

Home-price subsidies increase local-level political participation in urban India*

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Abstract

How do government transfers in low- and middle-income countries affect recipients' everyday local-level political participation? Existing research on political behavior in these contexts in the United States suggests that this relationship could be either positive or negative. I study the effects of subsidized home-prices in Mumbai, India through an original survey of winners and non-winners of program lotteries. Benefitting increases reported demands made to improve local services and knowledge about municipal government, even among those who rent out the homes. Mechanisms include changes in beneficiaries' self-perception and an increased interest in improving communities. Even where politics is described as a set of exchange-based relationships between officials and citizens, transfers generate active citizenship by increasing the political capacity and changing the motivations of recipients. They also create interest groups at the local level, where such policies are not made, but implemented and experienced.

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Governments in many low- and middle-income countries (LMICs) deliver cash or in-kind transfers to large portions of their populations through welfare programs. Well-known programs include Brazil's *Bolsa Familia* conditional cash transfer, and Brazil's *Minha Casa Minha Vida* subsidized housing program, and India's National Rural Employment Guarantee Scheme. These programs can reach millions. Seeking to understand the political motivations for spending on such initiatives, many have investigated the electoral returns to such transfers in LMICs (e.g. De la O 2013; Diaz-Cayeros *et al.* 2016; Imai *et al.* 2019; Manacorda *et al.* 2011; Zucco 2013).

Yet political activity extends beyond voting. This paper studies the everyday demands placed with politicians, bureaucrats, and brokers for state-provided goods and services. This activity forms a cornerstone of political participation in many countries and can occur even among those who engage in *quid pro quo* voting at election time (Auyero 2001; Jha, Rao, and Woolcock 2007; MacLean 2011; Kruks-Wisner 2018; Bussell 2019). Particularly at the local level, citizens' voices are an important aspect of service allocation and keeping governments accountable to the needs of their citizens. Understanding how transfers shape this demand-making is essential to uncovering how government policies can attenuate or exacerbate inequality in access to government resources, particularly if the likelihood of becoming a beneficiary varies across the population.

Theoretically, receiving transfers could either increase or decrease demand-making. Existing research from LMICs suggests that transfers may decrease the need to take part in such activity either by providing services themselves or increasing one's capacity to procure private alternatives. Given that citizens' dependence on state-provided resources decreases with wealth, citizens may simply exit the demand-making arena once they receive substantial government transfers (e.g. Bobonis *et al.* 2017 Brusco, Nazareno, and Stokes 2004; Calvo and Murillo 2004; Dixit and Londregan 1996; Hicken 2011; Larreguy *et al.* 2015; Nathan 2016; Ramirez-Álvarez 2019). Doing so would potentially allow

local officials to better hear the voices of others.

On the other hand, transfers might *increase* demand-making by simultaneously affecting citizens' capacity and motivations to participate in the political process. A literature on policy feedback from the United States and Europe (see Campbell 2012 for a review) finds that welfare policies have the potential to increase political participation among beneficiaries by changing their interests, capacities, and beliefs. First, they can make beneficiaries wealthier, thereby improving their self-perceived status and increasing their time horizons, both of which may facilitate political participation. Second, they might motivate beneficiaries to make *new* demands to protect or increase this wealth, even once other needs are fulfilled. I argue that where policy implementation is decentralized and local-level administrative capacity varies, protecting transfers entails making demands for improvements at the *local* level as well.

To date, it has been difficult to empirically assess whether becoming a welfare recipient increases or decreases demands of the government. While simple descriptive data shows that welfare beneficiaries participate in local meetings at a higher rate than non-beneficiaries, it is likely that being politically active actually helps one access transfers. Researchers have used the staggered or uneven rollout of programs to get around this problem and identify causal effects on other outcomes, such as turnout and vote share. Yet demand-making is rarely measured in the administrative data that such studies rely upon.

I provide some of the first experimental evidence on the effects of welfare transfers on demand-making by studying a subsidized home-price program. This welfare policy is widespread not only in India, but in LMICs and high-income countries alike. I use a natural experiment to study the effects of receiving an untaxed subsidized home for purchase in Mumbai, India on local political participation and demand-making. The program is implemented through a lottery system, allowing causal identification of its effects among applicants, who tend to be middle class households. To estimate the effect

of home ownership on local demand-making, I tracked down and surveyed 834 winning and non-winning applicants of multiple lotteries held between 2012 and 2014.

On average, winners are 29 percentage points more likely than non-winners to report attending municipal ward-level meetings where demands for community improvements are made and discussed. They are also 14 percentage points more likely to report individually approaching bureaucrats and politicians to demand improvements to their communities, 11 percentage points more likely to report doing so in groups, and 11 percentage points more likely to be able to correctly name a local elected official. Effects are accompanied by more hopeful attitudes about the future and an increased sense of status relative to authority figures, indicating an increase in political capacity. Beneficiaries also exhibit an increased interest in local-level issues as demonstrated by reported reasons for candidate choice in local elections, suggesting new motivations for political participation. Effects also occur in spite of increased satisfaction with local services among beneficiaries, suggesting that they are not driven mainly by dissatisfaction with the apartments and neighborhoods.

This local-level participation is not confined only to those living in the new apartment buildings. Winners are not obligated to move into the homes, but can rent them out. Knowledge and participation were measured for the neighborhoods in which respondents *live*, regardless of whether or not they chose to move into the homes. Outcome means are similar across those who did and did not relocate, suggesting that results are not driven by relocation to a new neighborhood.

The findings are among the first sets of causally identified effects of any government welfare policy on demand-making, a relationship for which research on political behavior in LMICs and the United States present opposing predictions. Theoretically, the findings contribute to a sparse literature on political behavior in LMICs by highlighting political capacity and motivations to protect wealth as reasons for which citizens might negotiate with the state beyond demanding resources to meet their immediate needs.

The findings also bolster theoretical expectations generated by US-based studies of policy feedback. While studies in this literature measure local-level political participation as evidence of increasing political capacity (e.g. Mettler and Welch 2004), I support this work by using the idea of decentralization to provide a better understanding of *why* beneficiaries would be motivated to participate in local politics.

It is the consideration of both capacities and motivations in tandem that makes the present research distinct. In one of the few LMIC-based studies of policy feedback, Maclean (2011) argues that state retrenchment in the provision of health and education services motivated those who had experience with these services to be particularly politically active in order to voice concerns about poor levels of service provision on the ground. The argument actually suggests an inverse relationship between service quality (and, therefore, real value) and demand-making that would imply that beneficiaries can serve as a bulwark against deteriorating local services. In contrast, I show that when welfare transfers increase political capacity, beneficiaries may make new demands to *further* increase the value of their transfers even when they are delivered as promised. In the long-term, this behavior could lead to policies that serve the demands of welfare beneficiaries, potentially to the detriment of non-beneficiaries.

