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Moving to Opportunity or Isolation? Network Effects of a Randomized Housing Lottery in Urban India[†]

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A housing lottery in an Indian city provided winning slum dwellers the opportunity to move into improved housing on the city's periphery. Fourteen years later, winners report improved housing but no change in tenure security, family income, or human capital. Winners also report increased isolation from family and caste networks and reduced informal insurance. We observe significant program exit: 34 percent of winners never took up subsidized housing and 32 percent eventually exited. Our results suggest negligible long-run economic value of this expensive public program and point to the importance of considering social networks in housing programs for the poor. (*JEL* I38, O15, O18, R23, R31, R38, Z13)

Across the globe, urbanization continues at a rapid pace. Between 1990 and 2011, urban population more than doubled from 1.5 to 3.6 billion, with much of this growth concentrated in the developing world. Yet, far too often the urban experience remains of poor quality—nearly a billion individuals live in urban slums typified by inadequate physical infrastructure, high population density, and confined quarters—raising widespread concern that urban slums are not way stations on the road to better living, but rather poverty traps (United Nations Human Settlements Programme 2008; Marx, Stoker, and Suri 2013).[1] Recent evidence from US housing programs also emphasizes the importance of neighborhood quality (Chetty, Hendren, and Katz 2016).

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[1]By definition, a slum household lacks one or more of: secure tenure, durable housing, a sufficient living area of two persons or less per room, access to safe water, and access to sanitation (United Nations Human Settlements Programme 2003).

Governments throughout the developing world—including Indonesia (Some, Hafidz, and Sauter 2009), China (Day and Cervero 2010), Brazil (Dasgupta and Lall 2009), Thailand (Viratkapan and Perera 2006), Kenya[2], Nigeria,[3] and India (studied here)—have responded with low-income housing opportunities on city peripheries (United Nations Human Settlements Programme 2003, Warah 2003). While suburbanization offers the benefits of residential improvements and cleaner, safer environs, it entails the loss of the major advantages of urbanicity, including access to public services, short and affordable commutes, and proximity to ethnic enclaves (Lall, Lundberg, and Shalizi 2008). Evidence of the net value of these housing programs remains scarce mainly because those who anticipate particularly high benefits or very low costs of relocation are typically overrepresented among households that opt into a suburban housing program (Field and Kremer 2006; Bayer, Ross, and Topa 2008; Marx, Stoker, and Suri 2013). It is possible that, despite voluntary program take-up, the net benefits of relocating are negligible, implying low social returns to such housing programs. And absent adequate opportunity to experiment with suburban living, it is not obvious that slum dwellers who sign up for housing programs are made even weakly better off by moving.

In this paper, we provide the first experimental evidence from a developing country on the long-run impacts of a typical government housing program for slum dwellers. The program we evaluate was offered by the city government of Ahmedabad, the capital city of the Indian state of Gujarat, in partnership with the Self Employed Women's Association (SEWA), a leading trade union for poor women. The 497 program participants were informal sector, piece-rate workers drawn from city slums.[4] Almost a quarter received the opportunity to move into improved housing in a neighborhood on the city's periphery (from now on, Colony A), 7.5 miles from the center. Housing units were offered at a monthly cost well below market: the estimated subsidy per unit was over half of the lease value.

The major advantage of the program we evaluate is random unit assignment via a lottery, which provides a rare source of exogenous variation in residential location akin to Moving to Opportunity (MTO) and housing voucher experiments in US cities. A second advantage is our ability to evaluate relatively long-run program effects: 14 years after housing units were assigned, we successfully tracked and interviewed 89 percent of original lottery applicants. A third advantage is that the nature and value of the program is very similar to India's ongoing government housing program—the Affordable Housing in Partnership component of the Pradhan Mantri Awas Yojana subsidizes the construction of housing projects for households earning less than 300,000 rupees (Rs) (Ministry of Housing and Urban Poverty Alleviation 2016). For instance, India's first large scale housing mission—the Jawaharlal Nehru National Urban Renewal Mission (2005–2012)—sanctioned 1.5 million dwellings (Press Information Bureau 2014). Since the launch in 2013 of the Rajiv Awas Yojana Scheme

[2] "Kenya begins huge slum clearance." *BBC*, September 16, 2009. http://news.bbc.co.uk/2/ji/africa/8258417.stm.

[3] "Lagos Makoko slums knocked down in Nigeria." *BBC*, July 17, 2012. http://www.bbc.com/news/world-africa-18870511.

[4] These particular piece-rate workers were engaged in producing unfiltered cigarettes, or beedis. Over 1.4 million Indian women are beedi workers, making it one of the largest female, informal labor sectors (Office of the Registrar General and Census Commissioner 2001).

and Affordable Housing in Partnership Scheme, more than 140,000 new dwellings have been sanctioned (Press Information Bureau 2014).[5] Finally, understanding the impact of lottery allocated housing is, in itself, policy relevant given widespread use of lotteries to allocate subsidized low-income housing in India.[6,7,8]

We find that, 14 years after housing allocation, slum dwellers who had won the opportunity to relocate to objectively higher quality housing in a safer and cleaner location were no better off on a variety of socioeconomic measures than those who had lost the lottery. In particular, the economic well-being of lottery winners and losers was similar in terms of current income, labor force participation, household health, and child outcomes.

Furthermore, we observe significant program exit: 34 percent of winners chose not to move to Colony A. Even more surprising, a further 32 percent moved in but then returned to centrally located slums within ten years, forgoing the indefinite future stream of highly subsidized rent and tenure security that public housing offers. While some of those who left Colony A recovered partial value via illegal rentals, by all accounts the full private value of the apartment was unrecovered since tenure security was not transferable to an illegal occupant.

Much of the potential economic value of public housing programs in low-income settings arises from the government's ability to provide security of tenure, but this requires that participants abide by lease agreements and not revert to illegal occupancy. In the case of Colony A, since a high fraction of winners either abandoned the unit or were delinquent on their lease agreements (or both), winners failed to gain greater tenure security. Consistent with this, we observe similar housing expenditures (net of revenues) across winners and losers, suggesting that most winners simply "gave up" the house.

The absence of socioeconomic improvement among winners, the high exit rate, and continued tenure insecurity all suggest negligible long-run economic value of this fairly expensive public program. These results are stark given that lottery participants organized the housing movement and hence represent a group of particularly motivated potential beneficiaries. Furthermore, as home-based workers, they were presumably more indifferent than most slum dwellers to residential location. Hence, our findings are arguably an upper bound on the self-targeting that a typical public housing scheme can hope to achieve.

[5] Under the Affordable Housing in Partnership Scheme, the central government provides a subsidy of Rs 75,000 per unit for municipal governments and partners to build large Affordable Housing Projects and offer the units at an affordable price to households with income below Rs 100,000 (Ministry of Housing and Urban Poverty Alleviation 2013).

[6] The Scheme Guidelines for Affordable Housing in Partnership stipulate that allottees "should be made following a transparent procedure e.g., through draw of lottery preferably computerized based on detailed guidelines approved by SLSMC [State Level Sanctioning and Monitoring Committee]" (Ministry of Housing and Urban Poverty Alleviation 2013). Other government agencies like the Delhi Development Authority (DDA) and Maharashtra Housing and Area Development Authority periodically sell flats via lottery. In 2010, the DDA received 1.1 million applications for 16,000 flats and in 2014 it again received over 1 million applications for a sale of 25,040 flats.

[7] Anand, Shefali. 2014. "Delhi's DDA House 'Lottery': What to Know." *Wall Street Journal*, September 1. http://blogs.wsj.com/indiarealtime/2014/09/01/delhis-dda-house-lottery-what-to-know.

[8] Press Trust of India. 2014. "DDA Housing Scheme: Unsuccessful Applicants May Get Refund by December 24." *NDTV Profit*, December 17. http://profit.ndtv.com/news/your-money/article-dda-housing-scheme-unsuccessful-applicants-may-get-refund-by-december-24-714046.

What ultimately made most participants deem relocating to Colony A undesirable? The only negative program effects we detect are reduced ties to participants' social networks, including family. Relative to lottery losers, winners live significantly farther from their adult children and see them less often. Moreover, they are less likely to know someone they can rely on for borrowing needs (6 to 9 percentage points less, depending on the item lent or borrowed) and have, on average, known such a person for nearly three fewer years, which indicates that the act of moving out of the slums severed risk-sharing ties. In qualitative interviews, movers report difficulty in maintaining network links outside of Colony A. Correspondingly, they are less likely to rely on informal insurance: losers, but not winners, report receiving informal transfers through their social networks in the event of a shock. Hence, geographic isolation appears to imply significant economic and social costs. Within Colony A risk-sharing arrangements were presumably weaker than those within city slums because they were newer and involved greater subcaste diversity.

Conversely, winners report higher neighborhood-level collective action, suggesting that geographic isolation—or the greater network closure and support it implies—enabled cooperation around local public goods.[9] However, winners participated less in the city-wide Beedi Workers' Union.

Other negative effects of relocating away from the city center such as increased commuting costs and distance from school and health clinics were insignificant. Given this, we interpret program exit as reflecting the socioeconomic costs of lower contact with existing network members. Consistent with this interpretation, in qualitative interviews several of those who moved into Colony A but eventually left stated that isolation proved too costly.

Ours is the first experimental evaluation of a low-income housing program in a developing country. Urban housing for the poor is a fast-emerging priority for city governments in the developing world, but there is little evidence to guide policy discussions. Our findings are consistent with housing research in the United States: 10 to 15 years after assignment, MTO program studies find similar employment, wage, and earning patterns among program winners and losers.[10] Our null findings are also consistent with other public housing opportunity studies in large North American cities (Oreopolous 2003, Jacob 2004, Jacob and Ludwig 2012). In their setting, as in ours, one of the key reasons for limited program effects is the failure of households to ultimately relocate to better neighborhoods when given the opportunity. Results from our setting demonstrate that unwillingness of slum populations to relocate appears to be driven by an interest in maintaining social networks, which may also explain some of the patterns found in US housing programs.

To the best of our knowledge, we also provide the first long-run experimental analysis of geographic isolation on risk-sharing and informal insurance in any

[9] Greater closure implies a more interconnected network (Coleman 1988, 1990). Jackson, Rodriguez-Barraquer, and Tan (2012) define support as a measure of pairs of friends that have another friend in common. They find evidence from rural India that support increases with geographic proximity and is positively related to favor exchange.

