

A Range of Informality Across Cities and Slums: Understanding Precarity in Patna's Slums Before and During the COVID-19 Pandemic

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Abstract

This article proposes a framework for understanding why slum residents are particularly vulnerable to economic downturns. We centre evidence from Bihar's capital city, Patna, to examine how downturns are experienced more severely in some cities and slums than others. We argue slums are zones of pervasive informality, remaining largely disconnected from formal institutions and dependent on discretionary supports. But the extent of informality, and vulnerability, varies within and across cities. Relative to those in the cities we compare to, Patna's slum residents are poorer, less upwardly mobile and have weaker property rights and shallower institutional connections. We argue this makes them particularly vulnerable to downward shocks and we present evidence from the case of the coronavirus pandemic to show that they experienced this disaster particularly severely. Our results have important policy implications: in general, slum residents require greater policy and institutional support, but there is important variation in their vulnerability and needs within and across cities. Moreover, while most research on slums focuses on mega- and first-tier cities, we emphasize the urgent need for more attention to second- and third-tier cities—where the degree of informality, and consequently, the vulnerability to downward spirals, can be greater.

Keywords

Bihar, informality, slums, urban poverty, COVID-19

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Introduction

India, like other low- and lower-middle-income countries, is undergoing a massive urban transformation. Developing countries will, on average, be majority urban within the next 10 years, and India will cross this threshold in the next quarter-century. Many among this vastly growing urban population will live in ‘slums’—settlements that lack secure property rights, safe housing and adequate infrastructure (UN-Habitat, 2016). Already, over a billion people live in slums, and more than 100 million of these slum residents live in India alone. Although optimistic accounts argue slums offer temporary shelter for recent rural–urban migrants who eventually work their way up to the middle class (Frankenhoff, 1967; Glaeser, 2011; Turner, 1969; World Bank, 2009), the most rigorous evidence to date suggests slum residents throughout the Global South largely remain stuck in poverty and stuck in slums. Many households experience limited economic gains, but these gains are rarely transformative and are almost always precarious given slum residents’ extreme vulnerability to adverse shocks (Rains & Krishna, 2020).

In this article, we advance a framework for understanding, first, why economic downturns tend to be experienced especially severely in slums in general. We then centre the case of a mid-sized capital city and its experience with the COVID-19 pandemic, in particular, to examine how downturns are experienced more severely in some cities and slums than others. Our explanation relies on unwrapping *informality* and considering three separate dimensions. First, many of the people who live in slums are informal—they have no formal papers, not the types, at least, that help establishes urban status. Second, the jobs they hold are informal—no contract, no healthcare or old-age benefits, no fixed tenure, no notice before dismissal. Third, many slum homes are informal—people can buy or sell them and still not have formal, legal titles. Not everyone experiences all three kinds of informality at the same time, and not everyone experiences any one kind to an equal degree. This variation contributes to important differences within and across cities.

The background of pervasive informality is helpful for analyzing slum conditions and for examining how the global pandemic has affected the slums of different Indian cities. We put Patna at the centre of our analysis, partly because it helps emphasize the urgent need for taking the relatively recently commenced social science examination of slums in India beyond metros and into second- and third-tier cities—where the degree of informality, and consequently, the vulnerability to downward spirals, can be greater. We compare and contrast precarity in Patna’s slums before and during the pandemic with slums in two other state capitals to help focus attention on factors that can help counteract precariousness and fragility and raise slum residents’ resilience against future downturns. Overall, we argue that a combination of structural reasons—resulting in a weaker property rights regime for slum residents of Patna—and organizational reasons—weaker assimilation of slums into institutional networks in Patna—goes some way in understanding both why slums in Patna are generally less economically advantaged or mobile than those in other cities and why the pandemic-induced economic downturn was experienced more severely in slums of Patna.

The rest of the article is organized as follows. In the second section, we provide background on the emergent literature on slums in developing country cities, highlighting how informality and institutional disconnections pose barriers to social mobility. The third section describes the data we draw on to compare levels of precarity and experiences of the pandemic in Patna's slums to those in two other cities. We combine data from 40 slums collected during the first two major waves of the pandemic with baseline data we collected from more than 9,400 slum households across three cities before 2017 to compare conditions in these cities over time. The fourth section presents in necessary brevity the context of Patna and the coronavirus pandemic as a case of a severe adverse shock. In the fifth section, we present our analyses of these data. The sixth section discusses our findings and concludes; we speculate on how efforts to formalize different aspects of informality, even partially and haltingly, can help bolster economic resilience among slum dwellers, and call for future research to establish these points with greater assurance.

