422	92,162
Mean Dependent Variable	0.05	0.19	0.02
Adjusted R^2	0.07	0.00	0.00
Panel D: Dependent Variable = $\mathbb{1}\{$*Started Larger Firm Within 3 Years*$\}$			
$\mathbb{1}\{$Beneficiary$\}$	0.094	0.077	0.003
	(0.73)	(0.25)	(0.10)
Observations	19,307	7,422	92,162
Mean Dependent Variable	0.19	0.40	0.06
Adjusted R^2	0.01	0.01	0.01
Lottery×Quota FE	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓

This table presents heterogeneity in the effect of housing lottery selection on entrepreneurship entry by pre-lottery occupation status, decomposed by Receita Federal firm size classification. The control group is restricted to individuals definitively not selected in the lottery. Panel A uses as dependent variable an indicator for starting any business within three years of the lottery; Panel B restricts to microenterprises (annual gross revenue up to R$360,000); Panel C to small enterprises (R$360,000–R$4.8 million); Panel D to larger firms (above R$4.8 million or not classified under Simples Nacional). Column (1) restricts the sample to individuals formally employed in the lottery year. Column (2) restricts to those who were active entrepreneurs in the lottery year (but not formally employed). Column (3) restricts to those with no formal employment or entrepreneurship in the lottery year. The sample is limited to lotteries through 2020, as formal employment data (RAIS) is available through that year. All specifications include lottery×quota fixed effects. Coefficients are multiplied by 100. t-statistics based on standard errors clustered at the lottery level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 4: Dynamic Effects of Housing Lottery on Microenterprise Entry by Pre-Lottery Occupation

Dependent Variable:	$\mathbb{1}\{$Started Microenterprise Within t Years of Lottery$\}$				
Years Post-Lottery:	1 Year	2 Years	3 Years	4 Years	5 Years
	(1)	(2)	(3)	(4)	(5)
Panel A: Pre-Lottery Occupation = Formal Employment					
$\mathbb{1}\{$Beneficiary$\}$	−0.244	−0.414	−0.511	−0.133	−0.151
	(−0.44)	(−0.44)	(−0.40)	(−0.10)	(−0.09)
Observations	19,307	19,307	19,307	19,307	19,307
Mean Dependent Variable	4.93	10.96	16.73	21.75	25.55
Adjusted R^2	0.01	0.02	0.01	0.02	0.02
Panel B: Pre-Lottery Occupation = Formal Entrepreneurship					
$\mathbb{1}\{$Beneficiary$\}$	−0.689**	−0.669	−1.030	−1.031	−2.125*
	(−2.18)	(−1.27)	(−1.22)	(−0.95)	(−1.85)
Observations	7,422	7,422	7,422	7,422	7,422
Mean Dependent Variable	1.09	2.13	3.18	4.49	5.75
Adjusted R^2	0.00	0.00	0.00	0.00	0.00
Panel C: Pre-Lottery Occupation = No Formal Occupation					
$\mathbb{1}\{$Beneficiary$\}$	−0.460***	−0.586***	−0.851***	−0.836***	−0.728**
	(−3.36)	(−2.99)	(−3.37)	(−3.09)	(−2.46)
Observations	92,162	92,162	92,162	92,162	92,162
Mean Dependent Variable	1.70	3.22	4.58	5.77	6.60
Adjusted R^2	0.00	0.00	0.00	0.01	0.01
Lottery×Quota FE	✓	✓	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓	✓	✓

This table presents ITT estimates of the effect of housing lottery selection on entrepreneurship entry by pre-lottery occupation status, with each column corresponding to a different post-lottery time horizon. Pre-lottery occupation is defined using the lottery year only. Panel A restricts the sample to individuals formally employed in the lottery year (identified via RAIS). Panel B restricts to active entrepreneurs in the lottery year (CNPJ, not formally employed). Panel C restricts to individuals with no formal employment or entrepreneurship in the lottery year. Microenterprise denotes firms with annual gross revenue up to R$360,000. The control group is restricted to not-selected applicants. The sample is restricted to lotteries held through 2020 (lottery year $\leq$ 2020), the last year for which RAIS data are available to classify pre-lottery occupation. Post-lottery entrepreneurship outcomes are measured from CNPJ records through 2025; a lottery held in 2020 has valid outcomes at 1 through 5 years post-lottery (2021–2025). All specifications include lottery×quota fixed effects. Coefficients are multiplied by 100. t-statistics based on standard errors clustered at the lottery×quota level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 5: Impact of Housing Lottery on Post-Lottery Formal Employment and Earnings

Years Post-Lottery:	Year 1	Year 2	Year 3
	(1)	(2)	(3)
Panel A: $\mathbb{1}\{$*Formally Employed*$\}$			
$\mathbb{1}\{$Beneficiary$\}$	−0.070	0.723	−0.358
	(−0.11)	(1.08)	(−0.31)
Observations	98,276	67,918	29,919
Mean Dependent Variable (%)	16.31	15.46	14.77
Adjusted R^2	0.01	0.01	0.01
Panel B: Avg. Monthly Formal Salary (R$)			
$\mathbb{1}\{$Beneficiary$\}$	144.511	34.215	5.136
	(1.42)	(0.66)	(0.52)
Observations	15,948	10,437	4,387
Mean Dependent Variable (R$)	543.09	489.30	494.97
Adjusted R^2	0.06	0.00	0.03
Lottery×Quota FE	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓

This table presents ITT estimates of the effect of housing lottery selection on formal labor market outcomes in each of the three years following the lottery. $\mathbb{1}\{$Beneficiary$\}$ equals one if the individual was selected as a housing recipient. Panel A: the dependent variable equals one if the applicant appears as a formal employee in RAIS in the given post-lottery year, and zero otherwise (including applicants not observed in RAIS); coefficient multiplied by 100. Because labor market data are available through 2020 only, observations are restricted to lotteries held at least t years before 2020 (i.e., lottery year $\leq 2020 - t$); applicants from more recent lotteries are excluded from the regression sample. Panel B: the dependent variable is average monthly salary from RAIS in the given post-lottery year, conditional on the applicant appearing in formal employment in RAIS that year; coefficient reported in R$ (not multiplied by 100). The control group is restricted to not-selected applicants. All specifications include lottery×quota fixed effects. t-statistics based on standard errors clustered at the lottery×quota level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 6: Impact of Housing Lottery on Formal Employment by Pre-Lottery Occupation

Dependent Variable:	$\mathbb{1}$\{Formally Employed Within t Years of Lottery\}		
Years Post-Lottery:	1 Year	2 Years	3 Years
	(1)	(2)	(3)
Panel A: Pre-Lottery Occupation = Formal Employment			
$\mathbb{1}$\{Beneficiary\}	−0.205	1.178	1.376
	(−0.13)	(0.73)	(0.69)
Observations	16,409	11,386	4,958
Mean Dependent Variable	76.65	81.28	83.78
Adjusted R^2	0.00	0.01	0.01
Panel B: Pre-Lottery Occupation = Formal Entrepreneurship			
$\mathbb{1}$\{Beneficiary\}	−1.752*	−0.248	1.191
	(−1.75)	(−0.15)	(0.47)
Observations	6,068	4,022	1,823
Mean Dependent Variable	8.80	13.70	17.55
Adjusted R^2	0.00	0.00	0.01
Panel C: Pre-Lottery Occupation = No Formal Occupation			
$\mathbb{1}$\{Beneficiary\}	−0.183	−0.424	−0.601
	(−0.66)	(−1.14)	(−0.89)
Observations	75,682	52,435	23,112
Mean Dependent Variable	3.82	6.45	8.30
Adjusted R^2	0.00	0.01	0.01
Lottery×Quota FE	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓

This table presents ITT estimates of the effect of housing lottery selection on formal employment by pre-lottery occupation status, with each column corresponding to a different post-lottery time horizon. Pre-lottery occupation is defined using the lottery year only. Panel A restricts the sample to individuals formally employed in the lottery year (identified via RAIS). Panel B restricts to active entrepreneurs in the lottery year (CNPJ, not formally employed). Panel C restricts to individuals with no formal employment or entrepreneurship in the lottery year. The control group is restricted to not-selected applicants. Both the pre-lottery occupation classification and the employment outcome are from RAIS (available through 2020); the sample for each column is restricted to lotteries held at least t years before 2020 (lottery year $\leq 2020 - t$): year 1 uses lotteries through 2019, year 2 through 2018, year 3 through 2017. Note that observations differ across columns as a result of this restriction. All specifications include lottery×quota fixed effects. Coefficients are multiplied by 100. t-statistics based on standard errors clustered at the lottery×quota level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 7: How Municipal Characteristics Moderate the Effect of Housing on Microenterprise Entry

Municipal Characteristic (Z, standardized)	$\mathbb{1}\{\text{Beneficiary}\}$ Coeff. *(t)*	$\mathbb{1}\{\text{Beneficiary}\} \times Z$ Coeff. *(t)*	Adj. R^2	N
Panel A: Municipal Development				
Municipal GDP per capita (R$)	−0.845***	−0.552**	0.01	160,238
	(−3.63)	(−2.35)		
Share of adults who are employers (%)	−0.790***	−0.511*	0.01	160,238
	(−3.39)	(−1.93)		
Share with primary education completed (%)	−0.937***	−0.471*	0.01	160,238
	(−3.93)	(−1.81)		
Share of households with electricity (%)	−0.804***	−0.353**	0.01	160,238
	(−3.26)	(−2.14)		
Life expectancy at birth (years)	−0.928***	−0.543**	0.01	160,238
	(−3.75)	(−2.21)		
Panel B: Municipal Vulnerability				
Share of adults with zero income (%)	−0.812***	0.294***	0.01	160,238
	(−3.32)	(2.78)		
Illiteracy rate among adults (%)	−0.939***	0.419*	0.01	160,238
	(−3.59)	(1.69)		
Share of population classified as vulnerable (%)	−0.813***	0.397*	0.01	160,238
	(−3.32)	(1.77)		
Share of overcrowded households (%)	−0.683***	0.439*	0.01	160,238
	(−2.78)	(1.93)		
Total fertility rate	−0.861***	0.429*	0.01	160,238
	(−3.52)	(1.65)		
Lottery×Quota FE		✓		
Clustered SE (Lottery×Quota)		✓		

Each row is a separate regression of an indicator for starting a microenterprise within 3 years on $\mathbb{1}\{\text{Beneficiary}\}$, Z (a standardized municipal characteristic), and their interaction, with lottery×quota fixed effects absorbed. The first coefficient in each row gives the main beneficiary effect at $Z = 0$ (the sample mean); the second gives the interaction $\mathbb{1}\{\text{Beneficiary}\} \times Z$. The level of Z is not reported as it is absorbed by the lottery×quota fixed effects. The baseline treatment effect is negative (housing reduces microenterprise entry). A negative interaction (Panel A) means the effect is amplified in more developed municipalities; a positive interaction (Panel B) means it is attenuated in more constrained municipalities. All characteristics are standardized (mean 0, SD 1). Unless otherwise noted, variables use urban-population measures. GDP per capita from IBGE (2020); all other characteristics from the 2010 Atlas of Social Vulnerability (IPEA 2015). Sample: beneficiaries and not-selected applicants. Coefficients ×100. t-statistics in parentheses. Standard errors clustered at the lottery×quota level. *, **, and *** denote significance at the 10%, 5%, and 1% level.