[10] Adult winners had better mental and physical health. Long-term child health was not affected overall, though young women report fewer health problems (Ludwig et al. 2013). Recent work does find long-run improvements in economic outcomes of children under 13 at time of relocation (Chetty, Hendren, and Katz 2016).

context.[11] The idea that housing mobility programs change social networks is also evident in the MTO program: treatment households reported more college-educated friends and greater exposure to more affluent peers, but for youth there was a significant decline in the fraction who report at least one close friend, and male youth in the treatment group were less likely than those in the controls to see friends from their original neighborhood (Sanbonmatsu et al. 2011). There is no direct evidence from MTO on changes in risk-sharing capacity.[12]

These findings contribute a new angle to a large and growing literature on the economic benefits of urbanicity (Glaeser 2011) that is likely to be particularly important in developing country contexts, and can help explain why slum relocation programs are so politically fraught.

The remainder of this paper proceeds as follows. Section I describes the study context, the dataset, and empirical strategy. Section II examines the impact of the housing program on residential location and on socioeconomic well-being, as well as the network costs of relocation. Section III concludes.

I. Background and Data

Below we describe the sample of slum dwellers in Ahmedabad who entered the housing lottery and the housing program, our survey design, and empirical strategy.

A. *Slum Dwellers in Ahmedabad*

With roughly 6.4 million residents, Ahmedabad is India's sixth most populous urban area and the largest city in Gujarat, one of India's fastest-growing and most industrialized states (Office of the Registrar General and Census Commissioner 2011). Yet, in the early 2000s the urban poverty rate in Ahmedabad was roughly 1.4 times the Indian average at 34 percent (Chandy et al. 2002). The economic mainstay of the city's poor remains informal sector employment, with women involved in home-based, piece-rate work making up a significant fraction (Unni 2000).

Housing for the urban poor in Ahmedabad originated in the eastern half of the city near textile mills (Field et al. 2008) and was usually segregated by caste (Gillion 1968). The decline of textile mills, which began in the 1960s and accelerated in the 1980s, significantly increased informal sector employment among these workers (Breman 2004). Today, their living arrangements largely consist of slums that are organized along ethnic lines (Hall 1980) and are located close to the city's commercial center (Bhatt 2003).

[11] While some nonexperimental papers have noted the mixed success of slum relocation programs (Viratkapan, Perera, and Watanabe 2004), much of the focus has been on commuting costs (Takeuchi, Cropper, and Bento 2008). An exception is Lundberg et al. (2004), who estimate models of location choice in urban India and find significant relocation costs in terms of disruption of religious and linguistic networks. There are few quantitative estimates of the significance of neighbor effects in developing countries. Montgomery and Hewett (2005) and Barnhardt (2009) are exceptions, but neither examine changes in the risk-sharing capacity of networks.

[12] Studies with college housing arrangements have focused on social interactions extensively. Ward (2006) examines housing isolation, social networks, and time investment choices among Harvard undergraduates and finds that students in a location farther from where campus life is centered participated the same amount, but invested more in local networks, which became denser.

B. *The Housing Lottery*

The housing scheme we evaluate was organized by the Self Employed Women's Association (SEWA) Union, a collection of trade groups with a membership of over 500,000 women in Gujarat.[13]

The SEWA beedi roller trade group was formed in 1978.[14] Within the informal sector, the beedi industry is one of the few regulated by law—The Beedi and Cigar Workers Act (1966). As the Act provides for government housing subsidies for beedi workers, the SEWA Union advocated for a subsidized group housing program. In interviews, SEWA Union officeholders described their key motivations as reducing housing costs and improving tenure security, both of which were believed to contribute to school dropout among beedi workers' children. The SEWA Union's interest in female empowerment led them to emphasize the importance of giving women the opportunity to acquire housing in their own names.

In cooperation with multiple government agencies, SEWA launched a housing lottery for beedi workers in 1987.[15] Union members with a monthly income of less than Rs 700 (US$11 currently) were eligible to participate, and all 497 eligible women entered the lottery. They came primarily from two caste groups, Koshti (35 percent) and Padmasali (41 percent), while Muslims (10 percent) were the third largest group. SEWA leaders conducted the drawing of the 110 winners at a public gathering on International Housing Day in 1987. The randomization was conducted by placing slips of paper representing the 497 women into a bowl and having the second-in-command at SEWA draw names of the winners.

After the lottery, the Union worked with the Ahmedabad Urban Development Authority (AUDA) to construct homes. The largest hurdle was finding suitable land. Six years later, AUDA built the houses on vacant government land situated 7.5 miles from the city center. The units were single-story rowhouses of approximately 200 square feet situated back-to-back with a narrow alley running in between. There was no additional means testing to ensure that winners were still eligible, and take-up was 100 percent. (All winners made the down payment according to administrative records from the bank.)

Winners received a significant housing subsidy on Colony A units. The construction cost of a unit was Rs 45,000 (Dayal 2001), and the winner paid an initial down payment of Rs 900. She then paid Rs 124 (about US$2 currently) in monthly rent. This rate was guaranteed for 20 years and was less than half the average rent reported by losers in our survey.[16] Subletting Colony A units was forbidden but family members could occupy the residence. Failure to pay monthly rent resulted in the

[13] SEWA. 2009. "SEWA's Structure." http://www.sewa.org/About_Us_Structure.asp. Accessed June 29, 2015.

[14] Beedi rollers typically work at home on a piece-rate basis for agents who supply raw materials and then sell finished product to beedi companies. The pay rate in 2007 was about one dollar (Rs 40–42 converted into 2007 US dollars) for 1,000 rolled beedis (roughly one day of work).

[15] SEWA's website describes their contribution: "… the Housing and Urban Development Corporation (HUDCO) [provided] loans, Ahmedabad Urban Development Authority (AUDA) [identified] a piece of land under the scheme allocating land for the economically weaker sections and [built] the houses, the Beedi Workers Welfare Fund [provided] subsidies … the Gujarat Government's Ministry of Labour [sponsored] the scheme, SEWA [mobilized] the beedi workers, and SEWA Bank undertook the responsibility of collecting repayment of the loans."

[16] Authors' calculations are available on request.

occupant losing the legal right to remain in the property. A unique program feature was that rent-to-own agreements with the government gave participants the opportunity to become homeowners after 20 years, but only under the unlikely scenario that all 110 winners remained in the colony and made regular monthly payments over the 20-year period.

As expected, the colony failed to achieve zero delinquency and zero out-migration (a large fraction never even moved in), and so ultimately no one was given a title to the property and even tenants who made regular payments continue to be charged monthly rent to occupy the unit today. Since this outcome was predictable, it arguably is correct to treat the contract as a standard lease agreement.

C. *Data Collection*

Conducting a follow-up survey involved the daunting task of tracking participants two decades after the lottery took place. Fortunately, the official list of lottery winners—which included participant name and address in Colony A—was available through SEWA Union. We obtained the names and addresses of lottery losers from multiple sources. First, the SEWA Union office maintained a list of 297 lottery losers (out of 387) who had indicated an interest in entering a future housing lottery. Second, a former SEWA employee provided a list of a subset of participants, including names of an additional 26 lottery losers.[17] In addition to names and addresses, this subset list of 109 participants also had a handful of baseline characteristics (1987 address, marital status, husband's occupation, and the incomes of the participant, husband, and household) that we use in the following subsection as part of a randomization check. Finally, we undertook tracking interviews with the listed lottery participants in an attempt to identify the remaining 64 (17 percent) lottery losers.

Ultimately, we obtained an additional 30 names (47 percent of missing) as referrals from women who were in the lottery, and their participation was verified upon contact (from now on, "referrals list"). Hence, the names of only 34 out of 387 lottery losers—or 9 percent of losers and 7 percent of all lottery participants—remain unidentified.

After constructing the participant list, we tracked and surveyed 443 participants (or a family member, in cases of death or mental illness), giving a response rate of 96 percent of the 463 participants who could be named (89 percent of the original 497 participants). No one refused the survey. Table 2 shows identical attrition rates of 4 percent across winners and losers drawn from the 463 listed participants, and similar rates of mortality and proxy surveying among the 443 participants found. In Subsection ID, we provide a randomization check for our tracked and surveyed sample to show that attrition from the set of named participants and inclusion on the participant list are uncorrelated with observable characteristics.

[17] In particular, two out of ten pages of the full alphabetical listing of all lottery participants were found by the employee. Those two pages contained 109 names, 26 of which were lottery losers not already found on the other list.

Our survey occurred between May and October 2007, 20 years after the housing lottery and 14 years after lottery winners obtained possession of Colony A units. We asked respondents about household demographics, various socioeconomic indicators, health, schooling, and marital status, along with current occupation of their children. We collected detailed data on their residential location and mobility over the last 20 years and obtained a full employment history for the participant and her husband. A neighborhood and networks module asked respondents about their social interactions with immediate neighbors and adult children, risk-sharing mechanisms (in terms of exposure to major city-level shocks in the last six years and the coping mechanisms they used to deal with them), and collective action undertaken over the last three years. We also collected GPS coordinates for participants' 1987 and 2007 residential locations.

In 2011, we conducted qualitative fieldwork with randomly selected 21 participants from four strata: five losers, four winners who never moved into Colony A, six winners who moved into Colony A but subsequently moved out, and six winners who still lived there. We used semi-structured interviews to probe respondents on how their housing mobility opportunities affected their socioeconomic well-being and their networks.

D. *Descriptive Statistics*

Our analysis sample encompasses the 443 tracked and surveyed lottery participants. In Table 1 we use baseline (1987) data to provide descriptive statistics and a randomization balance check. Table 1, panel A, considers participant demographics. At the time of lottery, the average participant age was 28, 88 percent of participants were married and each had, on average, 2.6 children born. Beedi-rolling is a caste-based occupation, and the two main beedi-rolling castes, Padmasali and Koshti, make up over 75 percent of the sample. Participants typically rolled beedis at home and 13 percent of participants' husbands were tailors, a home-based occupation. However, close to half (49 percent) of participants' husbands worked in a mill or factory located close to the city center. Participants were spread across 18 neighborhoods, with half of the women living in the inner city neighborhoods of Amraiwadi (11 percent), Bapunagar (15 percent), Dhudeshwar (12 percent), and Rakhial (13 percent).