Finally, the study contributes to the "embryonic" (Ansell 2019, 166) literature on housing policy that has generally focused on national-level political participation in the United States and United Kingdom. There is a literature arguing that homeowners participate in local politics at higher rates than non-homeowners (e.g. Portney 1991; Dear 1992; Fischel 2001; Schively 2007; Hankinson 2018; Hall and Yoder 2018; Marble and Nall 2018; Einstein *et al.* 2019), but this work focuses mainly on the US, where local political participation has generally been described as increasing, rather than decreasing, with wealth (Verba *et al.* 1995). The present study also demonstrates how government policies to subsidize homeownership can create politically active interest groups of homeowners by conferring wealth and power on beneficiaries. As such programs often reach the

middle-class (rather than the poor), studying their effects is essential to understanding the perpetuation of power inequalities at the local-level.

1 Welfare transfers and demand-making in India

Since its independence, the Indian government has enacted numerous policies dedicated to supporting its founders' stated goals of poverty alleviation (Varshney 2014, 7). Such "schemes" (programs) affect the lives of millions. The Indian central government reports, for example, about 40 million annual beneficiaries of its National Social Assistance Program (a pension program for the elderly, widowed, and disabled), and 10.5 million homes either given away or sold at a highly subsidized price to rural citizens under *Pradhan Mantri Awas Yojana* ("The Prime Minister's Dwelling Scheme") from 2015-2020.¹ Moreover, administrations are continuously seeking to create new and innovative welfare policies; in the 2019 general elections, for example, the Indian National Congress focused on Universal Basic Income programs as a key component of their platform. (Safi 2019).

Given that these schemes reach so many citizens, learning about their effects is fundamental to understanding long-term political trends. How do such programs shape the political behavior of beneficiaries? To date, much of the analysis of Indian politics has been through the lens of clientelism, wherein public goods and services are seen to be distributed in exchange for votes (Kitschelt and Wilkinson 2007).² As described in this literature, scarce resources can create opportunities for rent-seeking among those who govern allocation. For example, representatives at India's municipal, state, and national levels receive "area development funds" to respond to requests made by constituents, and several have found that the use of these funds can be strategically targeted to win votes (Jensenius and Chhibber 2018). As a result, many study electoral returns to various programs (De la O 2013; Imai *et al.* 2019; Manacorda *et al.* 2011; Zucco 2013) in other

¹These figures are found on the website of the Indian Ministry of Rural Development.

²See Thachil (2011) for a study of how privately provided goods may generate electoral returns.

countries.

Yet political engagement extends well beyond voting. An emerging literature on India and other LMICs focuses on citizens' everyday interactions with local-level government. Scholars describe efforts to access to goods and services such as jobs, roads, and lighting (Auyero 2001; Jha, Rao, and Woolcock 2007; Auerbach 2016; Bussell 2019; Kruks-Wisner 2018). Beyond simply voting for those who help them, individuals negotiate with intermediaries and place pressure on bureaucrats and officials to get what they need.

Much of this everyday, local-level demand-making is action taken to improve the provision of *collective* goods and services, as opposed to requests for individual items such as jobs or voter cards. This activity is important to study because it can alert governments to deficiencies in service provision. Even while much of the literature on local public goods provision highlights incentives and discretion in responsiveness (see Golden and Min 2013 for a review), recent literature has found that politicians in India may effectively deliver constituency service to those who approach them (Bussell 2019) and that participation in government meetings is an important part of "deliberative democracy" (Sanyal and Rao 2018). Moreover, the Municipal Corporation of Greater Mumbai (MCGM) has digitized its process for making and receiving responses to demands for improvements to communities.³ This is part of a larger trend wherein several state and municipal governments in India have developed a transparent bureaucratic process to handle complaints about government infrastructure and services.⁴

Yet there is variation in the extent to which individuals will participate in such behavior. In a 651 household survey of slum-dwellers in Delhi, only 37% of households claiming that the sanitation condition in their neighborhood was "Bad" or "Very bad"

³MCGM is also known as the Brihanmumbai Municipal Corporation, or BMC.

⁴Citizens can file complaints with their local administrative units (wards) over the phone, in person, through an app, or online. The local administrative ward then assigns each complaint with a number that one can use to track its progress as it is passed to the appropriate department.

reported making a complaint to anybody about neighborhood sanitation conditions.⁵ Moreover, according to a nationally representative survey conducted in 2011-2012, only about 30% of households report ever having attended a ward or village level meetings where complaints, service delivery, and the use of development funds are discussed (India Human Development Survey- II (IHDS-II) 2016).

Assuming that demand-making is rational and has some effect on the distribution of local resources, studying the determinants of this behavior can help shed light on local-level inequalities in service provision and quality (Auerbach 2016). Given the redistributive aims of many welfare programs, it is important to understand the effects of government transfers on participation in demand-making to uncover their role in attenuating or exacerbating such inequalities.

1.1 Hypothesis 1: Transfers may decrease demand-making

Existing literature on political behavior in LMICs suggests that receiving transfers may *decrease* participation in demand-making. Many argue that the utility of public resources decreases with income (e.g. Brusco, Nazareno, and Stokes 2004; Calvo and Murillo 2004; Dixit and Londregan 1996; Hicken 2011; Nathan 2016; Stokes *et al.* 2013). This implies that participation in clientelistic politics would decrease with income or benefitting from a program that increases beneficiaries' resources. Indeed, in Mexico, Larreguy *et al.* (2015) find that insecure property rights create opportunities for political intermediation by municipal agents as residents seek access to titles, ways to provide proof of residence, or protection from eviction. They further find that a program issuing land titles to squatters reduce clientelistic voting for the municipal government as households' need for political intermediation disappeared. Bobonis *et al.* (2017) similarly find that building water cisterns in drought-prone areas of Brazil decreases requests of politicians, especially among citizens likely to be in what they define as clientelistic relationships.

It logically follows that welfare program would also decrease the utility of non-

⁵This survey was conducted by Lokniti CSDS in Delhi in 2012.

electoral political participation among beneficiaries as well. Several programs themselves provide services to beneficiaries, thereby precluding the need for making demands for goods and services. For example, a slum rehabilitation program providing water and electricity connections could eliminate the need to organize to demand these very same items. Wealth gains from government programs may also decrease incentives to participate in demand-making by facilitating the purchase of private counterparts to state-provided services, such as water from tankers or private education. If this is true, then perhaps demand-making truly is "poor people's politics" (Auyero 2001) and welfare programs cause beneficiaries to exit this political arena. Evidence to support this proposition would be in line with claims by Chatterjee (2004) and Harris (2006) that it is urban India's poorest citizens who make everyday demands of the state.

1.2 Hypothesis 2: Transfers may increase demand-making

Demand-making may be a function not only of need, but of other variables as well. The fact that welfare policies effectively make beneficiaries wealthier may facilitate civic engagement in the context studied here through two main channels, namely greater *capacity* and *motivations* to make *new* demands (Kruks-Wisner 2018, 29).