Table 8: Individual Characteristics and the Housing Lottery Effect on Microenterprise Entry

Individual Characteristic (X)	$\mathbb{1}\{\text{Beneficiary}\}$ Coeff. *(t)*	$\mathbb{1}\{\text{Beneficiary}\} \times X$ Coeff. *(t)*	Adj. R^2	N
Panel A: Gender				
$\mathbb{1}\{\text{Female}\}$	-1.236^{***}	0.939^{***}	0.01	158,229
	(−3.92)	(2.88)		
Panel B: Pre-Lottery Labor Market				
Monthly Salary (R$, Mean 3 Yrs. Pre-Lottery)	−1.162	2.866^{***}	0.02	36,548
	(−1.51)	(2.76)		
Lottery×Quota FE		✓		
Clustered SE (Lottery×Quota)		✓		

Each row is a separate regression of an indicator for starting a microenterprise within 3 years on $\mathbb{1}\{\text{Beneficiary}\}$, X (an individual characteristic), and their interaction, with lottery×quota fixed effects absorbed. The first coefficient in each row gives the main beneficiary effect; the second gives the interaction $\mathbb{1}\{\text{Beneficiary}\} \times X$. The level of X is included but not reported. For binary characteristics (Panel A), the interaction gives the differential treatment effect for that group relative to the omitted category. For continuous characteristics (Panel B), X is standardized (mean 0, SD 1). Salary is conditional on pre-lottery employment. Sample: beneficiaries and not-selected applicants. Coefficients ×100. t-statistics in parentheses. Standard errors clustered at the lottery×quota level. *, **, and *** denote significance at the 10%, 5%, and 1% level.

Table 9: Microenterprise Performance After the Housing Lottery — Lee Bounds

	(1) Equity (R$ Th.)	(2) Survival (3 Yr.)	(3) Upgrade (3 Yr.)	(4) Employment (3 Yr.)	(5) Tax Violation (3 Yr.)
𝟙{Beneficiary}	0.599	−0.473	1.319	0.241	−1.006
	(0.61)	(−0.21)	(1.15)	(0.72)	(−0.45)
Lee Upper Bound	3.238***	6.136**	3.780***	0.384	6.885***
	(3.06)	(2.54)	(3.38)	(1.11)	(2.70)
Lee Lower Bound	−1.245	−9.642***	0.233	0.193	−5.114**
	(−1.20)	(−3.26)	(0.19)	(0.54)	(−2.07)
Bounds Include Zero	Yes	Yes	No	No	Yes
Observations	9,022	7,281	7,281	7,596	7,281
Mean Dep. Variable	8.59	66.02	5.50	0.21	20.16
Adjusted R^2	0.00	0.03	0.03	0.00	0.01
Avg. Trimming Fraction	0.264	0.264	0.264	0.264	0.264
Lottery×Quota FE	✓	✓	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓	✓	✓

Each column reports results for a separate outcome, conditional on starting a microenterprise within three years of the lottery. 𝟙{Beneficiary} (shaded rows) gives the standard ITT estimate. We report Lee (2009) bounds under the monotonicity assumption that lottery selection can only weakly discourage microenterprise entry. Trimming is applied within lottery×quota cells to the not-selected sample. The upper bound drops not-selected entrants with the highest outcome values; the lower bound drops those with the lowest. Column (1) reports equity at founding in R$ thousands (not multiplied by 100); all other coefficients are multiplied by 100. Upgrade equals one if the microenterprise grew out of MEI registration. Employment equals one if the firm generated at least one formal employee by year three. Tax violation equals one if the firm incurred a tax infraction by year three. All regressions include lottery×quota fixed effects; standard errors clustered at the lottery×quota level. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 10: Characterizing Marginal Microenterprise Entrants: CCM Decomposition

	(1) Equity (R$ Th.)	(2) 𝟙{Survived} (3 Yr.)	(3) 𝟙{Upgraded} (3 Yr.)	(4) 𝟙{Employed} (3 Yr.)	(5) 𝟙{Tax Violation} (3 Yr.)
Always-Entrant Mean	8.88	62.1	6.7	0.2	17.3
Marginal Entrant Mean	7.84	76.8	2.1	0.2	28.1
Control (Not-Selected) Entrant Mean	8.60	66.0	5.5	0.2	20.1
Avg. Retention Fraction (p_0)	0.736	0.736	0.736	0.736	0.736
Treated Entrants (N)	1,236	1,236	1,236	1,236	1,236

This table decomposes not-selected microenterprise entrants into always-entrants and marginal entrants following Kling et al. (2007), using 3-year post-founding outcomes. The sample is conditioned on starting a microenterprise within three years of the lottery. Under monotonicity, all treated entrants are always-entrants; the marginal entrant mean is recovered as $\bar{Y}^M = (\bar{Y}^C - p_0\bar{Y}^A)/(1 - p_0)$, where p_0 is the average within-cell ratio of treated to not-selected entry rates (computed within lottery×quota cells) and $\bar{Y}^C$ and $\bar{Y}^A$ are the not-selected and always-entrant means, respectively. For binary outcomes, recovered means below zero are set to zero. The higher survival rate among marginal entrants reflects persistence in low-activity microenterprise registration rather than business success, consistent with their lower upgrade and employment rates and higher tax violation rates. Column (1) reports equity at founding in R$ thousands (not multiplied by 100); columns (2)–(5) report percentages. Employment equals one if the firm generated at least one formal employee by year three. Microenterprise: annual revenue ≤ R$360,000.

Internet Appendix

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Figure IA1: Typical Floor Plan of CDHU Housing Units



This figure shows the standard floor plan used for CDHU housing units in São Paulo state, with approximately 38-40 square meters (409-431 square feet) of living space. The layout features two bedrooms ("QUARTO"), a combined living and dining area ("SALA DE ESTAR / JANTAR"), a kitchen ("COZINHA"), a bathroom ("BANHO"), and a laundry area ("LAVANDERIA"). The numbers indicate room dimensions in meters. All housing units constructed through the lottery program follow similar floor plans with minor variations.

Figure IA2: Housing Lottery's Key Delivery Ceremonies in São Paulo State

A: Housing Recipient Celebration in Lençóis Paulista

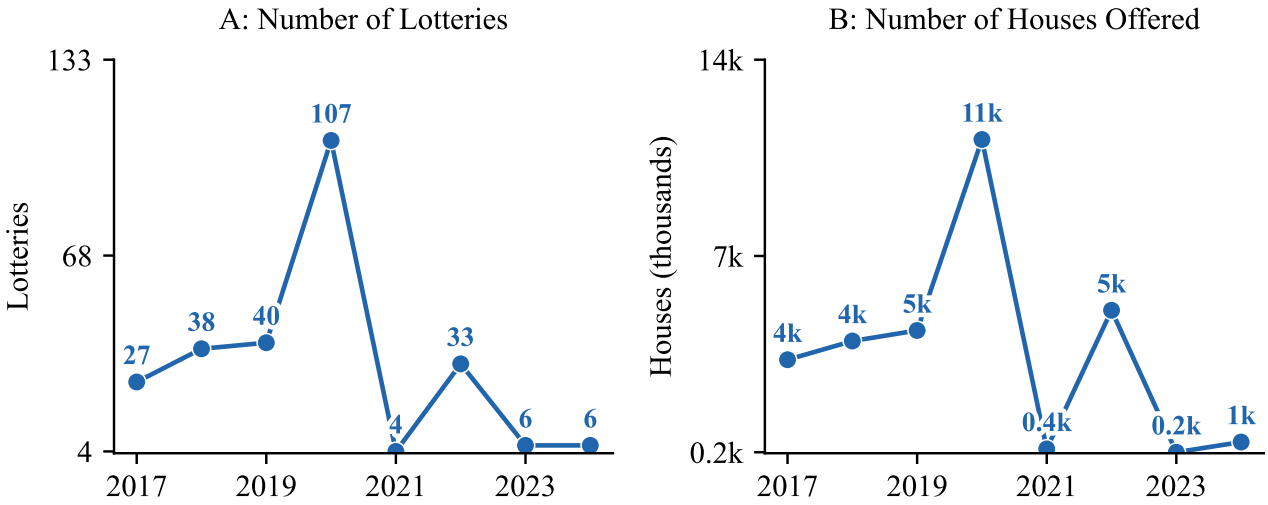


B: Housing Recipient Celebration in Flórida Paulista



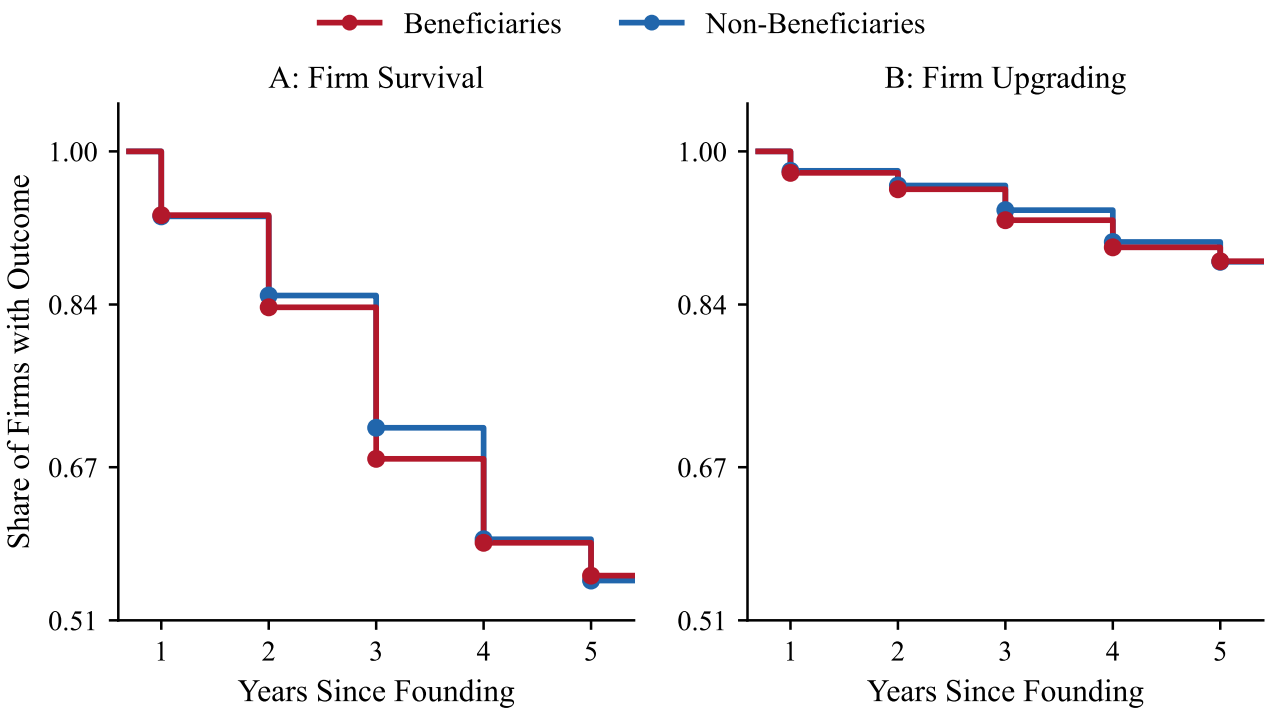
This figure shows housing key delivery ceremonies held in São Paulo state in 2024. Panel A shows a lottery winner in Lençóis Paulista receiving the symbolic CDHU key from state officials. Panel B shows a recipient celebrating at a housing ceremony in Flórida Paulista. Both events were attended by São Paulo State Governor Tarcísio de Freitas (in blue and dark blue shirt, respectively), highlighting the political significance of these housing programs. These ceremonies represent the final stage of the lottery process, where selected families officially receive ownership of their new homes.