Table 1, panel B, presents residential characteristics. To reduce data-mining concerns, we group outcomes into three thematic indices: urbanicity, property rights, and amenities. Each index is the simple average of z-scores for component outcomes and is balanced at baseline across treatment and control.[18] The urbanicity index includes distance from home to city center, time to walk to nearest school, and time to walk to nearest hospital. The average respondent lived 2.3 miles from the city center (measured as a straight line) and a 17-minute walk to the nearest school (Appendix Table A1).

[18] Table A1 reports regressions for index components.

Table 1—Baseline (1987) Characteristics

	Winner (1)	Non-winner mean (2)	Observations (3)
Panel A. Demographics			
Age	1.06	28.21	430
	(1.14)	[9.95]	
Muslim	−0.07	0.12	443
	(0.03)	[0.32]	
Padmasali	0.07	0.39	443
	(0.06)	[0.49]	
Koshti	−0.04	0.37	443
	(0.05)	[0.48]	
Married	−0.05	0.88	443
	(0.04)	[0.33]	
Widowed, divorced, or separated	0.04	0.09	443
	(0.04)	[0.28]	
Number children born	−0.02	2.58	443
	(0.25)	[2.17]	
Husband is employed	−0.04	0.99	344
	(0.03)	[0.11]	
Husband had a mill or factory job	0.09	0.49	344
	(0.06)	[0.50]	
Husband had a tailoring job	−0.05	0.13	344
	(0.04)	[0.34]	
Panel B. Residences			
Urbanicity index	0.06	−0.01	443
	(0.07)	[0.65]	
Property rights index	−0.01	−0.01	443
	(0.08)	[0.75]	
Amenities index	−0.05	0.00	427
	(0.07)	[0.63]	
Chose location to be near family or friends	0.06	0.30	443
	(0.05)	[0.46]	
Chose location for resources	−0.01	0.12	443
	(0.04)	[0.33]	
Chose location for price	0.01	0.03	443
	(0.02)	[0.18]	
Panel C. Income (subset)			
Participant's income (Rs per month)	−15.65	268.15	109
	(19.75)	[108.28]	
Husband's income (Rs per month)	43.65	334.31	109
	(39.10)	[203.91]	

Notes: Each row in column 1 reports the coefficient from an OLS regression where the explanatory variable is whether the respondent won the lottery. Robust standard errors are in parentheses, and standard deviations are in brackets. Sample size less than 443 is due to missing observations, except for husband variables in panel A, since only 366 participants were married in 1987 and for panel C, which is available for a subset of the participants only. The Urbanicity Index consists of miles from house to city center and minutes walking to nearest hospital and school. The Property Rights Index consists of whether they owned their home in 1987, how many years pre-1987 they owned their home, whether they owned the title, and whether the title was in the participant's name. A participant owns a house if someone in their household owns the house. The Amenities Index consists of whether the participant could walk outside at night up to 10 PM, had a private toilet, a separate kitchen, and a water tap in the house.

The property rights index includes home ownership in 1987, years of home ownership prior to 1987, whether possessed an official title, and whether title was in the participant's name. Interpretations of reported ownership are ambiguous because many of the residential structures in city slums are illegal, and occupants frequently claim ownership absent official documentation. Sixty-three percent report that someone in their household owns the property (average ownership is 6.4 years among losers, with insignificant difference for winners) and 50 percent report having documentation. Just under 10 percent state that the documentation is in their names.

Finally, the amenities index includes whether the 1987 house had a separate kitchen, a private toilet, and a water connection, and whether it was safe for a woman to walk in the neighborhood after 11 PM. The majority of women (86 percent) claim to have lived in a safe neighborhood by this measure.

We also asked respondents their reasons for choosing their 1987 residence. Over 30 percent report that they chose their location to be near family or friends in Table 1, panel B, and another 12 percent state that neighborhood resources drove their location choice. Only 3 percent named price as the main factor.[19] For the arguably random subset list of 109 lottery participants recovered from a former SEWA employee, we also have baseline income information, which we present in Table 1, panel C.

Comparing baseline characteristics across winners and losers shows that both household types were similar at the time of the lottery in nearly all observable dimensions. However, Muslims are overrepresented in the loser category by 6.8 percentage points (Table 1). The p-value is 0.54 for an F-test of the joint significance of *winner* estimate across the 11 variables available for the full sample of 443 found participants in Table 1. To investigate whether Hindus were favored in the housing draw, we regressed respondent perception of whether the lottery was conducted fairly on respondent religion and find no difference across Hindu and Muslim participants (though, unsurprisingly, winners are more likely to perceive the lottery as having been fair).[20] We interpret Muslim underrepresentation among the winners as a random occurrence, but do present all experimental estimates with and without a dummy indicator of participant religion or caste.

In Table 2, we further examine the balance of respondent characteristics for the subset of participants and the probability of finding households by baseline characteristics.[21] Table 2, panel B, shows that marital status and husbands' occupation are balanced across groups and that winners and losers among the subset of 109 participants look similar to the full sample. We also investigate if our tracking procedure introduced imbalances by looking for statistically significant differences in the fraction of participants found across winners and losers, conditional on individual characteristics. Only the fraction of Koshti caste participants is higher for winners (100 percent found) than for losers (95 percent found) (see Table 2, panel C). For the subset of participants, we observe no differences in fraction found conditional on marital status or husband's occupation (see Table 2, panel D).

[19] The remaining respondents listed either "other" or "for marriage" as the main factor.
[20] Results are available upon request.
[21] Found and surveyed are the same here, as the response rate among located participants was 100 percent.

Table 2—Tracking and Attrition

	Winner (1)	Non-winner mean (2)	Observations (3)
Panel A. Tracking and surveying (*full sample*)			
Participant or family was found	−0.00 (0.02)	0.96 [0.20]	463
Referred participant was found for survey	0.02 (0.02)	0.98 [0.16]	85
Participant has died	0.01 (0.03)	0.05 [0.22]	443
Family surveyed due to participant death/incapacity	0.03 (0.03)	0.06 [0.24]	443
Panel B. Baseline characteristics (*subset of participants*)			
Widowed	−0.04 (0.05)	0.11 [0.31]	109
Married	0.06 (0.07)	0.80 [0.40]	109
Husband had a mill or factory job	0.11 (0.10)	0.43 [0.50]	99
Husband had a tailoring job	−0.10 (0.08)	0.22 [0.42]	99
Panel C. Attrition (*full sample*)			
Found if Padmasali caste	0.00 (0.03)	0.96 [0.20]	190
Found if Koshti caste	0.05 (0.02)	0.95 [0.21]	164
Found if Muslim	0.00 (·)	1.00 [0.00]	44
Found if other caste	−0.08 (0.09)	0.93 [0.25]	65
Panel D. Attrition (*subset of participants*)			
Found if widow	−0.19 (0.34)	0.86 [0.38]	10
Found if married	−0.02 (0.06)	0.94 [0.24]	90
Found if husband worked in factory or mill	−0.01 (0.06)	0.96 [0.20]	47
Found if husband worked as a tailor	−0.20 (0.19)	1.00 [0.00]	18

Notes: Each row in column 1 reports the coefficient from an OLS regression where the explanatory variable is whether the respondent won the lottery. Robust standard errors are in parentheses, and standard deviations are in brackets. Baseline husband job type is set to missing if the participant was a widow at the time of the lottery.

E. *Empirical Strategy*

The use of a lottery to randomly allocate the subsidized housing opportunity on the city periphery to participants allows us to cleanly identify its impact. Therefore, throughout the empirical analysis, we estimate intent-to-treat (ITT) effects using the following reduced-form specification:

$$Y_i = \alpha + \beta_0 \cdot winner_i + \mathbf{X}_i \cdot \boldsymbol{\gamma} + \epsilon_i, \tag{1}$$

Table 3—Program Take-Up

	Winner		Non-winner	
	No controls (1)	With controls (2)	Mean (3)	Observations (4)
Respondent's family ever lived in Colony A	0.60 (0.05)	0.60 (0.05)	0.06 [0.24]	443
Years respondent lived in Colony A	6.08 (0.59)	6.03 (0.60)	0.39 [1.99]	443
Respondent's family lives in Colony A	0.28 (0.05)	0.28 (0.05)	0.06 [0.24]	443
Lives in same house as before lottery	−0.07 (0.05)	−0.05 (0.05)	0.29 [0.45]	443
Number of houses lived in since 1987	0.02 (0.12)	−0.00 (0.12)	2.16 [1.11]	443

Notes: Each row in columns 1 and 2 reports the coefficient from an OLS regression where the explanatory variable is whether the respondent won the lottery. Robust standard errors are in parentheses, and standard deviations are in brackets. The set of controls in column 2 comprises individual indicator variables for whether participant is *Muslim*, *Koshti*, or *Padmasali* caste (other castes omitted), whether participant was identified by referral, and whether a family member responded to the survey.

where Y_i is an outcome of interest for individual i, and $winner_i$ indicates that they were offered housing in Colony A. We report estimates with and without a set of controls $\mathbf{X}_i$, which includes ethnic identity indicators for whether the household is *Muslim*, *Koshti* caste, or *Padmasali* caste (omitting all other caste groups), a variable indicating whether the participant's name was referred by another member (rather than gathered from a Union list), and whether the participant's information was reported by proxy because she had died or was unable to answer due to mental illness.

When the unit of observation is a child, we cluster standard errors at the participant level.

II. Results

In Table 3, we examine how winning the lottery influenced subsequent residential mobility including program take-up. Tables 4 to 6 investigate long-term economic outcomes. In every table, each row reports the coefficient β_0 from regressions of the form presented in equation (1). We report estimates from regressions first without controls and then with them.

A. *Program Take-Up*

Table 3, row 1, reveals that although all winners signed the lease agreement, only 66 percent report moving into Colony A (60 percentage points more than losers).[22] In 2007, the average amount of time spent in Colony A was just over six years for

[22] All but two also made some monthly payments.