Informality, Intermediation and Barriers to Upward Mobility

Conceptions differ, but a commonly agreed definition of slums is the one offered by UN-Habitat, the UN agency dedicated to supporting equitable development in cities across low- and middle-income countries, which describes a slum as a neighbourhood that suffers one or more of the following deprivations—inadequate access to safe water, lack of sanitation, poor structural quality of housing, overcrowding, or insecure residential status. Despite this unifying definition, the term 'slum' can be used to depict a wide range of living conditions.

Though living conditions can vary widely, informality is common in slums. Most slum residents work in the informal economy in low-paying, unstable positions that are disconnected from government safety net programs linked to formal labour (ILO, 2018). Further, many slum homes lack property rights, not only leaving them vulnerable to evictions but also precluding them from accessing financial services linked to these documents (de Soto, 2000). Finally, those lacking official identity papers cannot even make viable claims for welfare benefits and entitlements. These conditions not only make it difficult to accrue savings and wealth but also any decline in household living conditions can quickly spiral downward, pushing families into persistent poverty (e.g. Harriss-White et al., 2013).

In the absence of access to formal policy support, many slum residents turn to political intermediaries to help them access crucial resources, from cash and food to better housing documents (e.g. Auerbach, 2019; Harriss, 2010; Jha et al., 2007; Krishna, 2017; Krishna et al., 2020; Murillo et al., 2021). These goods can help mitigate economic risks but they are provided in a highly discretionary manner, often targeted to the communities that mobilize most effectively (Auerbach, 2019), and leaving slum residents dependent on the resources and whims of local

officials (Holland, 2016; Krishna et al., 2020). Far from providing a consistent and sufficient safety net, politically mediated resources are provided unevenly and doled out incrementally.

These characteristics—vulnerability, institutional disconnections and incremental, discretionary access to crucial resources—severely inhibit prospects for upward mobility and protections against downward mobility in developing-country slums (Rains & Krishna, 2020). In contrast to earlier hopes that expected slum residents would over time climb upward to join the middle class as urban economies grew, with slums serving as the transmission belts that took in rural migrants and turned out an urban middle class (Frankenhoff, 1967; Glaeser, 2011; Turner, 1969; World Bank, 2009), the growing body of empirical evidence from around the world suggests that the prospects for upward mobility are quite low in developing country slums generally. Two multi-decade longitudinal case studies that follow residents from three slums in Brazil and one slum in Ecuador find slum-dwellers experience some degree of upward mobility over generations but that these gains ultimately plateau, and may even experience downward mobility over the same duration (Moser, 2009; Perlman, 2006). Separately, Zulu et al. (2011) provide evidence on two Kenyan slums that they examined over seven years. Again, many households remain in poverty, fluctuating slightly above and below official poverty lines during that time. Another study that draws on South African panel data over 4 years finds that residents of slums experience downward descents into poverty more frequently than other urban residents on account of high levels of risk and informality in these spaces (Turok & Budlender, 2017). Rains and Krishna (2020) show how neighbourhoods rarely develop from slum to non-slum areas in terms of physical characteristics. Most households experience limited upward mobility; over 10 years, 81% of the nearly 10,000 households they surveyed remained poor, and another 2% descended into poverty during that time.

However, just as slum settlements experience a broad range of deprivations and are far from a monolithic category, their level of informality and, thus, vulnerability to downward shocks, also varies substantially. While many slum residents lack city-based identity documents, employment in the formal economy, and secure property rights, not all slum residents experience informality on all three dimensions. Some slum homes have formal titles, and some residents have formal jobs and papers. Each additional experience of informality, the accretion of informality on each additional dimension, adds risk to the individual's life and makes her condition more volatile and precarious. If she can lose her job with no prior notice, precariousness is a substantial part of her life already; but if, in addition, her home is liable to instant demolition, the ever-present fear of impending loss can be crushing. Variations in informality produce different levels of risk and resilience to downward shocks.

In the rest of this article, we examine how informality and disconnections vary within and across cities, with implications for vulnerability. We compare slums in Patna to those in two larger and wealthier cities, showing first that slums in Patna experience particularly high levels of vulnerability and, then turning to an assessment of how the pandemic affected settlements in different cities.