Figure IA3: Yearly Housing Program Statistics in São Paulo State



This figure presents annual statistics of CDHU housing lottery programs in São Paulo state, restricting to lotteries in our sample (beneficiaries and not-selected applicants). Panel A shows the number of lotteries conducted each year. Panel B displays the total number of housing units offered annually through the program.

Figure IA4: Firm Survival and Upgrading After the Housing Lottery: All Firms



This figure plots Kaplan–Meier curves for firms started by beneficiaries and non-beneficiaries of the housing lottery for all firms. Panel A shows firm survival, where the event is firm closure. Panel B shows firm upgrading, where the event is the first observed upgrade. In both panels, the sample is restricted to firms started in the post-lottery period by beneficiaries and not-selected applicants. Firms that do not experience the event by year five are censored. Curves are estimated separately for each group without covariate adjustment.

Table IA1: Economic Impact of Housing Lottery: Illustrative Case

Outcome	**Value (R$)**	**Description**
Panel A: Household Profile (Typical 2 Minimum Wage Recipient)		
Monthly Household Income	3,036	2 minimum wages at R$1,518 (2025)
Monthly Program Payment	607	20% of income, adjusted annually with MW
Market Rent (Counterfactual)	990	Estimated rent for equivalent unit (0.6% of value)
Monthly Liquidity Gain	**383**	**Disposable income increase vs. renting**
Panel B: Housing Asset Acquisition		
Housing Market Value	165,000	Current market value of typical unit
Direct Government Subsidy	20,000	Upfront subsidy (range: R$10K–R$40K)
Amount Financed	145,000	Housing value minus direct subsidy
Program Interest Rate	0% + IPCA	Real interest rate for 1–5 MW bracket
Financing Term	30 years	360 monthly payments
Panel C: Present Value Analysis (5% Real Discount Rate)		
PV of Housing Payments	113,050	Discounted value of 360 monthly payments
PV of Market Rent (Alternative)	184,420	Discounted rent payments if not in program
PV of Housing Asset Value	165,000	Asset acquired at end of payments
Net Household Benefit	**236,370**	**PV of Asset + Rent Saved − Payments**
Panel D: Economic Significance		
Benefit / Annual Income	6.5 years	Total benefit as multiple of annual income
Housing Value / Annual Income	4.5×	Asset value relative to annual earnings
Monthly Cash Flow Gain / Income	12.6%	Liquidity improvement as share of income

Notes: This table presents an illustrative case for a household earning 2 minimum wages (R$3,036 monthly in 2025), the typical program recipient. Panel A shows monthly cash flows. Program payment is 20% of verified income, adjusted annually as minimum wage increases. Market rent estimated as 0.6% of housing value per month. Panel B describes the housing financing structure. Recipients in the 1–5 minimum wage bracket pay 0% real interest (0% + IPCA inflation indexation). Direct subsidy of R$20,000 is assumed (subsidies range R$10,000–R$40,000). Panel C calculates present values at 5% real discount rate. PV of payments assumes real income grows at 1% annually (historical average real MW growth), so real payment burden slightly declines over time. Panel D expresses benefits relative to income.

Table IA2: CDHU Vulnerability Score: Eligibility Criteria

#	Criterion	Description
Panel A: National Criteria (Critérios Nacionais)		
1	Risk or Unhealthy Area	Family resides in a risk or unhealthy area, or has been displaced
2	Female-Headed Household	Woman is the head of the family unit
3	Person with Disability	At least one family member has a disability
Panel B: State Criteria (Critérios Estaduais)		
4	Long-Term Resident	Family has resided in the municipality for at least five years
5	Social Program Recipient	Family is a beneficiary of Bolsa Família or the Continuous Cash Benefit (BPC)
6	Social Rent	Family is currently receiving social rent assistance from a public entity

Each family earns one point per criterion met, yielding a vulnerability score from 0 to 6. Within each lottery drawing, families are assigned to quota groups based on their score (e.g., 4–6 criteria, 2–3 criteria, 0–1 criteria), and a separate randomization is conducted within each group. National criteria are set by the federal government and apply uniformly across all CDHU lotteries; state criteria are set by the São Paulo state government. Proof of eligibility is required at registration for all criteria. In Portuguese, this scoring system is referred to as *critérios de prioridade* or *critérios de vulnerabilidade*, with national criteria called *critérios nacionais* and state criteria called *critérios estaduais*. The income restriction quota and special-group quotas are allocated separately and are not subject to the 0–6 scoring.

Table IA3: Covariate Balance: Beneficiaries versus Non-Beneficiaries (Including Waitlisted)

	Beneficiaries				Non-Beneficiaries				Diff.	
	Mean	Median	SD	N (Th.)	Mean	Median	SD	N (Th.)	Diff.	p-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Demographics										
1{Female}	52.04	100.00	49.96	26.0	51.01	100.00	49.99	336.7	0.45	0.20
1{18–24 Years Old}	12.61	0.00	33.20	10.3	11.90	0.00	32.38	137.5	−0.10	0.79
1{25–34 Years Old}	40.99	0.00	49.18	10.3	42.33	0.00	49.41	137.5	−1.13	0.04
1{35–44 Years Old}	28.75	0.00	45.26	10.3	28.78	0.00	45.27	137.5	0.29	0.57
1{45–54 Years Old}	12.58	0.00	33.16	10.3	11.96	0.00	32.44	137.5	0.72	0.05
1{55–64 Years Old}	4.19	0.00	20.04	10.3	4.11	0.00	19.86	137.5	0.12	0.59
1{65+ Years Old}	0.83	0.00	9.05	10.3	0.89	0.00	9.40	137.5	0.10	0.31
Panel B: Race/Ethnicity										
1{White}	77.23	100.00	41.94	9.9	77.69	100.00	41.63	133.0	0.63	0.19
1{Brown/Mixed}	17.82	0.00	38.27	9.9	16.74	0.00	37.33	133.0	−0.06	0.89
1{Black}	4.75	0.00	21.27	9.9	5.33	0.00	22.46	133.0	−0.55	0.03
1{Asian}	0.15	0.00	3.89	9.9	0.16	0.00	3.97	133.0	0.00	0.97
1{Indigenous}	0.05	0.00	2.25	9.9	0.09	0.00	2.94	133.0	−0.02	0.64
Panel C: Education (At Lottery)										
Years of Schooling	10.65	12.00	2.57	10.3	10.80	12.00	2.38	137.5	−0.01	0.68
1{Illiterate}	0.55	0.00	7.42	10.3	0.38	0.00	6.15	137.5	0.01	0.84
1{Elementary}	10.08	0.00	30.11	10.3	8.23	0.00	27.48	137.5	0.19	0.54
1{Middle School}	23.98	0.00	42.70	10.3	22.86	0.00	41.99	137.5	0.20	0.68
1{High School}	61.94	100.00	48.56	10.3	65.72	100.00	47.47	137.5	−0.66	0.21
1{College}	3.44	0.00	18.22	10.3	2.80	0.00	16.51	137.5	0.26	0.16
1{Masters}	0.01	0.00	0.99	10.3	0.01	0.00	0.71	137.5	−0.01	0.51
1{Doctorate}	0.00	0.00	0.00	10.3	0.00	0.00	0.38	137.5	−0.00	0.87
Panel D: Labor Market (At or Pre-Lottery)										
1{Was Employed in Lottery Year}	12.95	0.00	33.57	26.3	12.02	0.00	32.52	341.2	−0.12	0.60
1{Was Employed in Past 3 Yrs. Pre-Lottery}	22.39	0.00	41.69	26.3	22.05	0.00	41.46	341.2	0.05	0.87
Weekly Work Hours (Mean 3 Yrs. Pre-Lottery)	42.58	44.00	4.57	5.9	42.52	44.00	4.89	75.2	−0.03	0.73
Monthly Salary (R$, Mean 3 Yrs. Pre-Lottery)	499.87	449.02	241.70	5.9	499.93	453.00	373.21	75.2	−6.66	0.20
Panel E: Entrepreneurship (At or Pre-Lottery)										
1{Was an Entrepreneur in Lottery Year}	9.69	0.00	29.58	26.3	10.32	0.00	30.42	341.2	0.23	0.28
1{Has Been an Entrepreneur}	11.82	0.00	32.28	26.3	12.93	0.00	33.55	341.2	0.27	0.26
1{Has Been a Microenterprise Entrepreneur}	11.05	0.00	31.35	26.3	12.25	0.00	32.79	341.2	0.28	0.22
1{Has Been a Small Enterprise Entrepreneur}	0.19	0.00	4.40	26.3	0.19	0.00	4.32	341.2	−0.00	0.99
1{Has Been a Larger Firm Entrepreneur}	1.18	0.00	10.80	26.3	1.00	0.00	9.94	341.2	0.05	0.46
1{Started a Business in Past 3 Yrs. Pre-Lottery}	5.01	0.00	21.82	26.3	5.86	0.00	23.48	341.2	−0.12	0.47
Last Pre-Lottery Firm Equity (R$ Thousands)	12.70	2.89	30.18	3.1	11.43	2.55	27.91	44.1	0.13	0.82
Last Pre-Lottery Firm Survival (Years)	7.14	6.00	5.68	3.1	6.52	6.00	5.30	44.1	0.05	0.61
Panel F: Political Candidacy (Pre-Lottery)										
1{Ever Ran for Office}	2.05	0.00	14.16	26.3	1.42	0.00	11.82	341.2	−0.09	0.29
1{Ran for Office in Last Election}	0.30	0.00	5.47	26.3	0.22	0.00	4.64	341.2	−0.03	0.34

This table presents balance tests for pre-lottery covariates comparing lottery beneficiaries to all non-beneficiaries (waitlisted and not-selected applicants combined). Columns (1)–(4) report the mean, median, standard deviation, and sample size (in thousands) for lottery beneficiaries; columns (5)–(8) report the same for non-beneficiaries. Column (9) reports the difference in means from a regression of each covariate on a beneficiary indicator absorbing lottery-drawing-by-quota fixed effects. Column (10) reports the corresponding p-value based on OLS standard errors. Percentage-point variables are multiplied by 100.