First, welfare transfers may increase beneficiaries' *capacity* for action through what the policy feedback literature from the United States call "resource effects." Campbell (2003), for example, finds that the receipt of Social Security and Medicare allows Americans to retire and participate in politics more as they age. There are reasons to believe that this effect might be particularly strong in India and other LMICs, where social safety nets are weak even for the middle class. Scholarship in development economics (see Haushofer and Fehr 2014) has found that poverty can create stress and lead to short-sighted behavior; increasing household wealth could decrease discount rates and increase the mental bandwidth (Mani *et al.* 2013) to participate in demand-making. Similarly, the resources may also allow households to prioritize other "higher" items on Maslow's (1943) hier-

archy of needs such as belonging and self-esteem, both of which may be fulfilled by political participation. Increases in income could also change an individual's sense of her status in a community, thereby increasing the perceived likelihood of success when making a complaint. Wealth may further decrease the relative opportunity cost of participating in collective action by decreasing the value of wages relative to the individual's overall wealth. During my fieldwork, I observed that non-beneficiaries of the program I study appeared far too stressed to think about demand-making beyond their most immediate needs.

Second, welfare beneficiaries may be particularly *motivated* to protect their newfound wealth by improving levels of service provision. Those who study the United States and Europe argue that benefitting from government social welfare can encourage political participation to ensure either the continued or increased receipt of program transfers (e.g. Campbell 2012; Mettler and Soss 2004; Pierson 1993). Welfare programs may thus induce new demands even if they suppress others. Such requests are for improvements in *collective* services in that they affect all beneficiaries of the program.

But why might increases in demand-making may be particularly visible at the *local* level, where policies are not made? Studies from the US measure increases in local-level political participation as evidence of increasing political capacity among welfare beneficiaries (e.g. Mettler and Welch 2004), but it is possible that transfers *motivate* local-level participation as well. While many welfare programs in India are crafted at the state or national levels, local governments are responsible for the implementation of welfare programs in places that have seen the devolution of administrative responsibilities to local government. India's National Rural Employment Guarantee Scheme (NREGS), for example, guarantees all rural households 100 days of wage labor infrastructure projects. The scheme lays out an important role for *gram sabhas*, or deliberative bodies of eligible voters in a village: they are the arenas for citizens to provide recommendations on priorities for the local public works and to conduct audits of completed and ongoing labor

projects. Jenkins and Manor (2017, 166-181) further find that NREGS increases political capacity and the "assertion of citizenship" among Indian villagers as they participate in village-level meetings in order to shape the nature of projects and determine who gets access to programs. Furthermore, in places with political decentralization, individuals may be more likely to make transfer-related demands of the local officials who are more visible or accessible to ordinary citizens than officials at higher levels (Corbridge *et al.* 2005).⁶

In this vein, Maclean (2011) argues that declining national public school and health-care quality in African countries motivated those who had experience with these services to participate in local politics more than those who had not, due mainly to a gap in expectations and on-the-ground experience of public services. As seen in the studies from the US, however, beneficiaries can attempt to protect or increase the value of transfers even when they are delivered as promised.

1.3 Preliminary survey evidence

A preliminary test of these opposing hypotheses can be done using data from IHDS-II. Table 1 first shows the fraction of the population reporting that it benefits from a given program to illustrate the broad reach of government transfers in India. As India's population is over one billion, even a food security program for the elderly from which only 0.2% of the population reportedly benefits (Table 1) will reach more than two million citizens. It further shows that beneficiaries of various Indian welfare programs report greater attendance of local public meetings wherein they make make complaints or demands of local government than non-beneficiaries. But of course, this pattern could simply be a result of fundamental differences between program beneficiaries and non-beneficiaries, rather than any effect of the programs themselves. It is highly plausible that program beneficiaries are simply more politically active than non-beneficiaries in

⁶See Bussell 2019 for an explanation of why motivated members of minority groups may, however, seek out higher level officials.

the first place. I thus use a natural experiment to causally identify the effects of one of the policies presented in this table, namely housing subsidies.

Table 1: Welfare beneficiaries and local meeting participation in India.

Benefit	Fraction benefitting ¹	Participation (beneficiaries) ²	Participation (non-beneficiaries) ²	P ³
Old age pension	0.091	0.35	0.28	0.00
Widows' pension	0.051	0.29	0.29	0.92
Maternity scheme	0.023	0.33	0.29	0.01
Disability scheme	0.013	0.38	0.29	0.00
Food security scheme (elders)	0.002	0.28	0.29	0.84
Sanitary latrines	0.051	0.44	0.28	0.00
Subsidized loans (farmers)	0.051	0.43	0.28	0.00
Rural housing subsidies	0.051	0.44	0.28	0.00
Rural employment guarantee	0.284	0.44	0.23	0.00

Source: IHDS-II (2011-2012) N= 42,152.

¹ Fraction of respondents reporting that they benefit from a given program.

² Fraction of program beneficiaries and non-beneficiaries who report having attended a public meeting called by the village panchayat (gram sabha) / nagarpalika / ward committee in the last year.

³ P-value from a two-tailed t-test.

2 The natural experiment

Housing subsidies have been implemented in many cities globally, including those in middle, low-income, and OECD countries, yet their effects on recipients' political behavior effects remain virtually unstudied. In this case too it is possible that the program either increases or decreases demand-making. The subsidy has potentially large economic effects for households, and could preclude the need for households to ask local officials for assistance with individual or group-level items. At the same time, however, the subsidy and becoming a homeowner might extend beneficiaries' time horizons and improve their sense of status. Moreover, as argued by those who study the effects of homeownership on political participation in the United States, owning a home, the particular welfare transfer associated with this program, should lead to local demand-making to improve communities and protect the value of the asset (e.g. Portney 1991; Dear 1992; Fischel 2001; Schively 2007; Hankinson 2018; Hall and Yoder 2018; Marble and Nall 2018; Einstein *et al.* 2019). In other words, this welfare program should increase local demand-making not only through wealth and attitude effects, but also because it

makes local issues particularly salient for beneficiaries.

The specific program studied here provides households with a government-constructed home at a highly subsidized price. Households can enjoy transfers even without moving; they can rent out the homes and consume the asset as a stream of payments (rental income net of mortgage) instead. Such programs can be found all over the world, including in cities in Ethiopia, Kenya, Brazil, and Uruguay. They have been spearheaded in all major Indian cities by state level development boards to build low-income housing. Moreover, in 2015, India's federal government announced a plan, Pradhan Mantri Awas Yojana, to build 20 million affordable homes by 2022.⁷ The government has further demonstrated a financial commitment to subsidizing housing programs; in 2003-2004, for example, the central government claimed to have spent roughly 1.65% of GDP on this type of program (Nayar 2009, 99).