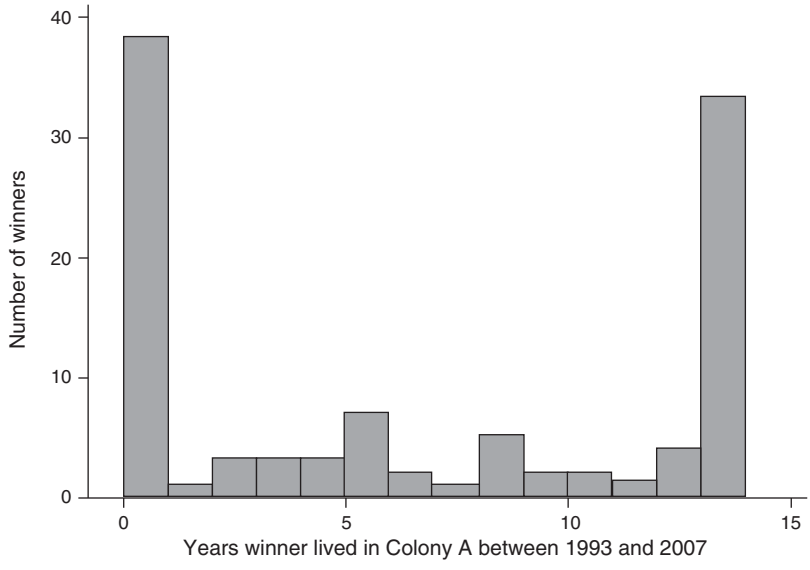

Figure 1. Years Lived in Colony A (*only winners*)

Source: Authors' calculations

winners (Table 3, row 2). Fourteen years after program implementation, only 34 percent of winners still lived there (Table 3, row 3).

Figure 1 plots the distribution of years spent in Colony A for the sample of winners. Approximately 60 percent of participants who moved in stayed on the property for at least ten years, and 85 percent stayed at least five years. Hence, it is reasonable to anticipate significant relocation impacts on at least 85 percent of the movers, or over half of the winners. This also implies that the ITT estimates of program impact will be substantially diluted.

While low, take-up of Colony A housing exceeds that in comparable US experiments, where observed lease rates among households offered location-restricted vouchers range between 19 percent and 48 percent (Rubinowitz and Rosenbaum 2000; Kling, Liebman, and Katz 2007; Jacob and Ludwig 2012; and Ludwig et al. 2012). This includes a Chicago housing program which offered previously unassisted households a significant financial gain via housing subsidies (Jacob and Ludwig 2012).[23]

The subsidy value could potentially be recovered through illegal sale or lease of the unit for those who did not occupy the housing—and indeed the majority of winners who either did not move into Colony A or subsequently exited report selling or subletting their unit on the informal market. However, tenure security was not

[23] Jacob and Ludwig (2012) report lower voucher take-up than in our setting despite the absence of residential location restrictions and a US$369 gain in monthly disposable income for the average participant. In Colony A, we estimate that SEWA offered units at a subsidy of at least 50 percent (Section IB), and anecdotally, the increase in tenure security was also high, although we cannot observe it precisely in our survey data.

transferable, preventing full value recovery on the illegal market. Consistent with this, the magnitude of these (illegal) profits, are small and insignificant (Section IIC).

A major program objective was to reduce the frequency of residential turnover, which was believed to constrain children's schooling attainment. In qualitative interviews, winners consistently stated that Colony A provided tenure security and permanence that rental housing on the private market lacked and most winners recognized and appreciated the subsidized rent.

To evaluate housing turnover, we collected data on all residences between 1987 (when they entered the lottery) and 2007 (when participants answered the survey). Table 3, row 4 shows that only 29 percent of participants resided in the same house at both points, and this number does not vary between winners and losers. Row 5 shows that, in part because so many winners moved into and then out of Colony A, average residential mobility is ultimately no lower among winners, with the average household reporting just over two relocations. Correspondingly, children of winners and losers report switching schools a comparable number of times (unreported).

The take-up results suggest that nonmonetary costs—net of the rent received from illegal occupants—of moving from slum housing in the city center or remaining in Colony A were prohibitively large for the 66 percent of winners who sacrificed the stability, tenure security, and subsidized rent offered by the housing program. Given that these winners chose to participate in the lottery when the only unknown feature was exact location of the housing development, we can presume that opt-out occurred because the difference between where they expected it to be and where it was actually built greatly changed its private value.

This interpretation is further supported by the fact that, in the open-ended survey question asked of winners who left Colony A, 76 percent of those that provided an answer named some aspect of geographic isolation as their primary reason for leaving Colony A.[24] Furthermore, 31 percent of these individuals list "proximity to friends and family" as the major reason for choosing their current location, relative to only 3 percent of those who remained in Colony A. Below we evaluate the nature of these costs that ultimately led the housing program to fail.

B. *Urbanicity and Housing Quality*

Figures 2 and 3 show the evolution of participants' residential patterns. In 1987, winners and losers were equally concentrated in central Ahmedabad, but over the next 20 years we observe increasing sprawl. By 2007, lottery participants cover a larger geographic area with a distinct cluster of winners in Colony A (Figure 3).

We quantify this pattern by matching the administrative ward of participants' current residences with 2001 census data. Table 4, rows 1 and 2, show that while no more likely to have left the city, winners are significantly more likely to have left the city *center* for less dense suburban environs—they live in wards with roughly 30 percent lower population density. In Table 4, row 3, we explore this further via the urbanicity index, and again lottery winners report significantly lower urbanicity.

[24] The answer to this question was missing in 29 cases.

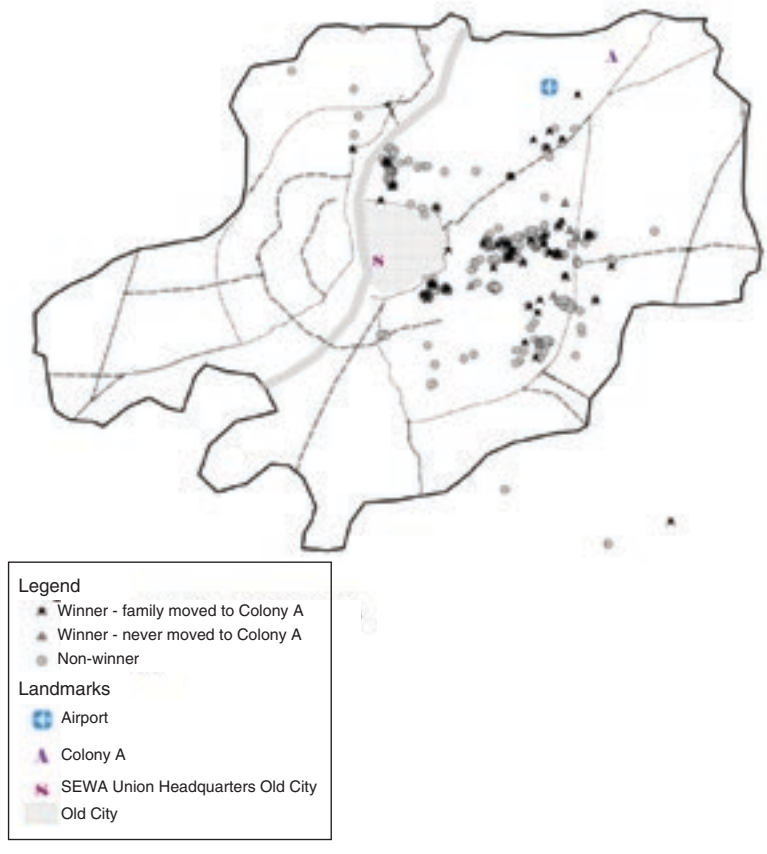

FIGURE 2. HOUSING LOCATIONS IN 1987

Source: Authors' calculations

Table 5, panel A, reports index components. Winners, on average, reside an additional mile away from the city center compared to losers, with a corresponding increase in the distance to health centers and schools. This is particularly striking given that distance to Colony A was the main predictor of program take-up among winners (unreported).

The amenities index (Table 4, row 4) suggests that winners gain a 0.2 standard deviation improvement in housing amenities.[25] Since winners and losers report similar value of housing improvements between 1987 and 2007 (Table 4, row 5), the difference presumably reflects higher quality housing, not differential investment choices.

Consistent with this pattern, rows 6–8 of Table 4 show differences in reported reasons for moving between 1987 and 2007. Losers more often report choosing current residence for proximity to family or friends (33 percent versus 24 percent for winners) or local resources (29 percent versus 17 percent), while winners are more likely to choose residence for its price (34 percent versus 9 percent for losers), which

[25] Winner housing had more durable walls and roof, and access to a private toilet (Table 5, panel B).

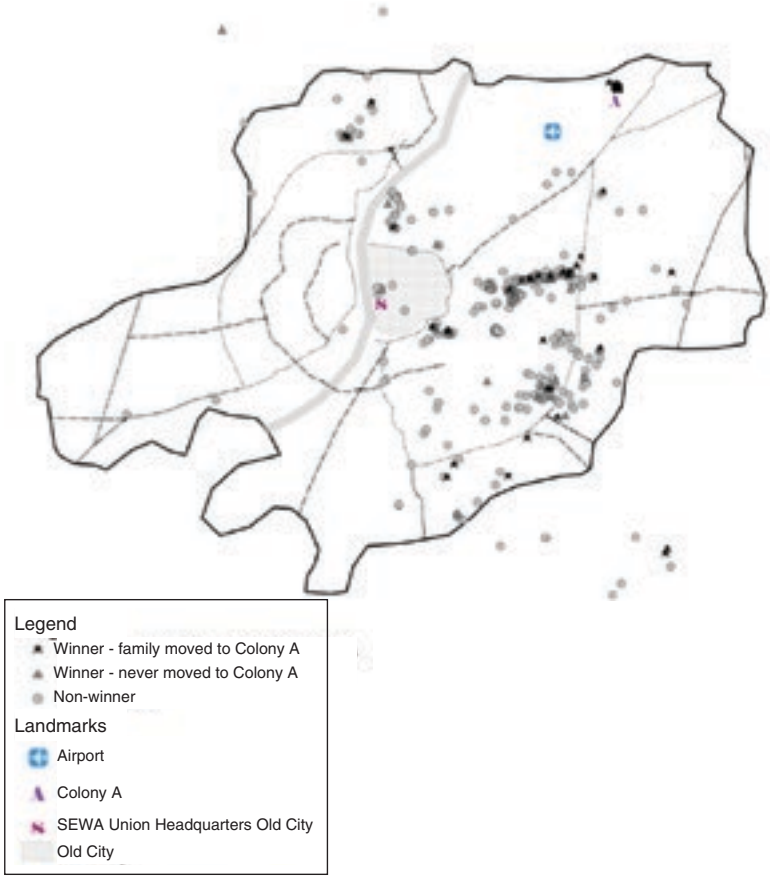

FIGURE 3. HOUSING LOCATIONS IN 2007

Source: Authors' calculations

presumably reflects the subsidized Colony A rent. Aggregating housing data between 1987 and 2007, Table 4, rows 9–10 show that, relative to losers, winners report living significantly fewer years in places chosen for proximity to family or resources.