Table IA4: Covariate Balance: Beneficiaries vs. Waitlisted vs. Not Selected

	Beneficiaries			Waitlisted			Not Selected			Joint F	
	Mean	SD	N (Th.)	Mean	SD	N (Th.)	Mean	SD	N (Th.)	F-stat	p-val
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Panel A: Demographics											
1{Female}	52.04	49.96	26.0	50.78	49.99	187.8	51.29	49.98	149.0	6.37	0.00
1{18–24 Years Old}	12.61	33.20	10.3	11.54	31.95	77.0	12.36	32.91	60.5	0.08	0.92
1{25–34 Years Old}	40.99	49.18	10.3	43.26	49.54	77.0	41.14	49.21	60.5	2.10	0.12
1{35–44 Years Old}	28.75	45.26	10.3	28.85	45.31	77.0	28.69	45.23	60.5	0.61	0.54
1{45–54 Years Old}	12.58	33.16	10.3	11.53	31.94	77.0	12.49	33.07	60.5	2.50	0.08
1{55–64 Years Old}	4.19	20.04	10.3	3.98	19.55	77.0	4.28	20.24	60.5	1.81	0.16
1{65+ Years Old}	0.83	9.05	10.3	0.81	8.97	77.0	0.99	9.92	60.5	0.89	0.41
Panel B: Race/Ethnicity											
1{White}	77.23	41.94	9.9	77.32	41.87	74.3	78.16	41.32	58.6	2.66	0.07
1{Brown/Mixed}	17.82	38.27	9.9	16.98	37.55	74.3	16.42	37.05	58.6	3.05	0.05
1{Black}	4.75	21.27	9.9	5.44	22.68	74.3	5.19	22.18	58.6	2.73	0.07
1{Asian}	0.15	3.89	9.9	0.18	4.19	74.3	0.13	3.67	58.6	0.47	0.63
1{Indigenous}	0.05	2.25	9.9	0.08	2.82	74.3	0.10	3.09	58.6	0.81	0.45
Panel C: Education (At Lottery)											
Years of Schooling	10.65	2.57	10.3	10.92	2.31	77.0	10.66	2.45	60.5	0.43	0.65
1{Illiterate}	0.55	7.42	10.3	0.35	5.87	77.0	0.42	6.49	60.5	1.19	0.30
1{Elementary}	10.08	30.11	10.3	7.38	26.15	77.0	9.31	29.06	60.5	0.32	0.72
1{Middle School}	23.98	42.70	10.3	21.50	41.09	77.0	24.59	43.06	60.5	0.17	0.84
1{High School}	61.94	48.56	10.3	67.78	46.73	77.0	63.09	48.26	60.5	0.77	0.46
1{College}	3.44	18.22	10.3	2.97	16.99	77.0	2.58	15.87	60.5	1.12	0.33
1{Masters}	0.01	0.99	10.3	0.01	0.88	77.0	0.00	0.41	60.5	0.52	0.59
1{Doctorate}	0.00	0.00	10.3	0.00	0.51	77.0	0.00	0.00	60.5	0.01	0.99
Panel D: Labor Market (At or Pre-Lottery)											
1{Was Employed in Lottery Year}	12.95	33.57	26.3	12.94	33.56	190.3	10.86	31.11	150.9	1.06	0.35
1{Was Employed in Past 3 Yrs. Pre-Lottery}	22.39	41.69	26.3	22.90	42.02	190.3	20.98	40.72	150.9	0.01	0.99
Weekly Work Hours (Mean 3 Yrs. Pre-Lottery)	42.58	4.57	5.9	42.35	5.14	43.6	42.75	4.51	31.7	0.39	0.67
Monthly Salary (R$, Mean 3 Yrs. Pre-Lottery)	499.87	241.70	5.9	502.60	344.67	43.6	496.26	409.22	31.7	3.26	0.04
Panel E: Entrepreneurship (At or Pre-Lottery)											
1{Was an Entrepreneur in Lottery Year}	9.69	29.58	26.3	11.13	31.45	190.3	9.29	29.03	150.9	1.28	0.28
1{Has Been an Entrepreneur}	11.82	32.28	26.3	13.37	34.03	190.3	12.37	32.92	150.9	1.45	0.23
1{Has Been a Microenterprise Entrepreneur}	11.05	31.35	26.3	12.70	33.30	190.3	11.68	32.12	150.9	1.76	0.17
1{Has Been a Small Enterprise Entrepreneur}	0.19	4.40	26.3	0.19	4.41	190.3	0.18	4.20	150.9	0.01	0.99
1{Has Been a Larger Firm Entrepreneur}	1.18	10.80	26.3	0.97	9.80	190.3	1.03	10.11	150.9	0.31	0.73
1{Started a Business in Past 3 Yrs. Pre-Lottery}	5.01	21.82	26.3	6.20	24.12	190.3	5.42	22.64	150.9	0.82	0.44
Last Pre-Lottery Firm Equity (R$ Thousands)	12.70	30.18	3.1	11.56	27.81	25.4	11.26	28.04	18.7	0.08	0.92
Last Pre-Lottery Firm Survival (Years)	7.14	5.68	3.1	6.52	5.22	25.4	6.51	5.42	18.7	0.14	0.87
Panel F: Political Candidacy (Pre-Lottery)											
1{Ever Ran for Office}	2.05	14.16	26.3	1.43	11.86	190.3	1.41	11.78	150.9	2.56	0.08
1{Ran for Office in Last Election}	0.30	5.47	26.3	0.12	3.40	190.3	0.34	5.83	150.9	0.49	0.61

This table presents balance tests for pre-lottery covariates across all three lottery outcome groups. Columns (1)–(3) report the mean, standard deviation, and sample size (in thousands) for beneficiaries; columns (4)–(6) and (7)–(9) report the same for waitlisted and not-selected applicants, respectively. Columns (10)–(11) report the joint F-statistic and p-value from a test of equality across all three groups, estimated via a regression of each covariate on group indicators absorbing lottery-drawing-by-quota fixed effects. OLS standard errors. Percentage-point variables are multiplied by 100.

Table IA5: Impact of Housing Lottery on Entrepreneurship Entry: Control Definition Robustness (Also Includes Waitlisted as a Control)

Dependent Variable:	𝟙{Started Business Within t Years of Lottery}				
	1 Year	2 Years	3 Years	4 Years	5 Years
	(1)	(2)	(3)	(4)	(5)
Panel A: Any Business					
𝟙{Beneficiary}	−0.138	−0.312**	−0.324*	−0.348	−0.334
	(−1.35)	(−2.08)	(−1.82)	(−1.58)	(−1.34)
Observations	363,739	347,957	346,326	279,497	272,560
Mean Dependent Variable	2.35	4.68	6.35	8.54	9.72
Adjusted R^2	0.00	0.01	0.01	0.01	0.01
Panel B: Microenterprise					
𝟙{Beneficiary}	−0.168*	−0.309**	−0.321*	−0.345	−0.335
	(−1.67)	(−2.10)	(−1.83)	(−1.59)	(−1.37)
Observations	363,739	347,957	346,326	279,497	272,560
Mean Dependent Variable	2.30	4.58	6.20	8.37	9.52
Adjusted R^2	0.00	0.01	0.01	0.01	0.01
Panel C: Small Enterprise					
𝟙{Beneficiary}	0.005	−0.005	−0.019	−0.019	−0.022
	(0.49)	(−0.39)	(−1.36)	(−1.10)	(−1.06)
Observations	363,739	347,957	346,326	279,497	272,560
Mean Dependent Variable	0.02	0.04	0.06	0.08	0.10
Adjusted R^2	0.00	0.00	0.00	0.00	0.00
Panel D: Larger Firm					
𝟙{Beneficiary}	0.029*	0.003	0.017	0.024	0.015
	(1.69)	(0.12)	(0.65)	(0.72)	(0.44)
Observations	363,739	347,957	346,326	279,497	272,560
Mean Dependent Variable	0.04	0.08	0.11	0.15	0.17
Adjusted R^2	0.00	0.00	0.00	0.00	0.00
Lottery×Quota FE	✓	✓	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓	✓	✓

This table presents intent-to-treat (ITT) estimates of the effect of housing lottery selection on entrepreneurship entry, decomposed by Receita Federal firm size classification. 𝟙{Beneficiary} equals one if the individual was selected as a housing recipient in the CDHU lottery. The dependent variable is an indicator for founding a firm within the specified horizon after lottery application. The control group includes all non-beneficiaries (waitlisted and not-selected individuals). Attenuation relative to the main specification is consistent with a housing-security mechanism: waitlisted controls who may still receive housing partially dilute the estimated effect. Microenterprise denotes firms with annual gross revenue up to R$360,000; Small Enterprise denotes R$360,000–R$4.8 million; Larger Firm includes firms above R$4.8 million and entities not classified under Simples Nacional. All specifications include lottery×quota fixed effects. Coefficients are multiplied by 100. t-statistics based on standard errors clustered at the lottery×quota level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA6: Difference-in-Differences: Impact of Housing Lottery on Entrepreneurship Entry

	Dependent Variable: $\mathbb{1}\{\text{Ever Started Business by Year } t\}$			
	Any Business	Microenterprise	Small Enterprise	Larger Firm
	(1)	(2)	(3)	(4)
$\mathbb{1}\{\text{Beneficiary}\} \times \mathbb{1}\{\text{Post}\}$	-3.316^{**}	-3.326^{**}	0.068	-0.040
	(-2.49)	(-2.49)	(0.61)	(-0.20)
Observations	912,011	912,011	912,011	912,011
Mean Dependent Variable	19.75	19.18	0.12	0.54
Adjusted R^2	0.29	0.29	0.26	0.30
Individual FE	✓	✓	✓	✓
Lottery×Quota×Period FE	✓	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓	✓

This table presents difference-in-differences estimates of the effect of housing lottery selection on entrepreneurship entry. The sample is stacked in person×period format, covering $t \in \{-5, \ldots, -1, +1, \ldots, +5\}$ relative to the lottery year ($t = 0$ excluded). The dependent variable equals one if the individual has ever started a firm of the specified type by year t. $\mathbb{1}\{\text{Post}\}$ equals one for $t > 0$. All specifications include individual fixed effects and lottery×quota×period fixed effects. The control group is restricted to not-selected applicants. Coefficients are multiplied by 100. t-statistics based on standard errors clustered at the lottery×quota level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA7: Impact of Housing Lottery on 3-Year Entrepreneurship Entry by Pre-Lottery Occupation (Pre-Lottery Occupation Defined as Occupation in the Year of Lottery OR Year Prior)

Pre-Lottery Occupation:	Formal Employment (1)	Formal Entrepreneurship (2)	No Formal Occupation (3)
Panel A: Dependent Variable = $\mathbb{1}\{$*Started Any Business Within 3 Years*$\}$			
$\mathbb{1}\{$Beneficiary$\}$	−1.098	−0.477	−0.771***
	(−1.02)	(−0.52)	(−3.42)
Observations	23,825	7,199	87,849
Mean Dependent Variable	16.52	3.74	4.12
Adjusted R^2	0.01	0.00	0.00
Panel B: Dependent Variable = $\mathbb{1}\{$*Started Microenterprise Within 3 Years*$\}$			
$\mathbb{1}\{$Beneficiary$\}$	−1.142	−0.612	−0.772***
	(−1.09)	(−0.71)	(−3.59)
Observations	23,825	7,199	87,849
Mean Dependent Variable	16.32	3.17	4.06
Adjusted R^2	0.01	0.00	0.00
Panel C: Dependent Variable = $\mathbb{1}\{$*Started Small Enterprise Within 3 Years*$\}$			
$\mathbb{1}\{$Beneficiary$\}$	−0.078*	0.063	0.026
	(−1.65)	(0.28)	(1.04)
Observations	23,825	7,199	87,849
Mean Dependent Variable	0.05	0.21	0.02
Adjusted R^2	0.05	0.01	0.01
Panel D: Dependent Variable = $\mathbb{1}\{$*Started Larger Firm Within 3 Years*$\}$			
$\mathbb{1}\{$Beneficiary$\}$	0.106	0.217	−0.012
	(0.93)	(0.56)	(−0.41)
Observations	23,825	7,199	87,849
Mean Dependent Variable	0.18	0.47	0.05
Adjusted R^2	0.01	0.00	0.01
Lottery×Quota FE	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓

This table presents heterogeneity in the effect of housing lottery selection on entrepreneurship entry by pre-lottery occupation status, decomposed by Receita Federal firm size classification. The control group is restricted to individuals definitively not selected in the lottery. Panel A uses as dependent variable an indicator for starting any business within five years of the lottery; Panel B restricts to microenterprises (annual gross revenue up to R$360,000); Panel C to small enterprises (R$360,000–R$4.8 million); Panel D to larger firms (above R$4.8 million or not classified under Simples Nacional). Column (1) restricts the sample to individuals formally employed in the lottery year or the year before. Column (2) restricts to those who were active entrepreneurs in the lottery year or the year before (but not formally employed). Column (3) restricts to those with no formal employment or entrepreneurship in either year. The sample is limited to lotteries through 2020, as formal employment data (RAIS) is available through that year. All specifications include lottery×quota fixed effects. Coefficients are multiplied by 100. t-statistics based on standard errors clustered at the lottery level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA8: Impact of Housing Lottery on 5-Year Entrepreneurship Entry by Pre-Lottery Occupation (Pre-Lottery Occupation Defined as Occupation in the Year of Lottery OR Year Prior)