The Mumbai Housing and Area Development Authority (MHADA)⁸ runs subsidized home-price lotteries for economically weaker section (EWS) and low-income group (LIG)⁹ urban residents who 1) do not own housing, and 2) who have lived in the state of Maharashtra for at least 15 continuous years within the 20 years prior to the sale. In 2012 and 2014, the EWS group could purchase a 180 square foot apartment for about Rs.1,500,000 (about 23,500 USD at the time), while the LIG group could purchase a 320 square foot apartment for about Rs.2,000,000 (about 31,000 USD).

The homes were sold at a "fair price" that was 30-60% of market prices. Table 2 shows winners could eventually hope for large gains; 3-5 years after the lottery, the difference between the apartment purchase price and list price for older MHADA apartments of the same size in the same neighborhood appears to lie anywhere between Rs.661,700

⁷This program is an extension of what used to be known as Indira Awas Yojana, which provided mostly rural homes.

⁸The agency is a subsidiary of the Maharashtra Housing and Area Development Authority that uses the same acronym. The state development board was formed in 1977 by the Maharashtra Housing and Area Development Act and was preceded by the Bombay Housing Board, established in 1948. The name of the older agency was something of a misnomer, as its jurisdiction spread across the state.

⁹Members of the EWS earn up to 3,200 USD/year. Members of the LIG earn up to 7400 USD/year.

Table 2: Lottery apartments included in the study.

Scheme	N winners	Year	Group	Neighborhood	Area ¹	Allotment price ²	Current price ³	Downpayment ⁴
274	14	2012	LIG	Charkop	402	2,725,211	5,000,000	15,050
275	14	2012	LIG	Charkop	462	3,130,985	6,000,000	15,050
276	14	2012	LIG	Charkop	403	2,731,441	5,000,000	15,050
283	270	2012	LIG	Malvani	306	1,936,700	2,800,000	15,050
284	130	2012	LIG	Vinobha Bhave Nagar	269	1,500,000	2,700,000	15,050
302	227	2014	EWS	Mankhurd	269	1,626,500	2,000,000	15,200
303	201	2014	LIG	Vinobha Bhave Nagar	269	2,038,300	2,700,000	25,200
305	61	2014	EWS	Magathane	269	1,464,500	5,000,000	15,200

¹ In square feet. Refers to "carpet area", or the actual apartment area and excludes common space.

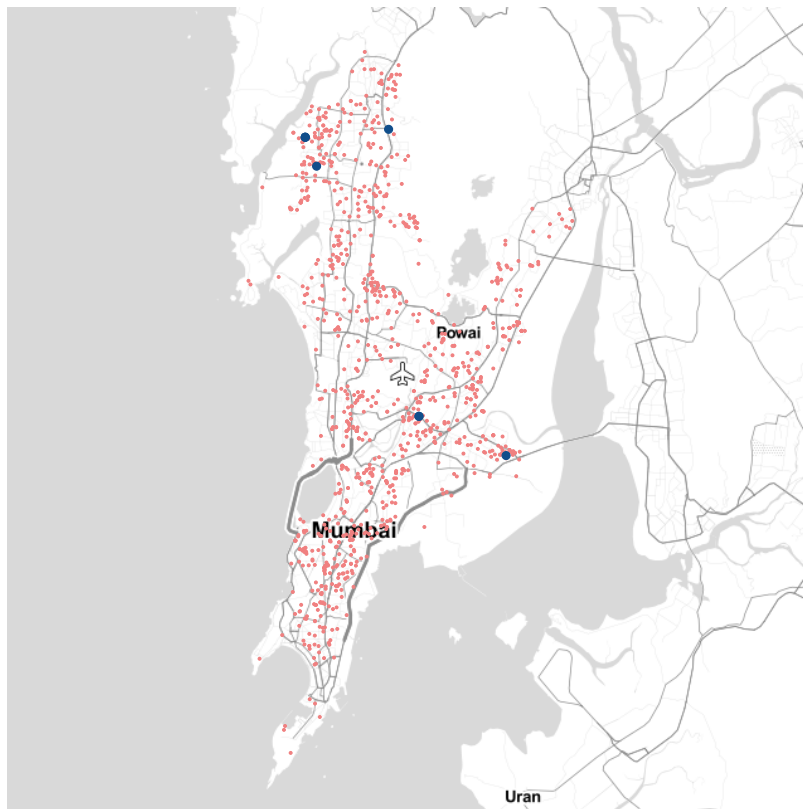
² Price at which winners purchased the home in INR with the cost stated in the lottery year. In 2017, about 64 INR made up 1 USD.

³ Average sale list price of a MHADA flat of the same square footage in the same community. Data collected from magicbricks.com in 2017.

⁴ In INR with the cost stated in the lottery year. Includes application fee of Rs.200.

(about 10,300 USD at 2017 conversion rates) to Rs.2,869,015 (about 45,000 USD). Figure 1 shows the location of the 2012 and 2014 EWS and LIG MHADA apartment buildings and households in the sample at the time of application. At the time of application, households were permitted to choose the building for which they submitted an application. Resale of the apartments is not permitted until 10 years after purchase, but households can put the apartments up for rent. Fifty percent of households in my sample have done so. Households do not pay taxes on their dwelling for five years after they move in.

Figure 1: Location of the addresses of households in the sample (pink) along with the location of apartment buildings (blue) at the time of application.



All applications required a refundable fee of Rs.200 (about 3 USD). At the time of purchase, a downpayment of about 1-2% was required.¹⁰ Winners had access to loans from a state owned bank and most took out 15 year mortgages. While the downpayment and mortgage left this program out of the reach of many of the city's poorest residents, it

¹⁰Prices and downpayments vary by year and apartment location.

gave eligible lower middle-class families without property the opportunity to purchase heavily subsidized apartments. This segment of the urban population was comprised mainly of renters and large extended families sharing small homes.

Winners were selected within caste and occupation groups (Table B1), as each apartment building had quotas for these groups within which randomization occurred. Because randomization occurred within these socio-economic groups, the program can be thought of as a stratified randomized experiment. There are several reasons to believe that this process was fair, or truly randomized. First of all, after facing a great deal of scrutiny over allegations of corruption in the 1990s and early 2000s, the lottery was implemented using a protected computerized process starting in 2010. Applicants also applied with their Permanent Account Numbers (PAN), which are linked to their bank accounts.¹¹ Before conducting the lottery, MHADA officials used the PAN numbers to check both whether individuals had applied multiple times for the same lottery round and whether they met the criteria for eligibility. Finally, I provide randomization checks by demonstrating balance on covariates across winners and non-winning applicants.