C. *Economic Well-Being*

Table 6 examines measures of economic well-being. Fourteen years after obtaining possession of Colony A housing, we observe strikingly few differences between lottery winners and losers, including key characteristics that have the potential to be influenced by residential location. Table 6, panel A, row 1 shows that winning the lottery leaves the Adult Labor Supply Index unaffected. (Table 5 reports these index components as well.) On average, participants and their husbands work 40 hours per week, and the only observable difference is that winners are less likely to hold a second job (though the incidence of a second job is very low). We also do not observe differences on Labor Supply Cost Index. Reflecting the labor supply patterns, total and individual household members' labor incomes are virtually identical across

Table 4—Current Housing and Neighborhood Quality

	Winner		Non-winner	
	No controls (1)	With controls (2)	Mean (3)	Observations (4)
Lives in Ahmedabad in 2007	−0.01 (0.02)	0.00 (0.02)	0.97 [0.18]	443
Ward level population density	−7,375.10 (1,432.47)	−7,902.76 (1,412.91)	29,802.07 [10,641.24]	386
Urbanicity index	−0.34 (0.07)	−0.36 (0.07)	−0.01 [0.61]	443
Amenities index	0.20 (0.05)	0.21 (0.05)	−0.00 [0.46]	443
Total value of housing improvements made (Rs 1,000s)	−3.94 (4.13)	−2.29 (4.00)	27.94 [58.51]	443
Chose current location to be near family/friends	−0.11 (0.05)	−0.09 (0.05)	0.33 [0.47]	418
Chose current location for resources	−0.09 (0.05)	−0.12 (0.05)	0.29 [0.46]	418
Chose current location for price	0.26 (0.05)	0.25 (0.05)	0.09 [0.28]	418
Years lived in house to be close to family/friends	−2.13 (0.70)	−1.86 (0.72)	6.30 [7.38]	442
Years lived in house to be close to resources	−1.69 (0.63)	−2.21 (0.65)	4.44 [6.79]	442

Notes: Each row in columns 1 and 2 reports the coefficient from an OLS regression where the explanatory variable is whether the respondent won the lottery. Robust standard errors are in parentheses, standard deviations are in brackets. The set of controls in column 2 is the same as in Table 3. Ward-level population density was obtained from census data in 2001, and was only available for households still living in Ahmedabad in 2007. The Urbanicity Index consists of miles from house to city center, number of houses in the neighborhood, and minutes walking to nearest hospital and school. The Amenities Index consists of whether the participant could walk outside at night after 11 PM, whether the house had a durable wall, roof, and floor, and whether they had a private toilet, a separate kitchen, and a water tap in the house. Choosing a house for its resources includes the following reasons: to be close to a school or work, for its location, or for the area and neighbors.

groups (Table 6, panel A), with no visible difference in patterns of consumption, savings, or borrowing (Table 7).

While the absence of employment effects on participants may reflect the home-based nature of work, the absence of employment effects for husbands is more surprising given increased distance from the city center. The latter is suggestive of those with job opportunities in the city moving out of or failing to move into Colony A. In our qualitative interviews, women typically stated that while fixed beedi rates meant that moving to Colony A left their own earnings unchanged, the lack of nearby low-skilled local jobs and the resulting increase in commuting costs affected husband and children. One resident who left Colony A after three years said:

> [*My husband*] *was working at a public distribution system shop that was in Rakhial. He continued working there, in the same shop, even after we moved to Colony A. He used to ride his bicycle to work—it would take him one hour to get there. The commute was very difficult for him* (…) *Sometimes he would fall sick from exhaustion.*

TABLE 5—BREAKDOWN OF OUTCOME INDICES

	Winner		Non-winner	
	No controls (1)	With controls (2)	Mean (3)	Observations (4)
Panel A. Urbanicity				
Miles from city center to house	1.09	1.08	2.88	423
	(0.19)	(0.19)	[1.31]	
Number of houses within a five minute walk	−24.84	−25.96	114.98	406
	(15.31)	(15.94)	[170.55]	
Minutes walk to nearest government school	1.74	2.43	15.12	443
	(1.33)	(1.38)	[12.30]	
Minutes walk to nearest government hospital	7.80	9.22	33.44	443
	(2.61)	(2.70)	[24.16]	
Panel B. Amenities				
Can walk alone after 11 PM	−0.06	−0.06	0.84	438
	(0.05)	(0.05)	[0.37]	
Durable wall	0.15	0.15	0.08	442
	(0.04)	(0.04)	[0.28]	
Durable roof	0.20	0.18	0.61	435
	(0.05)	(0.05)	[0.49]	
Durable floor	0.01	0.01	0.99	435
	(0.00)	(0.01)	[0.08]	
Has private toilet	0.12	0.11	0.80	442
	(0.03)	(0.04)	[0.40]	
Has separate kitchen	0.09	0.09	0.64	441
	(0.05)	(0.05)	[0.48]	
Has water in home	0.03	0.04	0.88	442
	(0.03)	(0.04)	[0.33]	
Panel C. Assets				
Amount saved (Rs 1,000s)	−1.14	−1.01	4.15	409
	(1.63)	(1.61)	[25.48]	
Quality television in the house?	−0.03	−0.02	0.72	442
	(0.04)	(0.04)	[0.38]	
Household owns a motorcycle?	−0.02	−0.01	0.23	442
	(0.05)	(0.04)	[0.42]	
Household owns a rickshaw?	0.00	0.01	0.06	443
	(0.03)	(0.03)	[0.23]	
Household owns a bicycle?	−0.01	−0.01	0.76	443
	(0.05)	(0.05)	[0.43]	
Household owns a kerosene stove?	0.04	0.02	0.41	442
	(0.06)	(0.05)	[0.49]	
Household owns a ceiling fan?	0.05	0.06	0.93	443
	(0.02)	(0.02)	[0.25]	
Household owns an almirah?	0.02	0.04	0.51	443
	(0.06)	(0.06)	[0.50]	
Household owns a radio?	−0.06	−0.08	0.35	443
	(0.05)	(0.05)	[0.48]	
Household owns a mobile phone?	−0.01	0.02	0.47	443
	(0.06)	(0.06)	[0.50]	

(*continued*)

TABLE 5—BREAKDOWN OF OUTCOME INDICES (*continued*)

	Winner		Non-winner	
	No controls (1)	With controls (2)	Mean (3)	Observations (4)
Panel D. Adult labor supply				
Fraction of participant and husband currently working	−0.01 (0.04)	−0.02 (0.04)	0.84 [0.30]	414
Participant and husband mean weekly hours currently working	1.62 (2.28)	1.57 (2.30)	40.06 [18.58]	414
Participant has another part-time job	−0.03 (0.02)	−0.03 (0.02)	0.04 [0.20]	414
Panel E. Adult labor supply cost				
Participant's current work is outside the home	0.02 (0.03)	0.01 (0.03)	0.07 [0.25]	414
Husband's job requires commute	0.06 (0.06)	0.07 (0.06)	0.68 [0.47]	291
Amount husband spent going to work (Rs)	0.88 (1.21)	0.73 (1.22)	2.88 [8.27]	287
Minutes husband spent going to work	0.84 (2.04)	0.80 (2.16)	10.31 [14.21]	287
Panel F. Health				
Participant current health status (1 = worse than avg., 5 = better than avg.)	0.08 (0.10)	0.04 (0.10)	3.35 [0.88]	413
Months during which participant had health problems	2.24 (3.36)	3.14 (3.30)	6.16 [21.78]	411
Participant has current persistent health problem	−0.02 (0.03)	−0.01 (0.03)	0.09 [0.29]	413
Number of disease symptoms experienced in last 30 days	−0.01 (0.18)	0.02 (0.18)	1.21 [1.50]	413
Number of physical activities with which respondent has health difficulties	−0.01 (0.08)	0.01 (0.08)	0.28 [0.72]	414
Any member of household required medical treatment in past year	−0.02 (0.05)	−0.01 (0.05)	0.80 [0.40]	442
Number of times member of household was sick in past year	0.16 (0.13)	0.21 (0.13)	1.21 [0.97]	435
At least one person in the household has a serious health issue	0.04 (0.05)	0.05 (0.06)	0.36 [0.48]	443
Participant's number of breathing, cough, or backache problems	0.00 (0.07)	−0.01 (0.07)	0.31 [0.59]	407
Husband's number of breathing, cough, backache, or alcoholism problems	0.05 (0.06)	0.01 (0.06)	0.13 [0.39]	291
Child currently has beedi-related health problem	0.07 (0.04)	0.06 (0.05)	0.11 [0.31]	399

Notes: Each row in columns 1 and 2 reports the coefficient from an OLS regression where the explanatory variable is whether the respondent won the lottery. The set of controls in column 2 is the same as in Table 3. Robust standard errors are in parentheses, and standard deviations are in brackets.