Pre-Lottery Occupation:	Formal Employment (1)	Formal Entrepreneurship (2)	No Formal Occupation (3)
Panel A: Dependent Variable = $\mathbb{1}\{$*Started Any Business Within 5 Years*$\}$			
$\mathbb{1}\{$Beneficiary$\}$	−0.612	−1.816	−0.633**
	(−0.42)	(−1.56)	(−2.23)
Observations	23,825	7,199	87,849
Mean Dependent Variable	24.92	6.74	5.96
Adjusted R^2	0.01	0.00	0.01
Panel B: Dependent Variable = $\mathbb{1}\{$*Started Microenterprise Within 5 Years*$\}$			
$\mathbb{1}\{$Beneficiary$\}$	−0.770	−2.121*	−0.627**
	(−0.55)	(−1.85)	(−2.27)
Observations	23,825	7,199	87,849
Mean Dependent Variable	24.61	5.79	5.87
Adjusted R^2	0.01	0.00	0.01
Panel C: Dependent Variable = $\mathbb{1}\{$*Started Small Enterprise Within 5 Years*$\}$			
$\mathbb{1}\{$Beneficiary$\}$	−0.061	−0.048	0.029
	(−0.60)	(−0.21)	(1.10)
Observations	23,825	7,199	87,849
Mean Dependent Variable	0.14	0.33	0.03
Adjusted R^2	0.01	0.01	0.01
Panel D: Dependent Variable = $\mathbb{1}\{$*Started Larger Firm Within 5 Years*$\}$			
$\mathbb{1}\{$Beneficiary$\}$	0.103	0.282	−0.035
	(0.68)	(0.48)	(−0.92)
Observations	23,825	7,199	87,849
Mean Dependent Variable	0.33	0.83	0.09
Adjusted R^2	0.00	0.02	0.00
Lottery×Quota FE	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓

This table presents heterogeneity in the effect of housing lottery selection on entrepreneurship entry by pre-lottery occupation status, decomposed by Receita Federal firm size classification. The control group is restricted to individuals definitively not selected in the lottery. Panel A uses as dependent variable an indicator for starting any business within five years of the lottery; Panel B restricts to microenterprises (annual gross revenue up to R$360,000); Panel C to small enterprises (R$360,000–R$4.8 million); Panel D to larger firms (above R$4.8 million or not classified under Simples Nacional). Column (1) restricts the sample to individuals formally employed in the lottery year or the year before. Column (2) restricts to those who were active entrepreneurs in the lottery year or the year before (but not formally employed). Column (3) restricts to those with no formal employment or entrepreneurship in either year. The sample is limited to lotteries through 2020, as formal employment data (RAIS) is available through that year. All specifications include lottery×quota fixed effects. Coefficients are multiplied by 100. t-statistics based on standard errors clustered at the lottery level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA9: Impact of Housing Lottery on 3-Year Entrepreneurship Entry: Ordered Probit (Pre-Lottery Occupation Defined as Year of Lottery)

Pre-Lottery Occupation:	Formal Employment (1)	Formal Entrepreneurship (2)	No Formal Occupation (3)
Panel A: Latent Index (Ordered Probit Coefficient)			
$\mathbb{1}\{\text{Beneficiary}\}$	−0.016	−0.157	−0.094***
	(−0.28)	(−1.02)	(−3.04)
Observations	19,782	7,833	92,509
Panel B: Average Marginal Effects at Means (%)			
Pr(No Firm)	0.344	0.158	0.632***
Pr(Microenterprise)	−0.338	−0.147***	−0.620***
Pr(Small Enterprise)	−0.001	−0.004	−0.003***
Pr(Larger Firm)	−0.005	−0.007	−0.009***
Lottery×Quota FE	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓

This table reports ordered probit estimates of the effect of housing lottery selection on firm quality, defined as an ordered outcome: 0 = no firm started within 3yr, 1 = microenterprise (annual revenue ≤ R$360,000), 2 = small enterprise (R$360,000–R$4.8M), 3 = larger firm (> R$4.8M or not under Simples Nacional). The control group is restricted to individuals definitively not selected in the lottery. Panel A reports the latent index coefficient on $\mathbb{1}\{\text{Beneficiary}\}$; a negative coefficient indicates winning the lottery shifts the distribution toward lower-quality outcomes. Panel B reports average marginal effects at the means, multiplied by 100. Column (1) restricts to individuals formally employed in the lottery year. Column (2) restricts to those who were active entrepreneurs in the lottery year (but not formally employed). Column (3) restricts to those with no formal employment or entrepreneurship in the lottery year. The sample is limited to lotteries through 2020 (RAIS availability). All specifications include lottery×quota fixed effects via explicit dummies. Note that the incidental parameters problem applies to nonlinear models with many fixed effects; results should be interpreted as robustness checks relative to the linear probability model estimates. Standard errors are clustered at the lottery×quota level. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA10: Impact of Housing Lottery on 3-Year Entrepreneurship Entry: Ordered Probit
(Pre-Lottery Occupation Defined as Year of Lottery OR Year Prior)

Pre-Lottery Occupation:	Formal Employment (1)	Formal Entrepreneurship (2)	No Formal Occupation (3)
Panel A: Latent Index (Ordered Probit Coefficient)			
$\mathbb{1}\{\text{Beneficiary}\}$	−0.042	−0.071	−0.097***
	(−0.89)	(−0.48)	(−3.05)
Observations	24,392	7,597	88,135
Panel B: Average Marginal Effects at Means (%)			
Pr(No Firm)	0.903	0.059***	0.550
Pr(Microenterprise)	−0.887	−0.054	−0.541
Pr(Small Enterprise)	−0.003	−0.002***	−0.002
Pr(Larger Firm)	−0.013	−0.003***	−0.007***
Lottery×Quota FE	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓

This table reports ordered probit estimates of the effect of housing lottery selection on firm quality, defined as an ordered outcome: 0 = no firm started within 3yr, 1 = microenterprise (annual revenue ≤ R$360,000), 2 = small enterprise (R$360,000–R$4.8M), 3 = larger firm (> R$4.8M or not under Simples Nacional). The control group is restricted to individuals definitively not selected in the lottery. Panel A reports the latent index coefficient on $\mathbb{1}\{\text{Beneficiary}\}$; a negative coefficient indicates winning the lottery shifts the distribution toward lower-quality outcomes. Panel B reports average marginal effects at the means, multiplied by 100. Column (1) restricts to individuals formally employed in the lottery year or the year before. Column (2) restricts to those who were active entrepreneurs in the lottery year or the year before (but not formally employed). Column (3) restricts to those with no formal employment or entrepreneurship in either year. The sample is limited to lotteries through 2020 (RAIS availability). All specifications include lottery×quota fixed effects via explicit dummies. Note that the incidental parameters problem applies to nonlinear models with many fixed effects; results should be interpreted as robustness checks relative to the linear probability model estimates. Standard errors are clustered at the lottery×quota level. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA11: Impact of Housing Lottery on 5-Year Entrepreneurship Entry: Ordered Probit (Pre-Lottery Occupation Defined as Year of Lottery)

Pre-Lottery Occupation:	Formal Employment (1)	Formal Entrepreneurship (2)	No Formal Occupation (3)
Panel A: Latent Index (Ordered Probit Coefficient)			
$\mathbb{1}\{\text{Beneficiary}\}$	0.004	−0.177	−0.056**
	(0.08)	(−1.53)	(−2.26)
Observations	19,782	7,833	92,509
Panel B: Average Marginal Effects at Means (%)			
Pr(No Firm)	−0.124	0.577	0.560**
Pr(Microenterprise)	0.121	−0.523***	−0.546**
Pr(Small Enterprise)	0.001	−0.018	−0.003**
Pr(Larger Firm)	0.002	−0.036***	−0.010**
Lottery×Quota FE	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓

This table reports ordered probit estimates of the effect of housing lottery selection on firm quality, defined as an ordered outcome: 0 = no firm started within 5yr, 1 = microenterprise (annual revenue ≤ R$360,000), 2 = small enterprise (R$360,000–R$4.8M), 3 = larger firm (> R$4.8M or not under Simples Nacional). Panel A reports the latent index coefficient on $\mathbb{1}\{\text{Beneficiary}\}$; a negative coefficient indicates winning the lottery shifts the distribution toward lower-quality outcomes. Panel B reports average marginal effects at the means, multiplied by 100. Column (1) restricts to individuals formally employed in the lottery year. Column (2) restricts to those who were active entrepreneurs in the lottery year (but not formally employed). Column (3) restricts to those with no formal employment or entrepreneurship in the lottery year. The sample is limited to lotteries through 2020 (RAIS availability). All specifications include lottery×quota fixed effects. Note that the incidental parameters problem applies to nonlinear models with many fixed effects; results should be interpreted as robustness checks relative to the linear probability model estimates. Standard errors clustered at the lottery×quota level. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA12: Impact of Housing Lottery on 5-Year Entrepreneurship Entry: Ordered Probit (Pre-Lottery Occupation Defined as Year of Lottery OR Year Prior)

Pre-Lottery Occupation:	Formal Employment (1)	Formal Entrepreneurship (2)	No Formal Occupation (3)
Panel A: Latent Index (Ordered Probit Coefficient)			
$\mathbb{1}\{\text{Beneficiary}\}$	−0.015	−0.145	−0.056**
	(−0.32)	(−1.23)	(−2.10)
Observations	24,392	7,597	88,135
Panel B: Average Marginal Effects at Means (%)			
Pr(No Firm)	0.454	0.420***	0.497**
Pr(Microenterprise)	−0.440	−0.380***	−0.486**
Pr(Small Enterprise)	−0.004	−0.013***	−0.003*
Pr(Larger Firm)	−0.010	−0.027***	−0.009**
Lottery×Quota FE	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓

This table reports ordered probit estimates of the effect of housing lottery selection on firm quality, defined as an ordered outcome: 0 = no firm started within 5yr, 1 = microenterprise (annual revenue ≤ R$360,000), 2 = small enterprise (R$360,000–R$4.8M), 3 = larger firm (> R$4.8M or not under Simples Nacional). The control group is restricted to individuals definitively not selected in the lottery. Panel A reports the latent index coefficient on $\mathbb{1}\{\text{Beneficiary}\}$; a negative coefficient indicates winning the lottery shifts the distribution toward lower-quality outcomes. Panel B reports average marginal effects at the means, multiplied by 100. Column (1) restricts to individuals formally employed in the lottery year or the year before. Column (2) restricts to those who were active entrepreneurs in the lottery year or the year before (but not formally employed). Column (3) restricts to those with no formal employment or entrepreneurship in either year. The sample is limited to lotteries through 2020 (RAIS availability). All specifications include lottery×quota fixed effects via explicit dummies. Note that the incidental parameters problem applies to nonlinear models with many fixed effects; results should be interpreted as robustness checks relative to the linear probability model estimates. Standard errors are clustered at the lottery×quota level. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA13: Effect of Housing on Entrepreneurship by Industry of Entry