The next section describes our data. We then provide additional background on Patna and the case of the coronavirus pandemic before presenting our analyses.

Data

Data for this article are drawn primarily from household surveys that one or more of us conducted in slum neighbourhoods starting in 2011 (Krishna, 2013). As part of this project, we surveyed 2,155 households in 43 assorted slums in Patna in 2016. To select the sample of neighbourhoods, we began with a list of slums provided by the Support Programme for Urban Reforms (SPUR), a partnership between the Government of Bihar and the UK Department for International Development (DFID). This list contained information on the location of each settlement as well as data on the quality of local infrastructure (durability of housing, access to sanitation and access to streetlights) in each neighbourhood. We randomly selected 40 slums, stratified by location in the city and infrastructure quality; to this, we added three more slums based on discussions with local partners, who provided the locations of newer settlements of varying conditions spread throughout the city (Rains et al., 2019).

For each selected neighbourhood, we conducted focus group surveys, asking about slum histories, available neighbourhood amenities, and an estimate of the number of households in the settlement. We then conducted household surveys. Based on the settlement size, we developed a sampling interval (i.e. every third, fourth, or fifth home), randomly selected a starting point and then followed a right-hand rule to sample either one-third of the households in the settlement (for smaller settlements) or 60 households (for settlements with more than 180 households). We alternated between surveying men and women to ensure our sample was roughly equally composed of men and women. The household surveys spanned topics including demographics, migration histories, livelihoods, tenure and work insecurity, monthly expenditures, policy priorities, political preferences and participation in neighbourhood activities. In addition to the quantitative data, we conducted qualitative interviews in 2016 with 78 local leaders from the neighbourhoods in Patna and 93 local leaders from the slums in Jaipur. We also obtained information available from government departments and municipal corporations.

To compare Patna to other cities, we draw on additional original surveys and focus group data that we collected from 4,544 households from 135 slums in Bengaluru and 2,718 households from 45 slums in Jaipur between 2015 and 2017. We followed similar sampling protocols and used nearly identical survey instruments in these cities (Rains et al., 2019).

In a follow-up data collection effort in 2020 designed to understand the impacts of the COVID-19 pandemic, we conducted repeated structured phone interviews with three key informants each from 20 settlements we previously surveyed in Patna and 20 more from Bengaluru that were selected to represent a wide range of slum living conditions (Downs-Tepper et al., 2021). We interviewed at least one area leader and two other key informants, including at least one female respondent,

who were broadly knowledgeable about neighbourhood occurrences. Overall, we conducted six rounds of structured interviews between July and November 2020. In Patna, we also followed up with detailed, open-ended interviews with a selection of 21 key respondents from nine different settlements. To collect additional information on the second wave of the pandemic, we purposively selected 10 settlements from both Patna and Bengaluru that again spanned the full range of living conditions in these city's slums. We then developed an interview protocol asking respondents to describe the impacts of the second wave and to compare their experiences between waves. The two trained investigators who had conducted the initial interviews carried out these interviews with two key informants from each of these selected 20 settlements during August and September 2021. Before presenting our analyses from the original data collected over a decade, we briefly introduce Patna and the challenge of the coronavirus pandemic.

Background: Patna and the Pandemic

Despite being India's most densely populated state, Bihar remains one of its least urbanized (Reserve Bank of India, 2021). Bihar's capital, Patna—home to approximately 2.4 million people as of 2020—is the only Tier 2 city in Bihar; the nearest Tier 1 city is Kolkata. Patna is India's nineteenth-largest city and has been growing at a pace equal to the 33rd percentile of growth rates for Indian cities (Figure 1). While Bihar has reported considerable recent improvements in economic growth and infrastructure development, with an average annual growth rate of 12.4% between 2004 and 2020, the net state domestic remains well below the national average.¹ Moreover, Bihar has a higher poverty rate than any other state (NITI Aayog, 2021) and recent declines in overall poverty, as well as urban poverty, have been smaller than in other states of India (Figure 2). Reflecting these trends, our data show slum residents in Patna are in general poorer than those in two other state capitals.