2.1 Data collection

I estimate treatment effects for all outcomes based on in-person household surveys of both winning (treatment) and non-winning (control) households. I aimed to interview 500 treatment and 500 control households that were members of a sample drawn as follows: For the 2012 and 2014 lotteries, I procured from the MHADA phone numbers and addresses for winners and a random sample of applicants. Because there are more than 300,000 economically weaker section applicants for roughly 300 spots, I interviewed a random sample of applicants rather than all of the applicants. This sample of applicants was drawn in the same stratified sampling method used for the selection of winners. There were an equal number of treated and control units in each stratum, and I accessed

¹¹A PAN is issued by the Indian Income Tax Department to all eligible for an income tax. Its stated purpose is to minimize tax evasion.

a total of 1,862 addresses.¹²

I next located the addresses of these households on Google Maps. Addresses that were incomplete (42), outside of Greater Mumbai (611), or could not be mapped (146) were removed from the sample. This left 531 and 532 control and treatment households, respectively. Table B2 demonstrates that even after this mapping procedure, the sample included roughly equal proportions of winners and applicants in each caste/occupation category, lottery income category, and apartment building. Given the assumption that the lottery was truly randomized and the fact that I used pre-treatment addresses for the mapping exercise, there is no reason to expect it to systematically favor treatment or control units.¹³

Once mapped, I can identify the state and municipal wards in which households are located and test for evidence of selection into the mapped treatment group by electoral ward. A higher likelihood of certain ward members to be treated would indicate that individuals from particular locations or with particular political representatives are more likely than others to win the lottery. Here, I conduct regressions of the treatment indicator on the state and municipal ward membership indicators and calculate a heteroscedasticity-robust Wald statistic for the hypothesis that the coefficients on all of the indicators (other than stratum randomization dummies) are zero. The p-values for regressions on state and municipal ward membership are 0.35 and 0.46, respectively.

¹²In the case that households had applied for multiple lotteries included in the study, they would have a higher likelihood of appearing in either the sample of treatment or control households. The sampling procedure explicitly allowed for the possibility of the same household being drawn multiple times, and I had planned to include duplicate observations for the household in question in this situation. If a household won lottery A but also was drawn in the sample of non-winners for lottery B, its data would have been included as a set of outcomes under treatment for lottery A and under control for lottery B. Ultimately, no households were drawn multiple times, likely reflecting the fact that being sampled from the pool of applicants is a rare event.

¹³Overall, however, I expect the mapping procedure to have favored wealthier applicants because 1) addresses that could not be mapped often referred to informal settlements, and 2) to create a sample that I could feasibly survey, I also dropped all who lived outside of Greater Mumbai, limiting my sample to urban applicants. Table B3 indeed shows that there are relatively fewer Scheduled Tribe members and more General Population (e.g. Forward Castes) members in the mapped sample than in the full sample provided by MHADA. The mapped sample may thus have slightly higher socio-economic status than the full sample of applicants on average, but I detect no such differences *between* treatment and control groups.

These p-values do not allow me to reject the null hypothesis that members of any electoral constituency were equally likely to be in the mapped treatment group.

From this set of mapped households, I randomly selected 500 of the mapped households from each treatment condition to interview. From September 2017-May 2018 (after the Mumbai municipal elections in February 2017), I worked with a Mumbai-based organization to contact individuals in the households and conduct interviews.¹⁴ The addresses and phone numbers provided by MHADA constituted the contact information for households at the time of application. Non-winners were contacted at these addresses. In cases where they had moved away, neighbors were asked for updated contact information. Winners resided at either the old addresses or new lottery buildings, as they were free to either inhabit their new property or rent it out. Lottery housing cooperative societies were thus first contacted to determine which of the winners were living at the apartments. Owner-occupiers were approached at the lottery apartments; landlords were approached at the addresses listed on the application using the procedure developed for non-winners. The survey firm used the same team and survey protocols to approach both winners and non-winners.

In all cases, we attempted to speak to the individual who had filled out the application for the lottery home. The application required providing important and sensitive information such as the PAN; as a result, I assumed that the individual applying was most likely to be the head of the household. In the case that a child had applied for the home (likely because the form could be completed online and older children may be better able to use computers and the internet than their parents), enumerators were instructed to speak to the family's primary earner. Given this aim of speaking to individuals who were likely to be working full-time jobs, interviews were conducted on Sundays and weekday evenings. In my sample, 78% of respondents had filled out the

¹⁴The organization hires its enumerators from local neighborhoods, which is a practice that was very important to the success of contacting my sample households. More information about the firm, Partners for Urban Knowledge Action Research (PUKAR), can be found here (<http://www.pukar.org.in>).

application themselves.

2.2 The sample

The data collection process yielded a sample of 834, with 413 of the surveyed households in the control condition and 421 households in the treated condition. Full information on the number of households contacted in each stratum along with reasons for attrition can be found in Table B4. I do not see evidence of differential rates of contact for control and treated units; the p-value for the difference in proportion contacted is 0.8. Balance tests for fixed or baseline characteristics among the contacted sample can be found in Table B5. Importantly, there is an equal proportion of those belonging to the *Maratha* caste group, a dominant group in Mumbai and Maharashtra more generally. In other words, winners and non-winners appear to be similar based on a number of fixed observable covariates and there is no compelling evidence of corruption in the lottery or differential selection into the sample.¹⁵

Although these households fall into the EWS and LIG income categories for the housing lottery, a summary of the assets, housing quality, education levels, and tenure status of the control, or policy target group, respondents reveals that they should not be considered among the lowest income groups in the city (Table 3). They are educated, most have roughly 50% of the household employed and earning, and about 31% claim to have formal employment with either the government or private sector. Most live in dwellings with permanent floors and roofs. As none of the applicants, by rule, owns housing in the state of Maharashtra, they are all living either in rental housing, homes with large families, or self-constructed homes to which they have no title. Many live in Mumbai chawls, or large buildings with shared taps and cheap, single room apartments. I thus describe the sample as middle class.¹⁶

¹⁵In line with my pre-analysis plan, I also regress the treatment indicator on the covariates (Table B6) and calculate of a heteroscedasticity-robust Wald statistic for the hypothesis that the coefficients on all of the covariates (other than stratum dummies) are zero. The p-value for this test is 0.39.

¹⁶This description is corroborated by an interview conducted with the commissioner of the Mumbai

Table 3: Summary of control group characteristics.

Variable	Control group mean ¹ (SD)
<i>Household Assets</i>	
TV	0.91 (0.29)
Computer	0.39 (0.49)
Working refrigerator	0.87 (0.33)
Internet	0.47 (0.50)
Scooter/2 wheeler	0.36 (0.48)
Car	0.06 (0.23)
<i>Housing quality</i>	
Permanent floor	0.96 (0.19)
Semi-permanent roof	0.17 (0.38)
Permanent roof	0.79 (0.41)
Private tap	0.73 (0.45)
Private latrine	0.62 (0.49)
<i>Education and labor²</i>	
Percentage of the household employed	0.48 (0.25)
Years of education (HH mean)	10.35 (2.87)
Unemployed	0.03 (0.18)
Wage laborer	0.12 (0.33)
Government employee	0.18 (0.38)
Private sector (informal) ³	0.43 (0.50)
Private sector (formal) ³	0.18 (0.38)
<i>Tenure status</i>	
Migrants	0.20 (0.40)
Have always lived in Mumbai	0.81 (0.39)
Renting	0.57 (0.50)
Sharing/live in a joint family	0.77 (0.42)

¹ Proportions may not add to 100% because of non-response to certain questions.