Industry of Post-Lottery Firm	Coefficient on $\mathbb{1}\{\text{Beneficiary}\}$							
	Microenterprise		Small Enterprise		Larger Firm			
	Coeff.	(t)	Coeff.	(t)	Coeff.	(t)	N	$\bar{Y}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Services	−0.355**	(−2.19)	−0.007	(−0.46)	0.043*	(1.71)	160,238	2.39
Restaurants & food services	−0.071	(−0.91)	−0.002	(−1.19)	−0.001	(−1.07)	160,238	0.58
Hair, beauty & personal care	−0.113	(−1.53)	–		–		160,238	0.50
Domestic services	−0.071*	(−1.87)	–		–		160,238	0.23
In-store sales promotion	−0.022	(−0.57)	−0.001	(−1.04)	–		160,238	0.19
Administrative support services	0.045	(1.50)	0.000	(−0.99)	–		160,238	0.09
Associations & membership orgs.	–		–		0.011	(0.77)	160,238	0.00
Religious organizations	0.000	(−1.00)	–		0.019	(1.19)	160,238	0.00
Panel B: Trade	−0.180*	(−1.74)	0.000	(0.01)	−0.005*	(−1.72)	160,238	1.41
Clothing & accessories retail	−0.031	(−0.50)	–		0.000	(−1.00)	160,238	0.32
Minimarket, convenience & produce	−0.007	(−0.15)	−0.002	(−1.16)	−0.001	(−1.01)	160,238	0.15
Beverage retail	0.012	(0.35)	0.005	(1.00)	–		160,238	0.09
Vehicle repair, maintenance & parts	−0.008	(−0.24)	−0.003	(−1.25)	0.000	(−1.00)	160,238	0.14
Cosmetics & perfume retail	−0.015	(−0.62)	−0.002	(−1.01)	–		160,238	0.05
Vehicle washing & polishing	−0.024	(−1.30)	–		–		160,238	0.06
Panel C: Construction	−0.157**	(−2.00)	−0.002	(−0.19)	0.006	(0.66)	160,238	0.82
General services (masonry)	−0.012	(−0.18)	−0.003*	(−1.90)	−0.001	(−1.01)	160,238	0.42
Painting	−0.034	(−0.74)	–		–		160,238	0.16
Electrical installation	−0.084**	(−2.54)	–		–		160,238	0.11
AC & refrigeration installation	−0.005	(−0.35)	–		–		160,238	0.03
Plaster & stucco finishing	−0.005	(−0.44)	–		–		160,238	0.02
Real estate development	−0.001	(−1.39)	0.009	(1.00)	0.007	(0.75)	160,238	0.00
Panel D: Transport & Utilities	0.004	(0.06)	0.009	(0.90)	−0.002	(−1.44)	160,238	0.49
Road freight (municipal)	0.007	(0.24)	0.000	(−1.01)	−0.001	(−0.99)	160,238	0.12
Transport support services	−0.014	(−0.57)	–		–		160,238	0.08
Road freight (inter-municipal)	0.070	(1.54)	0.009	(0.97)	–		160,238	0.08
Auxiliary transport services	−0.020	(−1.00)	–		–		160,238	0.06
Courier services (municipal)	−0.019	(−1.31)	–		–		160,238	0.05
Municipal chartered passenger transp.	−0.006	(−0.54)	–		–		160,238	0.02
Panel E: Manufacturing	−0.085	(−1.03)	−0.002	(−1.55)	−0.001	(−1.42)	160,238	0.55
Clothing, accessories & textiles	−0.016	(−0.58)	–		–		160,238	0.09
Bakery products	−0.011	(−0.37)	–		–		160,238	0.09
Furniture fabrication & assembly	−0.006	(−0.24)	–		–		160,238	0.05
Locksmith articles manufacturing	0.005	(0.20)	0.000	(−1.01)	–		160,238	0.05
Machining, turning & welding	−0.023***	(−2.86)	–		–		160,238	0.03
Assembly & installation of ind. eq.	−0.013***	(−3.16)	0.000	(−1.00)	–		160,238	0.01
Panel F: Agriculture	0.009	(0.29)	−0.001	(−1.02)	−0.029	(−1.21)	160,238	0.06
Agricultural support services	0.014	(0.54)	0.000	(0.00)	0.000	(−0.99)	160,238	0.04
Tree pruning for crops	−0.005	(−1.19)	–		–		160,238	0.01
Cultivation of tobacco	−0.004	(−1.11)	–		0.013	(1.06)	160,238	0.00
Cultivation of rubber trees	−0.002	(−1.02)	–		−0.024	(−1.37)	160,238	0.00
Cultivation of coffee	–		–		−0.002*	(−1.73)	160,238	0.00
Cattle farming	−0.001	(−1.00)	–		−0.002	(−0.15)	160,238	0.00
Lottery×Quota FE				✓				
Clustered SE (Lottery×Quota)				✓				

Each row reports the coefficient on $\mathbb{1}\{\text{Beneficiary}\}$ from a separate regression where the dependent variable is an indicator for starting a firm of the given size *in the given industry* within 3 years of the lottery. Indented rows show the top sub-industries (by frequency) within each sector. The coefficient gives the effect of winning the housing lottery on the probability of starting a firm specifically in that industry-size cell. Industries classified using CNAE 2.0 (IBGE). Microenterprise: annual revenue ≤ R$360,000; Small: R$360,000–R$4.8M; Larger: > R$4.8M or not under Simples Nacional. $\bar{Y}$ is the mean of the microenterprise dependent variable (%). Coefficients × 100. t-statistics in parentheses. "–" indicates insufficient variation. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA14: How Municipal Characteristics Moderate the Effect of Housing on Entrepreneurship

	Interaction Coefficient: $\mathbb{1}\{\text{Beneficiary}\} \times Z$							
	Microenterprise		Small Enterprise		Larger Firm			
Municipal Characteristic (Z, standardized)	Coeff.	(t)	Coeff.	(t)	Coeff.	(t)	N	$\bar{Y}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Economic Development								
Income per capita (R$)	−0.445	(−1.61)	−0.016	(−0.40)	−0.083*	(−1.80)	160,238	5.73
Municipal GDP per capita (R$)	−0.552**	(−2.35)	0.082***	(4.11)	−0.026	(−0.71)	160,238	5.73
Share of adults who are employers (%)	−0.511*	(−1.93)	−0.002	(−0.08)	−0.072*	(−1.84)	160,238	5.73
Unemployment rate among adults (%)	−0.169	(−0.94)	−0.001	(−0.11)	0.012	(0.27)	160,238	5.73
Share of adults with zero income (%)	0.294***	(2.78)	0.015	(1.03)	0.072**	(2.40)	160,238	5.73
Income per capita among the vulnerable (R$)	−0.406*	(−1.83)	0.012	(0.64)	−0.037	(−1.01)	160,238	5.73
Panel B: Human Capital								
Illiteracy rate among adults (%)	0.419*	(1.69)	−0.019	(−0.75)	0.052	(1.25)	160,238	5.73
Share with primary education completed (%)	−0.471*	(−1.81)	0.019	(0.72)	−0.032	(−1.03)	160,238	5.73
Life expectancy at birth (years)	−0.543**	(−2.21)	0.008	(0.25)	−0.075**	(−2.09)	160,238	5.73
Total fertility rate	0.429*	(1.65)	0.006	(0.29)	0.030	(0.80)	160,238	5.73
Share of school-age children (6–17) out of school (%)	−0.007	(−0.04)	−0.042**	(−2.36)	−0.026	(−1.03)	160,238	5.73
Panel C: Vulnerability & Infrastructure								
Share of population classified as vulnerable (%)	0.397*	(1.77)	−0.001	(−0.06)	0.091**	(2.05)	160,238	5.73
Share of households with electricity (%)	−0.353**	(−2.14)	0.022*	(1.78)	−0.043	(−0.83)	160,238	5.73
Share of overcrowded households (%)	0.439*	(1.93)	−0.025	(−1.30)	0.031	(0.77)	160,238	5.73
Share of households without water/sewage (%)	0.232	(1.32)	0.010	(0.38)	0.082*	(1.94)	160,238	5.73
Panel D: Composite Indices								
Human Development Index (IDHM, 0–1)	−0.410	(−1.61)	0.010	(0.33)	−0.041	(−1.33)	160,238	5.73
IDHM — Longevity component (0–1)	−0.550**	(−2.24)	0.008	(0.25)	−0.074**	(−2.08)	160,238	5.73
Social Vulnerability Index (IVS, 0–1)	0.223	(1.02)	−0.022	(−0.86)	0.019	(0.54)	160,238	5.73
IVS — Human Capital component (0–1)	0.478*	(1.86)	−0.023	(−1.17)	−0.001	(−0.04)	160,238	5.73
Gini coefficient (0–1)	0.138	(0.63)	−0.020	(−0.70)	0.006	(0.17)	160,238	5.73
Lottery×Quota FE				✓				
Clustered SE (Lottery×Quota)				✓				

Each row reports the coefficient on the interaction $\mathbb{1}\{\text{Beneficiary}\} \times Z$, where Z is a municipal characteristic standardized to mean zero and unit standard deviation. The dependent variable is an indicator for starting a firm of the given type within 3 years of the lottery. The control group is restricted to individuals definitively not selected in the lottery. Interpretation: the baseline treatment effect on microenterprise entry is negative (housing *reduces* entry). A *positive* interaction coefficient means this reduction is *smaller* in municipalities with higher Z (e.g., higher zero-income share ⇒ fewer formal alternatives available); a *negative* interaction means the reduction is *larger* (e.g., higher GDP ⇒ more reallocation toward formal employment). Each regression includes the main $\mathbb{1}\{\text{Beneficiary}\}$ effect, the level of Z, and lottery×quota fixed effects. Unless otherwise noted, all municipal characteristics are measured for the urban population of each municipality, consistent with CDHU's urban focus. Exceptions using total municipal measures: unemployment rate and illiteracy rate (urban versions are noisier or sign-flip across horizons), sanitation (urban version sign-reversal for the micro outcome), and Gini coefficient (both versions null). GDP per capita has no urban disaggregate. GDP per capita is from IBGE (2020); all other municipal characteristics are from the 2010 Atlas of Social Vulnerability (IPEA 2015). Microenterprise: annual revenue ≤ R$360,000; Small: R$360,000–R$4.8M; Larger: > R$4.8M or not under Simples Nacional. $\bar{Y}$ is the mean of the microenterprise dependent variable (%). Coefficients × 100. t-statistics in parentheses. Standard errors clustered at the lottery×quota level. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA15: Heterogeneity in the Effect of Housing Lottery on Microenterprise Entry: Gender

Dependent Variable:	$\mathbb{1}\{$Started Microenterprise Within t Years of Lottery$\}$				
Years Post-Lottery:	1 Year	2 Years	3 Years	4 Years	5 Years
	(1)	(2)	(3)	(4)	(5)
$\mathbb{1}\{$Beneficiary$\}$	-0.672^{***}	-0.970^{***}	-1.236^{***}	-1.229^{***}	-1.405^{***}
	(-4.87)	(-4.26)	(-3.92)	(-2.89)	(-2.86)
$\mathbb{1}\{$Beneficiary$\} \times \mathbb{1}\{$Female$\}$	0.522^{***}	0.717^{***}	0.939^{***}	1.109^{**}	1.421^{***}
	(2.81)	(2.65)	(2.88)	(2.56)	(3.06)
Observations	173,346	158,981	158,229	118,831	117,652
Mean Dependent Variable	1.93	4.03	5.78	8.34	9.72
Adjusted R^2	0.00	0.01	0.01	0.01	0.01
Lottery×Quota FE	✓	✓	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓	✓	✓