Poverty rates in India (and beyond) rose for the first time in decades as a result of the coronavirus pandemic that began in 2020 (World Bank, 2020). Around the world, governments implemented lockdowns to control the spread of the virus. For those working in the informal economy, with meagre savings, wages and benefits, the economic consequences were particularly severe. Many lost their jobs and incomes and were forced into debt, and many small businesses were destroyed beyond redemption (Nuwematsiko et al., 2022; Pongutta et al., 2021; Population Council, 2020; World Food Programme, 2021). The first Indian lockdown was one of the most stringent in the world (Sheng et al., 2022) and lasted for months. To cope with the loss of earnings, slum residents cut back on food, spent down their savings, borrowed food and money and liquidated assets, and sought help from the state. Well after the first lockdown ended, Indian slum residents continued to face widespread job losses and reduced wages, and interview respondents from 20 slums reported residents of their neighbourhoods were still cutting back on food in late 2021 (Downs-Tepper et al., 2021; Rains, 2022).

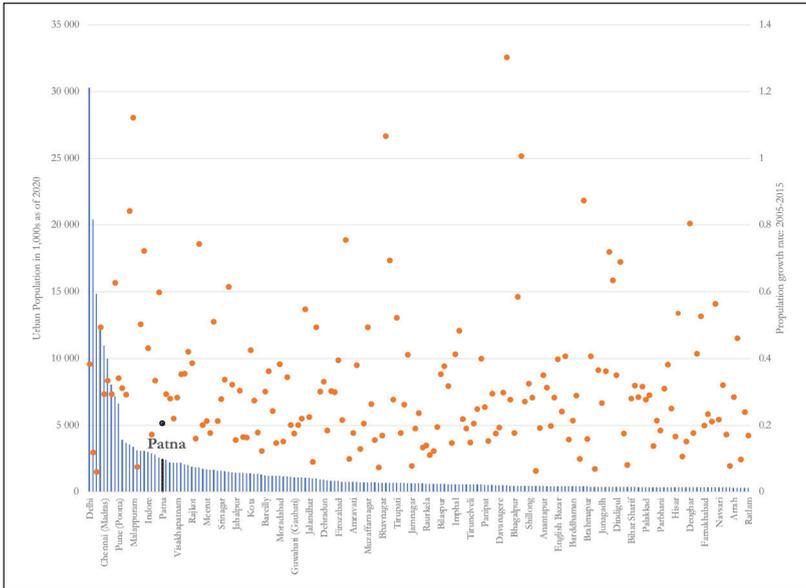


Figure 1. Population and Growth Rates of Indian Urban Agglomerations with 300,000 or More People as of 2018.

Source: World Urbanization Prospects: 2018 Revision.

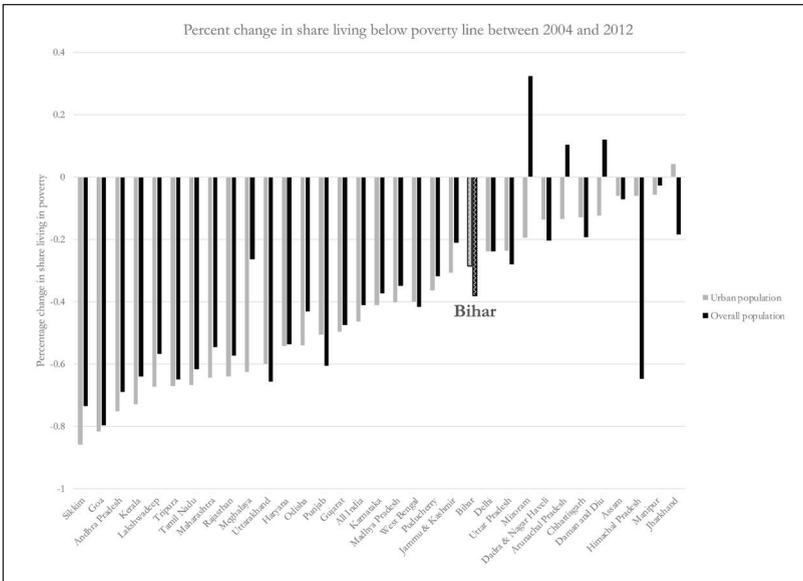


Figure 2. Change in Share of Urban and Overall Populations Living Below Poverty Line by State: 2004–2012.

Source: Author calculation based on data from the Reserve Bank of India 2021 Handbook of Statistics on Indian Economy: Table I51: Number and Percentage of Population Below Poverty Line.

Table 1. Key-Informant Reports of Pandemic Impacts and Coping Patterns: July Through November 2020.