Winners and losers also report similar housing expenses and income between 1993 and 2007, despite the highly subsidized rent in Colony A and the fact that several winners rented out or sold their homes. We calculate housing costs net of income as the sum of monthly rent paid minus any income made from the lease or sale of property over the period. The point estimates indicate a small reduction in housing

Table 6—Economic Well-Being

	Winner		Non-winner	
	No controls (1)	With controls (2)	Mean (3)	Observations (4)
Panel A. Current income and wealth				
Adult Labor Supply Index	−0.04	−0.04	0.00	414
	(0.08)	(0.08)	[0.71]	
Adult Labor Supply Cost Index	0.13	0.11	−0.01	414
	(0.10)	(0.10)	[0.71]	
Participant currently rolls beedis	−0.03	−0.03	0.75	414
	(0.05)	(0.05)	[0.43]	
Total household income (Rs 100s per month)	−2.93	−3.22	42.05	414
	(3.16)	(3.18)	[27.22]	
Participant income (Rs 100s per month)	−0.52	−0.66	4.55	414
	(0.56)	(0.55)	[4.03]	
Husband income (Rs 100s per month)	−0.86	−0.73	10.83	414
	(1.52)	(1.55)	[13.36]	
Income from sons (Rs 100s per month)	−1.75	−2.13	22.95	414
	(2.64)	(2.67)	[24.72]	
Income from daughters (Rs 100s per month)	0.58	0.57	1.19	414
	(0.51)	(0.49)	[3.83]	
Net housing revenue since 1993 (Rs 1,000s)	11,578.24	13,210.17	16,550.90	439
	(5,168.97)	(5,205.48)	[48,891.42]	
Asset index	−0.00	0.01	−0.00	443
	(0.04)	(0.04)	[0.41]	
Panel B. Human capital				
Fertility since 1987	−0.13	−0.08	1.08	443
	(0.14)	(0.14)	[1.35]	
Health index	−0.01	−0.03	−0.00	443
	(0.07)	(0.07)	[0.56]	
Child's years schooling completed	−0.51	−0.17	7.54	1,491
	(0.40)	(0.35)	[3.51]	
Child's mean home-school transport cost for most recent school (per day)	−0.19	0.74	2.76	1,041
	(1.09)	(1.06)	[10.34]	

Notes: Each row in columns 1 and 2 reports the coefficient from an OLS regression where the explanatory variable is whether the respondent won the lottery. Robust standard errors are in parentheses, and standard deviations are in brackets. The set of controls in column 2 is the same as in Table 3. Child-level regressions include gender as a control and participant-clustered standard errors. The Adult Labor Supply Index consists of a binary indicator on whether participant and husband work, participant working part-time, and number of hours worked. The Adult Labor Supply Cost Index consists of whether participant has a job outside the home, and whether the husband's job required a commute, commuting time in minutes, and commuting cost. Income and work questions were not asked for deceased and incapacitated participants. Husband and children related questions exclude six lottery participants who were never married. Husband's work history excludes 63 participants whose husbands have not been in the household since before the lottery. Net housing revenue was calculated from the amount reported made from selling or leasing houses minus the reported amount paid on mortgages and leases. The Asset Index consists of whether the household owns each of the following: color television, motorcycle, rickshaw, bicycle, kerosene stove, ceiling fan, almirah, radio, and mobile phone. The Health Index consists of participant's current health status, months during which participant had health problems, participant having a persistent health problem, number of disease symptoms experienced in the last 30 days, and number of physical activities with which the respondent has health difficulties, whether any household member required medical treatment in the past year, number of times someone was sick in past year, if anyone had a health problem, number of breathing/coughing/backache problems participant has, if husband has breathing/coughing/backache/alcoholism problems, and if any child has beedi-related health problems.

Table 7—Expenditures and Finance

	Winner		Non-winner	
	No controls (1)	With controls (2)	Mean (3)	Observations (4)
Panel A. Monthly expenditure				
Vegetables and fruit	−65.02	−38.54	677.11	414
	(33.93)	(34.31)	[379.67]	
Travel and transport	5.27	0.86	83.90	414
(excluding commute)	(24.19)	(24.39)	[201.71]	
Medicine, clothing,	2.19	35.13	681.28	414
and school fees	(118.80)	(118.01)	[1,106.19]	
Temptation goods	85.62	74.97	303.24	414
	(65.37)	(66.14)	[405.72]	
Home and durable	28.65	32.10	73.00	414
goods repairs	(19.24)	(19.53)	[130.59]	
Telephone	8.93	0.94	33.26	414
	(21.70)	(24.59)	[233.32]	
Ceremonies and religious	8.47	9.40	35.50	414
expenses	(11.37)	(11.29)	[72.71]	
Panel B. Finance				
Amount saved (Rs 1,000s)	0.24	0.29	2.77	409
	(0.84)	(0.85)	[6.66]	
Current formal amount	−0.22	−0.11	6.53	414
borrowed (Rs 1,000s)	(2.21)	(2.46)	[28.41]	
Current informal amount	3.31	3.07	3.95	414
borrowed (Rs 1,000s)	(2.75)	(2.76)	[12.85]	
Number of current loans	−0.00	−0.01	0.53	414
	(0.09)	(0.09)	[0.73]	
Number of current	−0.04	−0.04	0.38	414
informal loans	(0.07)	(0.08)	[0.62]	

Notes: Each row in column 1 and 2 reports the coefficient from an OLS regression where the explanatory variable is whether the respondent won the lottery. Robust standard errors are in parentheses, and standard deviations are in brackets. The set of controls in column 2 is the same as in Table 3. Temptation goods include alcohol, tea outside, movies, paan, cigarettes, beedis. Expenditure questions exclude deceased and incapacitated participants whose families were not asked these questions. The sample for alcohol expense excludes two outliers (1 winner) with expenses greater than 8 standard deviations above the mean.

costs from winning the lottery, which primarily comes from a nontrivial increase in income from the sale or lease of housing either inside or outside Colony A that is offset by a small increase in monthly rent over the 14-year period (Table 6, panel A).[26]

Likewise, after 14 years lottery winners and losers report similar wealth and well-being. The Asset Index values are virtually identical, as are demographics and adult and child human capital investment. Table 6, panel B, shows that winners and losers face similar post-lottery fertility patterns and we also observe similar health outcomes across the two groups. Levels of educational attainment for children are similar in winner and loser households (7.5 years of schooling, on average), and both groups report similar school transportation costs.

[26] Increase in winners' housing revenue comes both from leasing or selling properties where they resided prior to the lottery, and from the illegal sale or lease of their Colony A unit. As of 2007, 15 percent of lottery winners report renting out the Colony A unit and 34 percent had illegally sold it. While Colony A rent was lower than average rental cost of units outside of Colony A, a significant number of those outside of Colony A report not paying rent at some point.

Nonetheless, the qualitative data points to some adverse impacts for winners that led to program exit. A poignant example was offered by a winner who moved out after a few years.[27] "My son got sick and had a very high fever which reached his brain. There were no medical facilities or proper doctors in Colony A who could help him. So, we decided to move to Bapunagar. Since then we have not been living in Colony A." Likewise, said the winner whose husband had to commute too far in Colony A: "The children were always getting sick. It was too tiring (…) In [our old neighborhood] Rakhial, schools and markets were all much closer. In Colony A everything was far away—taking the children to school took half an hour." The absence of adverse human capital effects on average, despite the fact that half of winners spent a significant amount of time in Colony A, indicates that those who would have been negatively impacted by the move exited Colony A relatively quickly.

Tenure security was also unaffected. In terms of home-ownership rates, ultimately none of the winners managed to purchase their home in Colony A by the end of the lease period (2013), so the program failed to increase rates of home ownership.[28] Furthermore, while in theory public housing offers high tenure security through a standard lease arrangement, since two-thirds of the units were being occupied illegally at follow-up, and the vast majority of winners still occupying their units were no longer making regular lease payments (both of which are grounds for losing occupancy rights in public housing), tenure security in Colony A was ultimately no stronger than that of illegal settlements in the slums.[29]

D. *Social Capital*

Low program take-up and high program exit suggests that costs outweighed potential program benefits, and our analysis and interviews suggest that these costs were linked to geographic isolation. Since a key consequence of geographic isolation is reduced social ties, we next examine how relocation influenced participants' social networks and access to informal insurance.

Informal Insurance.—To examine the borrowing and lending value of social networks, we consider four questions concerning whom participants borrow from and to whom they lend various items.[30]

Among losers, 93 percent belong to one or more borrowing and lending networks (Table 8). This number is nearly 10 percentage points lower for winners, and winners also report knowing such a person for three fewer years. Consistent with the interpretation that relocation to Colony A severed network ties, among those with network links, Appendix Table A2, panel A, shows that the person winners and

[27] Regression estimates show that winners live farther from health facilities.

[28] A significant fraction of both occupants and non-occupants stopped making monthly installments prior to completing the lease agreement, such that the opportunity for ownership was forfeited by all.

[29] Administrative data from the bank indicate that ultimately only 11 winners occupied and made regular lease payments on their unit.

[30] The four questions are: "Who is the person you trust enough to lend Rs 50 for 24 hours?" "Who is the person you would ask to borrow Rs 50 from for 24 hours?" "Who is the person you would go to if you needed to borrow kerosene or rice for one day?" "In case of a health emergency, whom would you go to for borrowing Rs 500?" Online Appendix Table A2 presents regressions estimating these borrowing and lending outcomes individually.