² Figures not referring to household means refer to the survey respondent.

³ A job is considered to be in the formal sector if individuals are given letters, contracts, or notification of pension schemes upon being hired.

2.3 Estimation

I estimate effects of winning the lottery within the contacted sample on reported local civic action, attitudes, knowledge of local politics, and motivations for vote choice. I follow my pre-analysis plan and estimate the treatment effect β , on i households or individuals across the pooled sample of lotteries. In the following equation, Y_i is the outcome (as measured through a survey), T_i is an indicator for treatment (winning the lottery), and $C_1...C_j$ is the group of fixed (or pre-treatment) covariates used for randomization checks, and ϵ_i is an error term. Given that randomization happened within strata, I include a set of centered dummies, $B_1...B_l$ for each. Following Lin (2013), I allow for heterogeneous effects within the strata by interacting the centered stratum dummies with the treatment indicator:

$$Y_i = \alpha + \beta T_i + \sum_1^j \gamma_j C_j + \sum_1^l \omega_l B_l + \sum_1^l \eta_l (T \times B_l) + \epsilon_i \quad (1)$$

I label households as "treated" if they win the lottery in the specific year for which they appear in the sample. While this study potentially suffers from two-sided noncompliance (8% of treated units did not purchase homes), I simply conduct an intent-to-treat (ITT) analysis.¹⁷ β can thus be interpreted as a weighted average of stratum-specific intent-to-treat effects. Following Imbens and Kolesar (2015), I compute standard errors using the HC2 estimator (MacKinnon and White 1985). Given the large number of hypotheses being tested, I make Benjamini-Hochberg corrections for the false discovery rate within "families" of outcomes.

Metropolitan Regional Development Authority, who saw the main beneficiaries the housing program to be lower-middle class households (Madan 2016).

¹⁷This choice should typically bias treatment effects to zero.

3 Results: demand-making, meetings, and knowledge

I used the household surveys to measure reported behavior and attitudes 3-5 years after it was held. Variable definitions and control means for the main outcomes of interest are reported in Table 4. All of the questions for the main results were phrased to understand winners' actions in the places in which they *live*, whether or not it is in the lottery apartments.

Treatment effects are summarized in Figure 2. First, I measure effects on the extent to which respondents report taking action to improve their communities. Winners are about 29 percentage points (over a base of 36%) more likely than non-winners to report that someone in the household has attended a local ward committee meeting in the last month. During the time of the survey, these meetings were very much preoccupied with discussions surrounding the Mumbai Draft Development Plan, or a document outlining MCGM's plan for land use in the city.

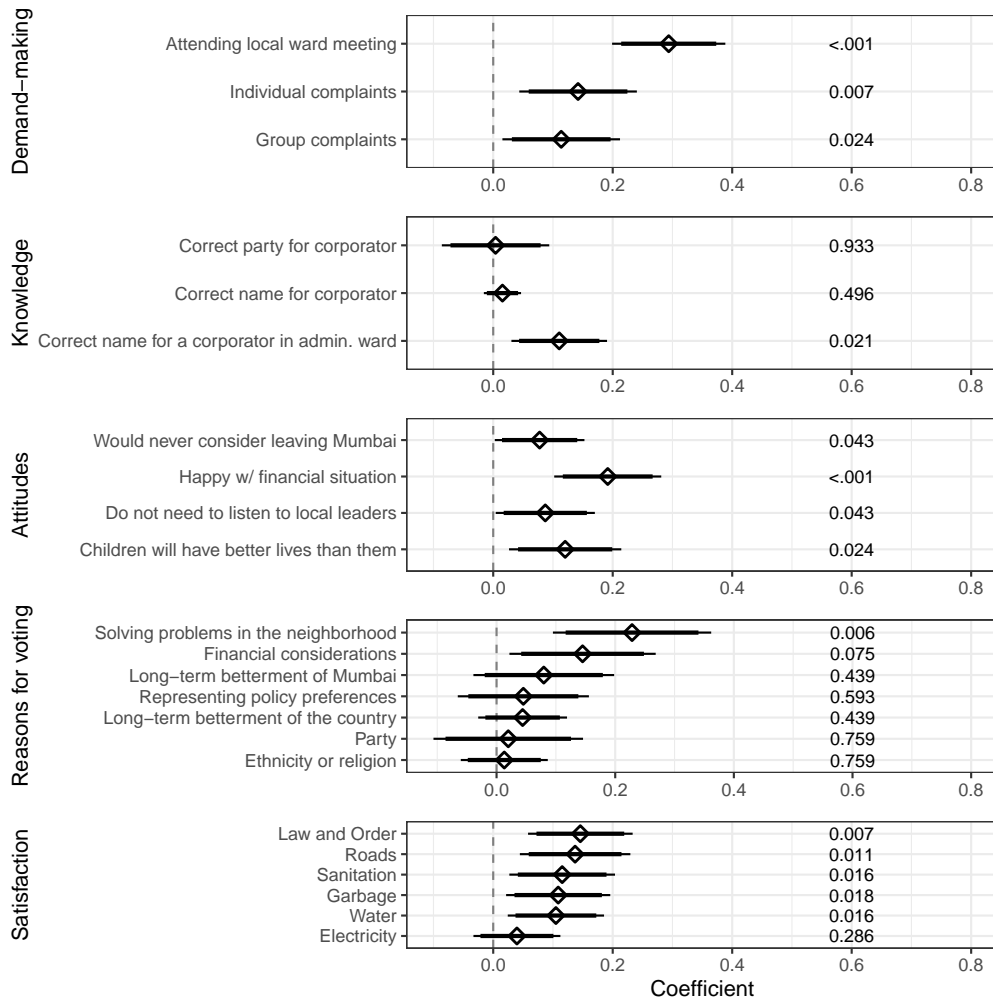
I also asked about how often they participate in both individual and group petitioning of politicians and bureaucrats for something benefitting the community. I estimate that lottery winners are 14 and 11 percentage points more likely to report making complaints individually and in groups, respectively, for "something" benefitting their communities. Based on my qualitative fieldwork, these complaints were often related to problems with water scarcity and encroachment by hawkers and squatters.

Of course, these treatment effects measure changes in reported behavior only. I also tested respondents' knowledge of local politics, with the assumption that greater local political engagement leads to greater knowledge. An individual who reports contacting a politician to ask for community improvements is more likely to know the name of the politician than one who has not claimed to contact a politician. The election of 227 ward representatives, or corporators, to the MCGM occurred in February 2017, roughly six months prior to the survey. Four parties emerged with a plurality of seats. I therefore

Table 4: Variable definitions for outcomes.