	Module 1: Mid to late July	Module 2: Early to mid-August	Module 3: Mid to late August	Module 4: Early to mid- September	Module 5: Early to mid- October	Module 6: Early to mid- November
Share of pre-pandemic income not recovered						
Patna	71%	90%	85%	73%	58%	31%
Bengaluru	48%	40%	36%	27%	33%	23%
% of Neighbourhoods reporting at least 10% of residents...						
Liquidated assets over this period						
Patna	76%	85%	60%	40%	76%	85%
Bengaluru	10%	10%	10%	10%	10%	10%
Borrowed money over this period						
Patna	76%	70%	70%	65%	80%	85%
Bengaluru	60%	60%	60%	60%	100%	90%

Economically, slum residents in Patna fared worse than those in Karnataka's capital, Bengaluru (Downs-Tepper et al., 2021). As of April 2020—1 month into the first major wave and corresponding lockdown—no more than 50% of household heads in Bengaluru, but as many as 82% in Patna, had reportedly lost their primary sources of income. Well after the lockdowns ended, people experienced widespread job losses and wage cuts. Table 1 summarizes the high-frequency data we collected on the reported impacts in these two cities between July and November 2020. By mid-November 2020, key informants reported that between one-third and one-half of pre-pandemic income in Patna, and one-quarter in Bengaluru, had still not been recovered. Coping patterns also looked quite different. Slum residents in Patna responded to the first lockdown by cutting back on food and rushing to liquidate assets—signs of severe economic distress. By July 2020, key informants from three-quarters of our sample in Patna reported that at least 10% of the residents in their settlement had liquidated assets over the past 2 weeks. This figure stayed above 40% every fortnight between mid-July and mid-November 2020. In Bengaluru, residents' primary initial coping strategy was to increase borrowings rather than either cutting back on food or liquidating assets. Over this same period (July through November), only 10% of key informants reported significant levels of liquidation in their settlements. Rates of borrowing remained high in both cities over the same period.

Additional research is required to determine more directly the full set of reasons why Patna's slum residents, having started on average at lower levels, experienced sharper dips in income that lasted for longer periods compared to slum residents of Bengaluru. The next section presents our findings on living conditions before and during the pandemic in Patna's slums, compared with those in other cities. Factors that impinge additionally on informality (and thereby, upon the attendant vulnerability and insecurity) must be identified on priority.

Analyses: Structured by Informality

A Continuum of Living Conditions

Slum settlements experience a broad range of deprivations, spanning a wide-ranging continuum of incrementally improving physical and legal conditions. Degrees of informality varies between slums at different points of the continuum. Experiences of downward shocks, including the pandemic, are likely to reflect these diverse experiences.

Residents in settlements at the bottom of the continuum are particularly vulnerable: working in highly precarious occupations, living in shelters constructed from flimsy materials like mud and tarp, and lacking any legal rights to their homes or access to municipal infrastructure, such as drainage, water, or electricity, they are the most vulnerable to downturns (Krishna et al., 2014). At the other end of this continuum, slums are composed of sturdier homes, the residents are better and more reliably connected to basic services, they are more likely to have full (rather than partial or no) titles to their homes, and work in occupations that offer greater income security (Krishna et al., 2020; Rains et al., 2019).

To systematically rank differences in living conditions across settlements, we calculate a slum-level well-being score (Appendix). This score is a weighted index of seven indicators reflecting housing durability, overcrowding, access to safe water and sanitation, and availability of economic resources. Figure 3 plots the range of neighbourhood well-being scores in ascending order, illustrating how, within and across cities, slums vary substantially in wealth and infrastructure quality.