This table presents ITT estimates of the effect of housing lottery selection on microenterprise entry, with interactions for applicant gender. The main effect of $\mathbb{1}\{$Beneficiary$\}$ captures the effect for male applicants (reference group). The interaction term gives the differential effect for female applicants. The indicator for female is included in all regressions but not reported. The control group is restricted to not-selected applicants. Microenterprise denotes firms with annual gross revenue up to R$360,000. All specifications include lottery×quota fixed effects. Coefficients are multiplied by 100. t-statistics based on standard errors clustered at the lottery×quota level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA16: How Individual Characteristics Moderate the Effect of Housing on Entrepreneurship

	Interaction Coefficient: $\mathbb{1}\{\text{Beneficiary}\} \times X$							
	Microenterprise		Small Enterprise		Larger Firm			
Individual Characteristic (X)	Coeff.	(t)	Coeff.	(t)	Coeff.	(t)	N	$\bar{Y}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Demographics								
$\mathbb{1}\{\text{Female}\}$	0.939***	(2.88)	−0.018	(−0.61)	−0.104**	(−1.98)	158,229	5.78
Age at Lottery	−0.717*	(−1.79)	−0.022	(−0.66)	0.078	(1.03)	64,046	11.71
$\mathbb{1}\{\text{White}\}$	−0.443	(−0.52)	0.006	(0.07)	−0.314**	(−2.02)	61,996	11.77
$\mathbb{1}\{\text{Brown/Mixed}\}$	1.143	(1.24)	0.070	(0.69)	0.337*	(1.84)	61,996	11.77
$\mathbb{1}\{\text{Black}\}$	−1.872	(−1.27)	−0.224**	(−2.35)	0.154	(0.69)	61,996	11.77
Panel B: Education								
Years of Schooling	0.533	(1.59)	0.028	(1.20)	−0.060	(−1.01)	64,038	11.71
$\mathbb{1}\{\text{Illiterate}\}$	0.993	(0.28)	−0.449	(−1.06)	0.028	(0.23)	64,038	11.71
$\mathbb{1}\{\text{Elementary}\}$	−0.734	(−0.72)	−0.143**	(−2.45)	0.139	(0.58)	64,038	11.71
$\mathbb{1}\{\text{Middle School}\}$	−1.740**	(−2.10)	0.039	(0.49)	0.019	(0.14)	64,038	11.71
$\mathbb{1}\{\text{High School}\}$	1.335*	(1.74)	0.055	(0.87)	−0.002	(−0.01)	64,038	11.71
$\mathbb{1}\{\text{College}\}$	1.196	(0.51)	−0.192	(−1.55)	−0.569***	(−2.75)	64,038	11.71
Panel C: Pre-Lottery Employment								
$\mathbb{1}\{\text{Employed in Lottery Year}\}$	1.617	(1.57)	0.054	(0.96)	0.073	(0.70)	160,238	5.73
$\mathbb{1}\{\text{Employed in Prior 3 Years}\}$	0.390	(0.54)	−0.010	(−0.25)	0.061	(0.74)	160,238	5.73
Weekly Work Hours (Mean 3 Yrs. Pre-Lottery)	−1.167**	(−2.11)	−0.013	(−0.87)	0.125**	(2.32)	36,559	14.49
Monthly Salary (R$, Mean 3 Yrs. Pre-Lottery)	2.866***	(2.75)	0.025	(0.56)	−0.001	(−0.02)	36,548	14.50
Panel D: Pre-Lottery Entrepreneurship								
$\mathbb{1}\{\text{Entrepreneur in Lottery Year}\}$	−0.310	(−0.59)	−0.116	(−1.30)	0.046	(0.27)	160,238	5.73
$\mathbb{1}\{\text{Has Been an Entrepreneur}\}$	−0.165	(−0.31)	−0.146*	(−1.89)	0.120	(0.81)	160,238	5.73
$\mathbb{1}\{\text{Has Been Micro Entrepreneur}\}$	−0.408	(−0.82)	−0.167**	(−2.25)	−0.083	(−0.64)	160,238	5.73
$\mathbb{1}\{\text{Has Been Small Entrepreneur}\}$	−7.957*	(−1.75)	2.825	(0.78)	5.081	(1.29)	160,238	5.73
$\mathbb{1}\{\text{Has Been Larger Firm Entrepreneur}\}$	0.640	(0.29)	−0.194	(−0.35)	1.438	(1.27)	160,238	5.73
$\mathbb{1}\{\text{Started Business in Prior 3 Years}\}$	−0.541	(−0.94)	−0.036	(−0.26)	0.101	(0.44)	160,238	5.73
Last Pre-Lottery Firm Equity (R$ Thousands)	−0.468	(−0.79)	0.203	(0.74)	0.255	(1.05)	17,625	4.59
Lottery×Quota FE				✓				
Clustered SE (Lottery×Quota)				✓				

Each row reports the coefficient on the interaction $\mathbb{1}\{\text{Beneficiary}\} \times X$, where X is an individual characteristic. The dependent variable is an indicator for starting a firm of the given type within 3 years of the lottery. The control group is restricted to individuals definitively not selected in the lottery. For binary characteristics, the interaction gives the *differential* treatment effect for that group relative to the omitted category (e.g., the additional effect for women beyond the effect for men). For continuous characteristics (Age, Years of schooling, Weekly hours, Monthly salary, Firm equity), X is standardized to mean zero and unit standard deviation, so the coefficient gives the change in treatment effect per one standard deviation increase. Each regression includes the main $\mathbb{1}\{\text{Beneficiary}\}$ effect, the level of X, and lottery×quota fixed effects. Microenterprise: annual revenue ≤ R$360,000; Small: R$360,000–R$4.8M; Larger: > R$4.8M or not under Simples Nacional. $\bar{Y}$ is the mean of the microenterprise dependent variable (%). N varies across rows because some characteristics have missing values; hours and salary are conditional on pre-lottery employment. Coefficients × 100. t-statistics in parentheses. Standard errors clustered at the lottery×quota level. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA17: Impact of Housing Lottery on Firm Survival — Lee Bounds

Years Post-Founding:	(1) 1 Year	(2) 2 Years	(3) 3 Years	(4) 4 Years	(5) 5 Years
Panel A: Microenterprise					
𝟙{Beneficiary}	−0.192	−0.307	−0.473	2.726	3.483
	(−0.15)	(−0.14)	(−0.21)	(1.08)	(0.99)
Lee Upper Bound	1.730	3.803*	6.136**	11.225***	12.251***
	(1.30)	(1.69)	(2.53)	(3.99)	(3.19)
Lee Lower Bound	−3.379**	−6.576***	−9.642***	−6.057*	−5.612
	(−2.48)	(−2.80)	(−3.27)	(−1.89)	(−1.31)
Bounds Include Zero	Yes	Yes	Yes	Yes	Yes
Observations	8,722	8,190	7,281	6,075	3,837
Mean Dep. Variable	92.89	83.69	66.02	50.64	43.39
Adjusted R^2	0.00	0.00	0.03	0.01	0.01
Avg. Trimming Fraction	0.264	0.264	0.264	0.264	0.264
Panel B: Small & Larger Firms					
𝟙{Beneficiary}	14.183	14.183	4.951	20.430*	13.095**
	(1.48)	(1.47)	(0.28)	(1.72)	(2.26)
Lee Upper Bound	14.183	14.183	4.951	20.430	13.095**
	(1.43)	(1.43)	(0.27)	(1.64)	(2.09)
Lee Lower Bound	14.183	14.183	4.951	20.430	13.095**
	(1.43)	(1.43)	(0.27)	(1.64)	(2.09)
Bounds Include Zero	No	No	No	No	No
Observations	153	136	104	83	54
Mean Dep. Variable	94.89	88.33	81.52	75.68	73.47
Adjusted R^2	0.10	0.00	0.00	0.00	0.00
Avg. Trimming Fraction	0.775	0.775	0.775	0.775	0.775
Lottery×Quota FE	✓	✓	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓	✓	✓

Dependent variable: 𝟙{Firm Survived}. Each panel conditions on starting a firm of the given size within three years of the lottery. 𝟙{Beneficiary} equals one if the individual was selected as a housing recipient in the CDHU lottery. We report Lee (2009) bounds under a monotonicity assumption that treatment can only weakly discourage entry. The bounds trim excess not-selected entrants within each lottery×quota cell. The upper bound drops not-selected entrants with the highest outcome values; the lower bound drops those with the lowest. All regressions include lottery×quota fixed effects and restrict the control group to not-selected applicants. Coefficients are multiplied by 100. t-statistics based on standard errors clustered at the lottery×quota level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA18: Impact of Housing Lottery on Firm Growth — Lee Bounds

Years Post-Founding:	(1) 1 Year	(2) 2 Years	(3) 3 Years	(4) 4 Years	(5) 5 Years
Panel A: Microenterprise					
𝟙{Beneficiary}	0.254	0.090	1.319	2.775*	2.054
	(0.39)	(0.11)	(1.15)	(1.86)	(0.98)
Lee Upper Bound	1.044	1.434*	3.780***	6.159***	6.761***
	(1.60)	(1.65)	(3.33)	(3.90)	(2.81)
Lee Lower Bound	−0.154	−0.471	0.233	0.862	−1.039
	(−0.22)	(−0.51)	(0.19)	(0.52)	(−0.47)
Bounds Include Zero	Yes	Yes	No	No	Yes
Observations	8,722	8,190	7,281	6,075	3,837
Mean Dep. Variable	1.71	3.02	5.50	9.11	11.64
Adjusted R^2	0.02	0.03	0.03	0.02	0.02
Avg. Trimming Fraction	0.264	0.264	0.264	0.264	0.264
Panel B: Small & Larger Firms					
𝟙{Beneficiary}	−1.547	−1.547	13.925	9.677	28.571
	(−1.09)	(−1.09)	(1.09)	(0.38)	(1.16)
Lee Upper Bound	−1.547	−1.547	13.925	9.677	28.571
	(−1.06)	(−1.06)	(1.05)	(0.36)	(1.07)
Lee Lower Bound	−1.547	−1.547	13.925	9.677	28.571
	(−1.06)	(−1.06)	(1.05)	(0.36)	(1.07)
Bounds Include Zero	No	No	No	No	No
Observations	153	136	104	83	54
Mean Dep. Variable	2.19	5.00	8.70	8.11	4.08
Adjusted R^2	0.00	0.00	0.00	0.00	0.00
Avg. Trimming Fraction	0.775	0.775	0.775	0.775	0.775
Lottery×Quota FE	✓	✓	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓	✓	✓

Dependent variable: 𝟙{Firm Upgraded Registration}. For microenterprises (Panel A) this equals one if the firm grew from MEI status; for small and larger firms (Panels B–C) it equals one if the firm grew from Simples Nacional registration. Each panel conditions on starting a firm of the given size within three years of the lottery. 𝟙{Beneficiary} equals one if the individual was selected as a housing recipient in the CDHU lottery. We report Lee (2009) bounds under a monotonicity assumption that treatment can only weakly discourage entry. The bounds trim excess not-selected entrants within each lottery×quota cell. The upper bound drops not-selected entrants with the highest outcome values; the lower bound drops those with the lowest. All regressions include lottery×quota fixed effects and restrict the control group to not-selected applicants. Coefficients are multiplied by 100. t-statistics based on standard errors clustered at the lottery×quota level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA19: Impact of Housing Lottery on Firm Tax Compliance — Lee Bounds