Label	Survey Question	Response options	Coding	Control mean
Attending local area meeting	In the last month, has anybody in the HH attended a BMC meeting?	Yes, No, Don't Know	1 if Yes, else 0	0.36
Individual complaint making	How often do you individually petition government officials and political leaders for something benefitting your community as party of a group?	Often, Sometimes, Rarely, Never	1 if Often or Sometimes, else 0	0.45
Group complaint making	How often do you petition government officials and political leaders for something benefitting your community?	Often, Sometimes, Rarely, Never	1 if Often or Sometimes, else 0	0.41
Correct party for corporator	What is the party of your <i>nagar sevak</i> ?	Open ended	1 if correct, else 0	0.31
Correct name for corporator	What is the name of your <i>nagar sevak</i> ?	Open ended	1 if correct, else 0	0.02
Correct name for corporator in admin. ward	What is the name of your <i>nagar sevak</i> ?	Open ended	1 if named individual is a corporator in admin ward, else 0	0.14
Would never consider leaving Mumbai	Do you think you will leave Mumbai in the future?	Would never leave, Might leave in future, Will definitely leave	1 if would never leave, else 0	0.77
Do not need to listen to local leaders	Do you/people like you need to listen to what leaders in the area say	Yes, No, Don't know	1 if No, else	0.19
Children will have better lives than them	Do you expect your children to have better lives than you?	Yes, No, Don't Know	1 if Yes, else 0	0.56
Reasons for voting	What factors did you consider when you voted in the last municipal elections?	Open ended, enumerators selected all applicable from list	1 if [reason] chosen, else 0	Party, 0.30; Ethnicity, 0.06; Neighborhood, 0.42; Financial, 0.26; Policy preferences, 0.20; Mumbai 0.20; Country, 0.05
Satisfaction with services	How satisfied are you with the [service type] in the neighborhood in which you live?	Satisfied, Neither satisfied nor dissatisfied, Dissatisfied	1 if satisfied, else 0	Electricity, 0.83; Garbage, 0.71; Sanitation, 0.68; Water, 0.77; Law, 0.70; Roads, 0.64

Figure 2: Treatment effects for main outcomes and mechanisms.



Bars show 90% and 95% confidence intervals. Full regression output with and without covariate adjustment available in Tables B7-B13. P-values using Benjamini-Hochberg corrections for the false discovery rate are shown on the right.

asked respondents for the name and party for the corporator for the electoral ward in which they lived at the time of the survey. The ward was determined using the GPS coordinates for baseline addresses for non-winners and winning landlords, and using lottery apartment addresses for winning owner occupiers.¹⁸ After determining the appropriate electoral ward for each household, I hand-coded responses for corporator party and name as either "correct" or "incorrect." Overall, knowledge is low; only about

¹⁸GIS maps for Mumbai's electoral wards were generously provided by the Urban Design Research Institute of Mumbai, India. More information about the organization can be found here (<http://www.udri.org>).

2% of the control group can name the relevant corporator correctly. As seen in Figure 2, I do not detect treatment effects for knowing the name or party of the corporator for the ward in which respondents live.

But in Mumbai, electoral wards are grouped into 24 larger administrative wards (Figure A1) It is the administrative ward office, not the electoral ward office, that is responsible for handling complaints. Mumbai residents therefore think in terms of administrative wards, not electoral wards.¹⁹ Control group members are over seven times more likely to correctly name a corporator from their administrative wards than give the correct name of the corporator for their electoral wards. I therefore estimate treatment effects for correctly providing the name for a corporator from the administrative ward within which the respondent lived at the time of the interview. Winners are 11 percentage points, or almost 80% more likely than the control group, to be able to provide a correct response. Increases in reported complaint-making to benefit neighborhoods are accompanied by real increases in knowledge of local politics. These effects are particularly striking as outcomes were measured a mere six months after municipal elections, suggesting that beneficiaries actively seek up-to-date information about local government.

Note that this paper estimates average treatment effects across both owner-occupiers and landlords. It is not possible to estimate effects for subgroups, as we do not know which members of the control group would have chosen to move if they had won. Nevertheless, Table 5 shows that outcomes for landlords and owner occupiers are similar, especially when compared to the control group.

Table 5: Mean outcomes for landlords, owner-occupiers, and the control group.

	Landlords	Owner-occupiers	Control group
Individual complaints	0.52	0.61	0.45
Group complaints	0.52	0.54	0.41
Can name corporator in admin. ward	0.25	0.29	0.14

¹⁹As a quick check of this claim, I asked 15 individuals on the street in different administrative wards about their ward membership. Four respondents did not know which ward they belonged to, and the remaining 11 gave the names of their administrative wards.

Evidence from qualitative interviews suggests that landlords' participation in demand-making in their *own* communities arises from developing new habits surrounding the lottery apartments. One respondent, for example, said that "we just pay attention to what is happening with the BMC [MCGM]." Another respondent claimed that after visiting some MCGM ward offices, she had developed a new interest in how the municipal government works. "I now just like to know what is going on, even where I live," she claimed.

3.1 Mechanisms: attitudes, status, and motivations

One channel through which government transfers might lead to increases demand-making is by making recipients feel wealthier and altering their time horizons (Figure 2). I estimate that winners are 19 percentage points more likely than non-winners to claim to be "happy" with the financial situation of the household. Winners also appear to believe they will pass on their good fortune to their children, as they are roughly 12 percentage points more likely than non-winners to say "yes" when asked if their children will have better lives than them. They are about 8 percentage points more likely than non-winners to respond that they "would never leave" when asked if would ever consider relocating from Mumbai, suggesting increased time horizons. Given the argument that welfare policies make recipients wealthier, these findings are complementary to research (e.g. Baird *et al.* 2013; Fernald *et al.* 2008; Haushofer and Fehr 2014; Haushofer and Shapiro 2016) that has found that income shocks can increase psychological well-being, happiness, and time horizons. These effects may reduce the cognitive or time cost of action. Indeed, a winning respondent in his fifties claimed he felt less stressed about his children's future after winning, giving him the energy to "focus on other things." In contrast, a non-winning mother laughed when asked if she attended local meetings. "Who has the time to do such things? I need to look after my family and children."

Welfare transfers may also alter a beneficiary's and perception of her own status.

I estimate an 8.9 percentage point increase in the likelihood of respondents selecting "No," when asked "Do you/people like you need to listen to what leaders in the area say?" I interpret this effect as an increase in respondents' perceptions of their own status or efficacy. During my interviews, I observed that respondents usually fell into two categories: those who appeared to be afraid of authority figures, and those who did not. The intervention appears to have shifted winners into the latter category. These effects are complementary to beneficiaries' near universal claim in qualitative interviews that they "now have some status." These effects may further enable citizens to actually make demands of elected officials they may have once feared.