Table 8—Social Capital

	Winner		Non-winner	
	No controls (1)	With controls (2)	Mean (3)	Observations (4)
Panel A. Informal insurance				
Has someone for any of four lending and borrowing categories	−0.09 (0.04)	−0.10 (0.04)	0.93 [0.26]	414
Amount of informal transfer received in event of shock (Rs.)	−70.77 (28.52)	−79.05 (32.03)	70.77 [500.88]	403
If has someone from one of the four lending or borrowing categories, years known	−3.25 (1.24)	−2.89 (1.27)	20.04 [11.72]	374
Percent of people lend/borrow with whom are from same caste	−0.03 (0.06)	−0.00 (0.05)	0.65 [0.45]	375
Panel B. Social interaction				
Miles from child's house to mother's in Ahmedabad (if 16 and over)	0.66 (0.18)	0.63 (0.14)	0.71 [1.52]	1,159
Participant sees this child at least monthly (if 16 and over)	−0.04 (0.03)	−0.03 (0.03)	0.92 [0.27]	1,278
Ever socialize with neighbor	0.03 (0.01)	0.03 (0.01)	0.95 [0.21]	1,209
Neighbor is same caste (same religion if Muslim)	−0.08 (0.04)	−0.08 (0.04)	0.34 [0.47]	1,220
Someone in neighbor's house rolls beedis	0.12 (0.05)	0.12 (0.04)	0.29 [0.45]	1,210
Panel C. Collective action				
Neighbors have worked together to solve a common problem in the last three years	0.19 (0.05)	0.17 (0.05)	0.19 [0.39]	414
Days spent working together in previous year on most recent project	2.92 (1.39)	2.73 (1.37)	1.66 [5.67]	413
Amount spent in previous year on most recent project (Rs.)	221.75 (103.96)	205.94 (110.06)	291.69 [1,104.25]	409
Most or all people in the neighborhood contributed money for the project	0.20 (0.05)	0.18 (0.05)	0.17 [0.38]	410
Attended any beedi Union meeting in past year	−0.22 (0.05)	−0.18 (0.05)	0.47 [0.50]	443

Notes: Each row in columns 1 and 2 reports the coefficient from an OLS regression where the explanatory variable is whether the respondent won the lottery. Robust standard errors are in parentheses, and standard deviations are in brackets. The set of controls in column 2 is the same as in Table 3. Regressions at the child level include the child's gender as a control and participant-clustered standard errors. The immediate neighbor from same caste outcome excludes the caste and religion covariates. Sample excludes participants who are dead or incapacitated. For immediate neighbors, sample consists of the four neighbors living left, right, front, and behind participants. There are a total of 1,220 neighbors reported. The number of neighbors was balanced across winners and non-winners. For these regressions, standard errors are clustered at the participant level. "Has someone for lending or borrowing needs" combines whether they have someone to borrow Rs. 50 from, someone you would lend Rs. 50 to, someone from whom you can borrow rice or cooking oil, and someone from whom you could borrow Rs. 500 for a health emergency. Recent shocks asked about are communal riots, earthquake, and outbreak of the chikangunya virus.

losers are likely to depend on (or support) the most belongs to the same neighborhood (63 percent), implying that relocation led winners to reorganize their borrowing networks. Table 8, row 4 shows that insurance networks, for both winners and losers, most often (65 percent) consist of members from the same caste, suggesting that both location and community matter.

Data on transfers in the event of shocks provides direct evidence regarding informal insurance. In the six years preceding our survey, Ahmedabad experienced several city-wide shocks including an earthquake in 2001, communal riots in 2002, and a viral epidemic (chikungunya) in 2006. Ninety-six percent of respondents report personal damages (on average 28 days of work lost per event) from at least one of these events and the likelihood, number, and severity (in terms of work days lost) is similar across winners and losers (Appendix Table A2, panel F).

Risk-sharing in response to these shocks is very limited, and—consistent with the evidence from hypothetical questions about availability of informal insurance—the incidence is significantly lower among lottery winners. Lottery losers report receiving an average of Rs 71 (Table 8, row 2) in informal transfers in the event of a shock while lottery winners report *no* informal help. Thus, in both real and hypothetical scenarios, winners rely less on friends and family for help in the event of shocks.

All three types of shocks—natural disasters, riots, and disease epidemics—are geographically concentrated and likely to hit a large fraction of network members simultaneously. This may also contribute to why lottery winners—or those who are much more likely to have relocated to Colony A—have weak informal insurance networks. If their networks are more locally dense and geographically isolated, then their ability to share risks might be particularly compromised.[31]

Social Interaction.—To understand the potential mechanisms through which informal insurance provision is lower in the suburbs, Table 8, panel B, reports experimental estimates of the effect of winning the housing lottery on social interactions. We first look at family interaction. In row 1, we see that adult children on average live significantly farther away from lottery participants (non-resident children live an average of 1.3 miles away among lottery winners and 0.7 miles away among lottery losers). As seen in row 2, distance between mothers and children results in less frequent interaction. Winners are 4 percentage points less likely to see an adult child at least monthly.

This pattern is consistent with the idea that greater average distances to employment opportunities and neighborhood resources discourage adult children from staying in their parents' neighborhood. Indeed, the fact that adult sons' contribution to household income is comparable across winners and losers suggests that they are sacrificing geographic proximity to the family in order to maintain steady income and employment.

Social isolation from immediate family members is a key relocation cost for winners. That said, we observe a compensating increase in social interaction with neighbors. Our survey asked respondents about socialization (via conversation, drinking tea together, or sharing a meal) with four neighboring households (left, right, across, and behind their houses). The average respondent has 2.7 immediate neighbors, and this number is comparable across winners and losers (not shown). We estimate

[31] An alternative explanation is that winners have greater access to formal insurance, but this is not supported by survey data: 9 percent of losers received help from the government, a nongovernmental organization, or a religious organization following a shock; among winners, this fraction is *lower* by 6 percentage points without controls ($p < 0.05$) and by 4 percentage points ($p < 0.10$) with controls (Appendix Table A2–F).

regressions where the unit of observation is defined as a respondent-neighbor pair and cluster standard errors by respondent.

Interaction with immediate neighbors is high, and significantly more for those encouraged to relocate: 95 percent of pairs have socialized, and this number is 3 percentage points higher for winners. This is striking given that Colony A neighbors are 24 percent less likely to be from the same caste (Table 8, panel B, row 4). Geographic isolation and greater occupational homogeneity (Table 8, panel B, row 5) are strong countervailing forces encouraging neighbor interaction.

These patterns help explain lower risk-sharing capacity among neighbors in Colony A. First, less connectedness (by virtue of being more likely to belong to a different caste and having known one another for less time) could lower their ability to maintain otherwise optimal insurance agreements. Second, they are more likely to share the same occupation and so are more subject to correlated income shocks.

In qualitative interviews as well, several respondents described the social costs of geographic isolation. Poor transportation and the low prevalence of mobile phones in the 1990s increased the sense of isolation from the caste network. Many respondents who subsequently moved out reported feeling "scared" and "lonely"—especially since their husbands worked long hours in the city. The husband of one winner who left Colony A started his comments by saying, "The whole area was deserted and lonely—you could die there and no one would know it." The fact that moving to Colony A increased distance from their relatives heightened the sense of loneliness, and left many feeling socially disjunct from their community (caste) and family. He continued, "When we were living in Colony A we were very cut off from everyone. No one was inviting us to any functions."

In contrast, losers described their main network as caste-based. One loser who lives east of the old city explained, "There is a sense of community here—but it is along caste lines. People from our caste help us, but not others."

Collective Action.—In Table 8, panel C, we turn to collective action. Each respondent was asked about her participation in activities to benefit the community over the last three years.[32]

Nineteen percent of losers report contributing to community public goods over the last three years, and this percentage almost doubles among winners.

Winners' higher propensity to cooperate with neighbors may be the flip side of reduced risk-sharing: denser local networks can facilitate cooperation around public goods with highly localized benefits. Put differently, public goods that only benefit those living nearby may be easier to provide when networks are geographically concentrated.[33] The most common public goods provided were precisely of this nature: gutters, road maintenance, temples, and local celebrations. In addition, 91 percent of community public goods involved contributions from all or most

[32] The specific question asked was, "What activities or problems have you worked on with your neighbors to benefit the community in the past three years?" The most common answers were: nothing, gutters, something for temple or mosque, wedding for a neighbor, and funeral for a neighbor.

[33] Reasons include the fact that individuals may value a given public good more if a higher fraction of her network members benefit from that good, and enforcing informal agreements to contribute may be easier when more beneficiaries can monitor and punish a potential beneficiary.

members of the community. It is likely that such unanimity is harder to achieve in more diffuse networks.[34]

Finally, we collected information on city-wide collective action—specifically, participation in the beedi worker union that all participants belonged to at the time of the lottery. Twenty years later, unionization rates are similar across winners and losers (86 percent and 88 percent, respectively). However, while 47 percent of losers report having attended a union meeting during the previous year, this number is 18 percentage points lower among winners.

Overall, the patterns suggest that, likely due to geographic isolation, winners invested less in collective action *across* neighborhoods and maintaining social ties with the broader community of beedi workers and substituted toward less costly local ties. Unfortunately, the high degree of spatial correlation in the major economic shocks such as floods, earthquakes, and riots, rendered these more localized networks less valuable in terms of providing informal insurance.

E. *Mobility versus Income Effects*

Thus far, we have interpreted the ITT results (changes in social interactions, informal insurance, and collective action) as being driven by program compliers—specifically, the two-thirds of winners who moved to Colony A, and in some instances, by the one-third of winners who still live there. However, it is possible that some of the patterns reflect changes in long-run outcomes experienced by non-movers via the income effect associated with selling or renting subsidized housing. Distinguishing between these two possibilities is important for extrapolating our results to settings with different compliance rates, or where enforcement of lease agreements is possible.

Since the set of movers are clearly a nonrandom sample of winners, it is difficult to rigorously establish that program effects are disproportionately concentrated among them. However, three facts point to this being the case. First, as shown in Table 9, in regressions run on only the winner sample, in which outcomes are regressed on indicators of whether the respondent ever moved to Colony A and whether the respondent still lives in Colony A, all of the significant ITT program effects are concentrated among the subset of movers, and in many cases only among current Colony A residents. In these regressions, the coefficient estimate on a dummy indicator of having moved to Colony A generates a point estimate that is significantly larger if not more statistically significant than we observe in the ITT analysis, although we cannot rule out that movers are ex ante different than non-movers in these dimensions.[35]

Second, the estimated magnitudes of the ITT program effects are small enough to justify effect sizes up to three times as large (if concentrated among Colony A residents). For instance, it is plausible that distance to non–co-resident children increases from 2 to 5.5 miles. In fact, if only one-third of them live at home, and

[34] For example, the likelihood that one of the potential beneficiaries is unconnected to others in the network is greater if networks are less dense, so it will be harder to enforce that individual's contribution to the project.

[35] The only exception is Table 9, panel C, row 1. Winners report more borrowing contacts, but these contacts are also less likely to belong to the same caste and may, therefore, be less valuable.