Years Post-Founding:	(1) 2 Years	(2) 3 Years	(3) 4 Years	(4) 5 Years
Panel A: Microenterprise				
1{Beneficiary}	0.168	−1.006	−2.538	−3.298
	(0.12)	(−0.47)	(−0.99)	(−1.00)
Lee Upper Bound	3.958**	6.885***	5.792**	5.904
	(2.37)	(2.82)	(2.03)	(1.55)
Lee Lower Bound	−1.427	−5.114**	−7.545***	−9.569***
	(−0.95)	(−2.14)	(−2.66)	(−2.58)
Bounds Include Zero	Yes	Yes	Yes	Yes
Observations	8,190	7,281	6,075	3,837
Mean Dep. Variable	9.33	20.16	23.51	27.53
Adjusted R^2	0.03	0.01	0.01	0.01
Avg. Trimming Fraction	0.264	0.264	0.264	0.264
Panel B: Small & Larger Firms				
1{Beneficiary}	12.068	12.068	−3.226	−7.143
	(0.92)	(0.92)	(−1.14)	(−1.16)
Lee Upper Bound	12.068	12.068	−3.226	−7.143
	(0.90)	(0.89)	(−1.09)	(−1.07)
Lee Lower Bound	12.068	12.068	−3.226	−7.143
	(0.90)	(0.89)	(−1.09)	(−1.07)
Bounds Include Zero	No	No	No	No
Observations	136	104	83	54
Mean Dep. Variable	5.00	6.52	8.11	12.24
Adjusted R^2	0.00	0.00	0.00	0.05
Avg. Trimming Fraction	0.775	0.775	0.775	0.775
Lottery×Quota FE	✓	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓	✓

Dependent variable: 1{Firm Incurred Tax Violation}. Tax violation data are first available two years after founding. Each panel conditions on starting a firm of the given size within three years of the lottery. 1{Beneficiary} equals one if the individual was selected as a housing recipient in the CDHU lottery. We report Lee (2009) bounds under a monotonicity assumption that treatment can only weakly discourage entry. The bounds trim excess not-selected entrants within each lottery×quota cell. The upper bound drops not-selected entrants with the highest outcome values; the lower bound drops those with the lowest. All regressions include lottery×quota fixed effects and restrict the control group to not-selected applicants. Coefficients are multiplied by 100. t-statistics based on standard errors clustered at the lottery×quota level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA20: Impact of Housing Lottery on Firm Equity at Founding — Lee Bounds

Dependent Variable:	Firm Equity at Founding (R$ Th.)	
	(1) Microenterprise	(2) Small & Larger Firms
$\mathbb{1}\{\text{Beneficiary}\}$	0.599	−15.559
	(0.63)	(−1.21)
Lee Upper Bound	3.238***	−15.559
	(3.14)	(−1.18)
Lee Lower Bound	−1.245	−15.559
	(−1.23)	(−1.18)
Bounds Include Zero	Yes	No
Observations	9,022	178
Mean Dep. Variable (R$ Th.)	8.59	26.40
Adjusted R^2	0.00	-0.01
Avg. Trimming Fraction	0.264	0.775
Lottery×Quota FE	✓	✓
Clustered SE (Lottery×Quota)	✓	✓

Dependent variable: equity of the first post-lottery firm (R$ thousands, winsorized at the 1st and 99th percentiles). Each column conditions on starting a firm of the given size within three years of the lottery. Coefficients are not multiplied by 100. Each panel conditions on starting a firm of the given size within three years of the lottery. $\mathbb{1}\{\text{Beneficiary}\}$ equals one if the individual was selected as a housing recipient in the CDHU lottery. We report Lee (2009) bounds under a monotonicity assumption that treatment can only weakly discourage entry. The bounds trim excess not-selected entrants within each lottery×quota cell. The upper bound drops not-selected entrants with the highest outcome values; the lower bound drops those with the lowest. All regressions include lottery×quota fixed effects and restrict the control group to not-selected applicants. Coefficients are multiplied by 100. t-statistics based on standard errors clustered at the lottery×quota level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA21: Impact of Housing Lottery on Firm Employment Generation — Lee Bounds

Years Post-Founding:	(1) 1 Year	(2) 2 Years	(3) 3 Years
Panel A: Microenterprise			
$\mathbb{1}\{\text{Beneficiary}\}$	0.795	0.565	0.241
	(1.40)	(1.00)	(0.71)
Lee Upper Bound	0.808	0.681	0.384
	(1.44)	(1.19)	(1.10)
Lee Lower Bound	0.695	0.514	0.193
	(1.23)	(0.88)	(0.54)
Bounds Include Zero	No	No	No
Observations	7,596	7,596	7,596
Mean Dep. Variable	0.19	0.32	0.21
Adjusted R^2	0.00	0.00	0.00
Avg. Trimming Fraction	0.264	0.264	0.264
Lottery×Quota FE	✓	✓	✓
Clustered SE (Lottery×Quota)	✓	✓	✓

Dependent variable: $\mathbb{1}\{\text{Firm Generates Employment}\}$. Each panel conditions on starting a firm of the given size within three years of the lottery. $\mathbb{1}\{\text{Beneficiary}\}$ equals one if the individual was selected as a housing recipient in the CDHU lottery. We report Lee (2009) bounds under a monotonicity assumption that treatment can only weakly discourage entry. The bounds trim excess not-selected entrants within each lottery×quota cell. The upper bound drops not-selected entrants with the highest outcome values; the lower bound drops those with the lowest. All regressions include lottery×quota fixed effects and restrict the control group to not-selected applicants. Coefficients are multiplied by 100. t-statistics based on standard errors clustered at the lottery×quota level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA22: Characterizing Marginal Firm Entrants: CCM Decomposition
(2-Year Post-Founding Outcomes)

	(1) $\mathbb{1}\{\text{Survived}\}$ (%)	(2) $\mathbb{1}\{\text{Upgraded}\}$ (%)	(3) $\mathbb{1}\{\text{Tax Violation}\}$ (%)	(4) Equity (R$ Th.)
Panel A: Microenterprise				
Always-Entrant Mean	82.6	3.3	9.8	8.88
Marginal Entrant Mean	86.8	2.3	7.8	7.84
Control (Not-Selected) Entrant Mean	83.7	3.0	9.3	8.60
Avg. Retention Fraction (p_0)	0.736	0.736	0.736	0.736
Treated Entrants (N)	1,403	1,403	1,403	1,403
Panel B: Small & Larger Firms				
Always-Entrant Mean	97.8	0.0	2.2	23.19
Marginal Entrant Mean	85.4	7.2	6.6	27.45
Control (Not-Selected) Entrant Mean	88.2	5.6	5.6	26.50
Avg. Retention Fraction (p_0)	0.225	0.225	0.225	0.225
Treated Entrants (N)	46	46	46	46

This table decomposes not-selected entrants into always-entrants and marginal entrants following Kling et al. (2007), 2 years after founding. Each panel conditions on starting a firm of the given size within three years of the lottery. Panel B pools small enterprises (R$360,000–R$4.8M) and larger firms (> R$4.8M or not under Simples Nacional) due to small treated-entrant counts when reported separately. Under monotonicity, all treated entrants are always-entrants. The marginal entrant mean is recovered as $\bar{Y}^M = (\bar{Y}^C - p_0\bar{Y}^A)/(1 - p_0)$, where p_0 is the average within-cell ratio of treated to not-selected entry rates (computed within lottery×quota cells) and $\bar{Y}^C$ and $\bar{Y}^A$ are the not-selected and always-entrant means, respectively. For binary outcomes, recovered means below zero are set to zero. Columns (1)–(3) report percentages; column (4) reports equity at founding in R$ thousands (winsorized at the 1st and 99th percentiles). Microenterprise: annual revenue ≤ R$360,000.

Table IA23: Characterizing Marginal Firm Entrants: CCM Decomposition
(3-Year Post-Founding Outcomes)

	(1) $\mathbb{1}\{\text{Survived}\}$ (%)	(2) $\mathbb{1}\{\text{Upgraded}\}$ (%)	(3) $\mathbb{1}\{\text{Tax Violation}\}$ (%)	(4) Equity (R$ Th.)
Panel A: Microenterprise				
Always-Entrant Mean	62.1	6.7	17.3	8.88
Marginal Entrant Mean	76.8	2.1	28.1	7.84
Control (Not-Selected) Entrant Mean	66.0	5.5	20.1	8.60
Avg. Retention Fraction (p_0)	0.736	0.736	0.736	0.736
Treated Entrants (N)	1,236	1,236	1,236	1,236
Panel B: Small & Larger Firms				
Always-Entrant Mean	91.9	2.7	2.7	23.19
Marginal Entrant Mean	74.4	10.0	10.0	27.45
Control (Not-Selected) Entrant Mean	78.3	8.3	8.3	26.50
Avg. Retention Fraction (p_0)	0.225	0.225	0.225	0.225
Treated Entrants (N)	37	37	37	37

This table decomposes not-selected entrants into always-entrants and marginal entrants following Kling et al. (2007), 3 years after founding. Each panel conditions on starting a firm of the given size within three years of the lottery. Panel B pools small enterprises (R$360,000–R$4.8M) and larger firms (> R$4.8M or not under Simples Nacional) due to small treated-entrant counts when reported separately. Under monotonicity, all treated entrants are always-entrants. The marginal entrant mean is recovered as $\bar{Y}^M = (\bar{Y}^C - p_0\bar{Y}^A)/(1 - p_0)$, where p_0 is the average within-cell ratio of treated to not-selected entry rates (computed within lottery×quota cells) and $\bar{Y}^C$ and $\bar{Y}^A$ are the not-selected and always-entrant means, respectively. For binary outcomes, recovered means below zero are set to zero. Columns (1)–(3) report percentages; column (4) reports equity at founding in R$ thousands (winsorized at the 1st and 99th percentiles). Microenterprise: annual revenue ≤ R$360,000.

Table IA24: Characterizing Marginal Firm Entrants: CCM Decomposition
(5-Year Post-Founding Outcomes)

	(1) $\mathbb{1}\{\text{Survived}\}$ (%)	(2) $\mathbb{1}\{\text{Upgraded}\}$ (%)	(3) $\mathbb{1}\{\text{Tax Violation}\}$ (%)	(4) Equity (R$ Th.)
Panel A: Microenterprise				
Always-Entrant Mean	47.2	14.1	23.6	8.88
Marginal Entrant Mean	32.4	4.6	38.5	7.84
Control (Not-Selected) Entrant Mean	43.3	11.6	27.5	8.60
Avg. Retention Fraction (p_0)	0.736	0.736	0.736	0.736
Treated Entrants (N)	441	441	441	441
Panel B: Small & Larger Firms				
Always-Entrant Mean	83.3	5.6	0.0	23.19
Marginal Entrant Mean	66.0	3.7	15.9	27.45
Control (Not-Selected) Entrant Mean	69.9	4.1	12.3	26.50
Avg. Retention Fraction (p_0)	0.225	0.225	0.225	0.225
Treated Entrants (N)	18	18	18	18

This table decomposes not-selected entrants into always-entrants and marginal entrants following Kling et al. (2007), 5 years after founding. Each panel conditions on starting a firm of the given size within three years of the lottery. Panel B pools small enterprises (R$360,000–R$4.8M) and larger firms (> R$4.8M or not under Simples Nacional) due to small treated-entrant counts when reported separately. Under monotonicity, all treated entrants are always-entrants. The marginal entrant mean is recovered as $\bar{Y}^M = (\bar{Y}^C - p_0\bar{Y}^A)/(1 - p_0)$, where p_0 is the average within-cell ratio of treated to not-selected entry rates (computed within lottery×quota cells) and $\bar{Y}^C$ and $\bar{Y}^A$ are the not-selected and always-entrant means, respectively. For binary outcomes, recovered means below zero are set to zero. Columns (1)–(3) report percentages; column (4) reports equity at founding in R$ thousands (winsorized at the 1st and 99th percentiles). Microenterprise: annual revenue ≤ R$360,000.