Finally, welfare programs can create interest groups of beneficiaries who are particularly motivated to work together to protect their transfers. To illustrate this mechanism, I also show effects on stated motivations for another form of local political participation, namely voting in local elections (Figure 2). I first estimate treatment effects for reported voting in the past municipal elections and state elections. I do not detect a treatment effect for reported voting. This could be for many reasons, particularly that all respondents may feel social pressure to claim that they did, in fact, vote. Control means (the constant estimates in models (1) and (2) in Table B14) do show high rates of reported voting for the control group. I next asked respondents how they made their choices in the most recent municipal election. Relative to non-winners, I estimate that winners are 22 percentage points more likely to state neighborhood problems as a reported reason for voting, thus supporting increased interest in local problems as a mechanism for my findings.²⁰

The behavior of landlords in particular illustrates their motivation to protect the value of transfers. Even though landlords do not benefit from the quality of life improvements

²⁰Here, I used a question in which respondents were not prompted with options and all of their responses were selected by enumerators from a multiple choice list. I attempted to make an exhaustive list of multiple choice options based on responses to a pilot survey I conducted in March 2017. Those who did not vote are simply assumed to have found none of the listed reasons important enough to motivate a vote, addressing concerns about post-treatment bias.

that may result from changes in the community, they will benefit from home value appreciation that may occur as a result of improved neighborhoods.²¹ I asked landlords if they had attended homeowners' association (commonly known as "society") meetings in the neighborhood of the lottery home in the past month. These are distinct from the municipal ward level meetings discussed above. The range of issues being discussed in these meetings is enormous and includes water supply, sidewalk construction, water leakages in apartment buildings, local safety, and, of course, the occasional birthday party.

Fifty-five reported that they did so "Often" or "Sometimes," a figure only slightly lower than the 65% attendance rate reported by owner-occupiers. The attendance of meetings in the lottery home neighborhoods is particularly surprising, as going to these meetings can be very costly in terms of time; 68% of the landlords work six or more days a week, and the travel time (one way via transit) to the lottery building neighborhoods takes 1.1 hours on average.²² The percentages of meeting attendance may actually be underestimates of participation because, according to interviews with development meeting leaders, some landlords also communicate their wishes through WhatsApp or by phone.

3.2 Alternative explanations

It is possible that effects are driven by disgruntled members of the control group who no longer want to participate in local politics after failing to win the lottery. This seems rather unlikely, however, as the program is truly seen as a lottery; indeed, 74% and 79% of control and treatment respondents, respectively, respond that "Luck" is responsible for deciding who wins. Only 1.6% and 0.4% of the control and treatment groups believe that the MCGM is responsible. Moreover, applicants apply to lottery repeatedly, much

²¹According to the survey data, winners are, in fact, aware of the property values and that they can change and even increase over time.

²²Travel times are calculated using the Google Maps API and households' addresses at the time of application. The travel time was calculated for a Sunday morning, the time at which I observed most neighborhood improvement society meetings occur.

like someone in the US can repeatedly buy lottery tickets or put quarters into a slot machine. Non-winners may be unhappy about not winning, but it is unlikely that this unhappiness extends so far as to affect their impressions of local government capacity and responsiveness.

Results could further be a mere mechanical result of the fact that winners needed to interact with local government to obtain the apartments. These outcomes, however, are measured 3-5 years after individuals win the lottery. They do not reflect one-time actions, but rather longer-term changes to behavior.

Increased participation may be driven by the increased existence of informal institutions for demand-making in the lottery apartments. Recall, however, that outcomes are measured for the areas in which respondents live; similar rates of demand-making among landlords and owners (Table 5) make this alternative explanation less likely.

Increased participation in local demand-making may also be the result of dissatisfaction with service delivery. Owner-occupiers experiencing worse services in the new buildings could organize to demand improvements in their new communities. To see whether increased participation is driven by dissatisfaction, I look at responses to questions that ask if individuals are satisfied with services in the neighborhoods in which they live (Figure 2). I see no evidence for this mechanism; in fact, I see greater satisfaction with the delivery of most services among lottery winners. Much of the demand-making in lottery buildings surrounded issues with which control group members remained unconcerned, particularly illegal fruit and vegetable vendors on the streets. This suggests that the housing subsidies generated *new* demands that non-beneficiaries may not have been sufficiently able or motivated to make.

Moreover, I observed that the lottery apartment buildings were generally well maintained, particularly in comparison to the areas where the members of the control group lived. The roads were relatively free of garbage and human waste, and the complexes had several overhead water tanks apiece. In fact, rather than participation being driven

by poor service delivery in the new apartments, it is also possible that landlords seeing better services in the apartment buildings could be organizing to demand improvements in their baseline communities. As argued by Auerbach and Kruks-Wisner (2019), visible service provision by the government may be another mechanism driving results here, and is worth exploring in future research.

4 Conclusion

Low- and middle-income countries are sites of rapid innovation in policies to mitigate poverty and inequality, including universal basic income, conditional cash transfers, microcredit, and continuous attempts to improve publicly provided healthcare and education. Existing literature yields ambiguous expectations about the effects of these transfers on demand-making, a form of everyday political participation. I exploit subsidized home-price lotteries in Mumbai and show that benefitting from this program leads individuals to increase their reported participation in collective demand-making and knowledge of local government. These results are particularly surprising because as the intervention entails relocation and remove some beneficiaries from their social networks, a phenomenon Gay (2012) finds leads to decreased political participation among beneficiaries of the Moving to Opportunity program in the United States. I argue that the results arise from increased political capacity due to beneficiaries' newfound wealth, and changing motivations to participate in demand-making due to their desire to protect this wealth. Beneficiaries indeed report greater financial satisfaction, longer time horizons, increased perception of their own status, and greater interest in local issues when making voting choices.

The findings suggest that government transfers may have political distributional effects. For example, the behavior observed among lottery winners is similar to that described by research on homeowners in the United States who participate in local politics to defend their property values (e.g. Portney 1991; Dear 1992; Fischel 2001; Schively

2007; Hankinson 2018). The US-based research focuses on a "not-in-my-backyard" (NIMBY) behavior, or the negative externalities of homeownership. Owners defect from land use policies that are of general benefit to a municipality because they impose costs (in the form of land depreciation or externalities such as crowds and pollution) on the very local communities in which individuals own homes. In the context described in this study, homeownership and a desire to protect property values potentially has positive externalities, particularly in communities with mixed housing tenure and low levels of baseline service provision.

Nevertheless, homeownership can have negative NIMBY-type externalities in urban India as well. Many have documented, for example, the urban middle class's attempts to clear slums and "beautify" cities; such actions likely share the same underpinnings as NIMBYism in that they benefit homeowners at the expense of others in the city (Fernandes 2006; Heller, Mukhopadhyay, and Walton 2016). I highlight that common government policies to subsidize homeownership can effectively generate this behavior. Given the fact that households must be able to purchase the unsubsidized portion of the apartment, home-price subsidies may benefit middle-class households over their poorer counterparts, a pattern visible in the policy studied here and mortgage subsidies in the United States (Glaeser and Shapiro 2003). Program targeting can thus exacerbate patterns of political inequality due to the transfers' effects on demand-making. This is a problem that is likely to apply to welfare programs more generally, and may be even worse for transfers distributed not through programmatic rules, but through patronage or clientelistic networks.

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