Table 9—Heterogeneity of Impact for Winners

	Lives in Colony A (1)	Used to live in Colony A (2)	Mean if never lived in Colony A (3)	Observations (4)
Panel A. Housing and income				
Years lived in Colony A	12.08	7.19	0.00	105
	(0.67)	(0.70)	[0.00]	
Chose current location for price	0.79	−0.03	0.09	98
	(0.08)	(0.07)	[0.29]	
Urbanicity index	−0.75	−0.29	0.01	105
	(0.12)	(0.14)	[0.52]	
Amenities index	0.09	−0.04	0.19	105
	(0.09)	(0.10)	[0.42]	
Total household income (Rs. 100s per month)	0.72	−3.02	39.84	96
	(6.43)	(7.20)	[26.75]	
Panel B. Social interactions				
Neighbors have worked together to solve a common problem in the last three years	0.57	0.07	0.16	96
	(0.10)	(0.10)	[0.37]	
Attended any beedi Union meeting in past year	−0.15	−0.05	0.31	105
	(0.10)	(0.11)	[0.47]	
Someone in neighbor's house rolls beedis	0.45	−0.08	0.25	291
	(0.08)	(0.08)	[0.43]	
Participant sees this child at least monthly (if 16 and over)	−0.09	−0.04	0.93	290
	(0.05)	(0.05)	[0.26]	
Miles from child's house to mother's in Ahmedabad (if 16 and over)	0.71	−0.23	1.15	254
	(0.43)	(0.42)	[1.79]	
Panel C. Informal insurance				
Has someone for any of four lending and borrowing categories	0.22	0.12	0.72	96
	(0.09)	(0.11)	[0.46]	
If has someone from one of the four lending or borrowing categories, years known	−3.44	−4.38	19.55	80
	(2.51)	(2.89)	[10.09]	
Percent of people lend/borrow with whom are from same caste	−0.28	−0.07	0.75	80
	(0.12)	(0.12)	[0.41]	

Notes: We report OLS regressions with robust standard errors in parentheses, and standard deviations are in brackets. For regressions at the child level and the neighbor level, standard errors are clustered at the participant level.

the rest return to the city center—which is 7.5 miles from Colony A—then our ITT estimate makes sense.

Third, given that we in general find only negative effects of the program, it is unlikely that income effects are responsible for the patterns. For instance, there is no clear reason that a modest positive income shock would cause adult children to live farther away from their parents, or reduce *ability* to rely on network members for help.

III. Conclusion

Even among a group of slum dwellers who lobbied hard for the opportunity to move into public housing outside of the slums, ultimately very few found it optimal to leave the city center. Fourteen years after housing assignment, only 34 percent remained in public housing and the majority had returned to the slums. Evidence

from other housing mobility programs suggests that the Colony A program was not an outlier. For instance, a survey we conducted in 2007 of participants in another housing program in Ahmedabad (where beneficiaries were again chosen by lottery) showed that only 46 percent of winners or their relatives were living in the unit they won just two and a half years after winning it.

The main policy lesson is that it is very hard to make public housing relocation programs sufficiently attractive for the poor in developing countries to opt-in, so this may rarely be the optimal policy response to housing concerns of slum populations. While we cannot rule out the possibility that reductions in labor income or schooling access played a role in program exit, a major constraint appears to be the severance of social ties and the resulting loss of informal insurance that accompanied relocation, which was too costly to make even highly subsidized public housing in the suburbs worthwhile for most participants in our setting.

While policymakers typically acknowledge costs of relocation programs such as increased commuting times or distance to health and education facilities, such costs can in theory be remedied with better public transportation or targeted suburban infrastructure. The destruction of social capital that comes from reshuffling slum households is a welfare loss that cannot be so easily rebuilt. Although new ties may form eventually, slum relocation programs as they are normally envisioned destroy economically valuable social capital by severing links that have evolved and strengthened in the neighborhood over decades and that likely result from the optimal sorting of individuals into enclaves.

Our findings suggest that alternative policies such as neighborhood-wide relocation programs, which are an approach to slum relocation and other involuntary resettlement that has been taken in many settings (Guggenheim 1993, Partridge 1993, Burra 1999, Jha et al. 2010, and Arandel and Wetterberg 2013), may be more appropriate for slum dwellers. Alternatively, slum upgrading programs that do not try to move people at all may be a less wasteful approach to public housing policy in developing countries.

One important caveat to our findings is that our effects are estimated off of a small and distinct population. This means that we are unable to rule out modest program effects on well-being that may be present. Furthermore, because take-up was low and the treatment group was small relative to the control arm, our ITT results on the effects of housing relocation are particularly underpowered. Finally, it is worth noting that our study population is not representative of slum dwellers worldwide. Thus, more studies are needed to fully understand the impact of public housing programs on the poor in developing countries.

Appendix

A. *Tracking Protocol*

If a participant no longer lived at the address on one of the lists (winners, second lottery, or subset of participants), then we asked neighbors where to find her. In addition, we searched for participants' names on recent SEWA Union membership rolls and in SEWA Bank client records. Several women who work for different

branches of SEWA—the Union, the Bank, and the Insurance group—also helped us identify participants. The main organizers of the 1987 lottery scrutinized the lists for names they recognized. We also read out a list of unfound participants at a Union meeting in April 2007. In addition to SEWA, we used other beedi networks to locate participants and talked to important beedi agents in areas where many beedi workers lived in 1987. Finally, we looked for names of the unfound women on the 2004 Ahmedabad electoral rolls.

Of the 463 named participants, 23 women had left Ahmedabad. We tracked 17 of them as far as Mumbai, Hyderabad, and Chennai. Another 29 women had died, and we were able to locate the children or husband of 25 of them. An additional four women were located, but were incapacitated and unable to answer the survey; their families were surveyed in their place. We were unable to track a final address for ten women.

B. *Tables*

Table A1—Breakdown of Indices—Baseline

	Winner (1)	Non-winner mean (2)	Observations (3)
Panel A. Urbanicity Index			
Miles from city center to house	0.05	2.28	442
	(0.12)	[0.94]	
Minutes walk to nearest government school	−1.98	16.99	427
	(1.24)	[13.92]	
Minutes walk to nearest government hospital	−2.24	32.17	427
	(2.28)	[21.19]	
Panel B. Property rights			
Owned home	−0.01	0.63	427
	(0.06)	[0.48]	
Number of years owned home pre-1987	−0.49	6.41	443
	(0.98)	[8.91]	
Had the title	0.02	0.50	443
	(0.06)	[0.50]	
Had the title in participant's name	0.00	0.09	443
	(0.03)	[0.29]	
Panel C. Amenities Index			
Woman safe walking alone after 10 PM in 1987	0.02	0.86	407
	(0.04)	[0.34]	
Had private toilet	−0.05	0.55	425
	(0.06)	[0.50]	
Had separate kitchen	−0.00	0.45	420
	(0.06)	[0.50]	
Has water in home	−0.05	0.87	426
	(0.04)	[0.34]	

Notes: Each row in column 1 reports the coefficient from an OLS regression where the explanatory variable is whether the respondent won the lottery. Robust standard errors are in parentheses, and standard deviations are in brackets. Minutes spent going to work is for a single one-way trip. As opposed to the Amenities Index in 2007, the Amenities Index at baseline does not include *durable wall*, *durable roof*, and *durable floor*. These variables were not available for housing in 1987. Similarly, the Urbanicity Index at baseline does not include *Number of houses within a five minute walk* since this information was not available for housing in 1987.

Table A2—Informal Insurance

	Winner		Non-winner	
	No controls (1)	With controls (2)	Mean (3)	Observations (4)
Panel A. Overall				
Person you rely on most for at least one financial activity is same caste	−0.03 (0.06)	−0.01 (0.06)	0.73 [0.45]	330
Person you rely on most for at least one financial activity is neighbor	−0.07 (0.06)	−0.06 (0.06)	0.63 [0.48]	413
Panel B. Lend INR 50				
Has someone who would lend Rs 50 for 24 hours	−0.09 (0.05)	−0.08 (0.05)	0.88 [0.33]	414
The person you rely on the most for this activity is a neighbor	−0.08 (0.06)	−0.07 (0.06)	0.56 [0.50]	413
The person you rely on the most for this activity is of the same caste	−0.06 (0.06)	−0.05 (0.06)	0.64 [0.48]	355
If has someone, years known him or her	−2.66 (1.31)	−2.34 (1.34)	19.66 [12.06]	354
Panel C. Borrow INR 50				
Has someone from whom could ask to borrow kerosene or rice	−0.06 (0.04)	−0.06 (0.04)	0.87 [0.34]	414
The person you rely on the most for this activity is a neighbor	−0.06 (0.06)	−0.05 (0.06)	0.57 [0.50]	413
The person you rely on the most for this activity is of the same caste	−0.02 (0.06)	0.01 (0.06)	0.64 [0.48]	354
If has someone, years known him or her	−3.55 (1.33)	−3.07 (1.35)	19.47 [11.86]	354
Panel D. Borrow INR 500				
Has someone would ask to borrow Rs 500 from in a health emergency	−0.08 (0.04)	−0.08 (0.04)	0.88 [0.33]	414
The person you rely on the most for this activity is a neighbor	−0.03 (0.06)	−0.03 (0.06)	0.48 [0.50]	413
The person you rely on the most for this activity is of the same caste	−0.03 (0.06)	0.00 (0.06)	0.69 [0.46]	356
If has someone, years known him or her	−3.91 (1.41)	−3.45 (1.43)	21.05 [12.07]	356
Panel E. Borrow goods				
Has someone from whom could ask to borrow Rs 50	−0.08 (0.04)	−0.08 (0.04)	0.88 [0.32]	414
The person you rely on the most for this activity is a neighbor	−0.09 (0.06)	−0.08 (0.06)	0.55 [0.50]	413
The person you rely on the most for this activity is of the same caste	−0.04 (0.06)	−0.03 (0.06)	0.64 [0.48]	358
If has someone, years known him or her	−2.73 (1.29)	−2.48 (1.32)	19.73 [11.82]	357
Panel F. Shocks				
Experienced any of three large shocks	−0.00 (0.02)	0.01 (0.02)	0.96 [0.19]	434
Number of shocks experienced	−0.01 (0.08)	0.01 (0.07)	2.70 [0.68]	434
Average days of work lost following shock	−3.80 (2.47)	−1.31 (2.27)	28.13 [22.48]	424
Received formal (govt, NGO, religious) help after shocks	−0.06 (0.02)	−0.04 (0.02)	0.09 [0.29]	403

Notes: Each row in columns 1 and 2 reports the coefficient from an OLS regression where the explanatory variable is whether the respondent won the lottery. Robust standard errors are in parentheses, and standard deviations are in brackets. The set of controls in column 2 is the same as in Table 3.

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