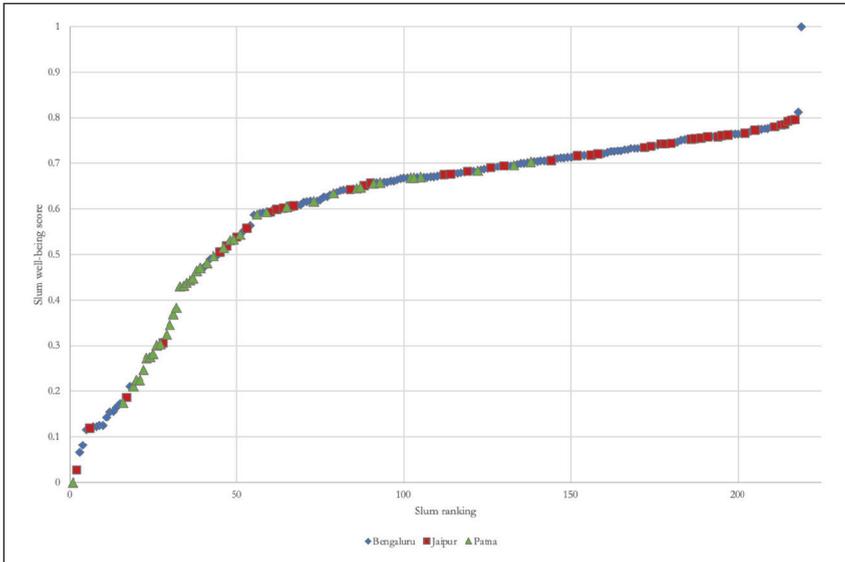


Figure 3. Slum Continuum Across Cities.

Rains et al. (2019) calculate the extent to which variation in living conditions along this continuum is attributable to differences within neighbourhoods, across neighbourhoods and cities. The largest share of variation in household conditions can be attributed to differences across slums, rather than within slums or across cities. In other words, we observe greater inequalities between slum neighbourhoods than between households within neighbourhoods, and we also observe a wider range of neighbourhood conditions within a given city than on average across each city.

To illustrate the substantive differences associated with different positions on this continuum, we describe conditions in two neighbourhoods within Patna. The least well-off slum in Patna, Bagri Basti,² is located between a busy road and a railroad track. Nearly 40 families live contiguously in 9' by 13' houses constructed from mud, posts and recycled banners. No one in Bagri Basti has been to school, and to earn enough to subsist, men, women and children beg and pick trash. There is no water, electricity, sewage or drainage in the settlement, and though residents live well below the poverty line, they lack ration cards. Without any local leaders in the area to assist them, they do not know who to or how to approach the state to request ration cards or other documents.

In contrast, East Madrampura is the most well-off slum in the sample. Nearly 60 years old, East Madrampura is comprised of 600 families that live in larger (12' by 20') *pakka* houses. Most houses are constructed from concrete (mould) and nearly one-quarter of the houses are multi-storey. Nearly two-thirds of the residents have household water connections and 92% have private toilets. Residents are also much better equipped with identification and other important documents: 93% have or have applied for a voter ID card, 67% have or have applied for a ration card, and 88% have or have applied for a unique ID card. In addition, residents name four different local leaders in the settlement who act as liaisons between the neighbourhood and local officials to help residents access services and other resources. Between the two poles represented by Bagri Basti and East Madrampura, living conditions improve incrementally across Patna's slum neighbourhoods. That such wide differences in living conditions can exist across neighbourhoods of the same city, all of which are characterized as slums, is worth bearing in mind while considering the effects of the pandemic on slum residents' situations.

Another key takeaway from Figure 3 is that, while there are slums in Jaipur and Bengaluru that are as deprived as those in Patna, slums in Patna tend to be clustered toward the bottom of this multi-city continuum. That is, the average slum in Patna is worse off than the one in Bengaluru or Jaipur. Their comparatively worse initial situations played in part in making the economic effects of the pandemic a great deal worse for slum residents in Patna compared to those in the other two cities. But that was not the only reason, as we argue later.

Limited Spatial and Social Mobility

In contrast to what is sometimes believed, a vast majority of slum dwellers are *not* recent migrants from rural areas. The category of itinerant migrants—those whose

Table 2. Overview of Slum Demographics.

Characteristic	Patna	Jaipur	Bengaluru
Migration status			
Proportion migrant	29%	41%	19%
Proportion born in the current neighbourhood	26%	25%	19%
Average years residing in the current home	22	21	18
Settlement characteristics			
Neighbourhood age (years)	74	62	54
Neighbourhood size (number of households)	247	604	667
Caste and religion			
Proportion SC/ST	55%	44%	48%
Proportion Muslim	9%	25%	19%

long treks home, often on foot, were highlighted in media reports toward the start of the pandemic—constitutes a different demographic from the category of slum residents. The realization that slum residents are fully dependent for their livelihoods upon income sources in the city, and cannot look to a village connection, even for a bag of grain, is necessary for understanding the constraints upon slum residents' coping strategies during the pandemic.

Rains and Krishna (2020) find that 73% of Indian slum households are native to their city of residence. Most (66%) families lived in the same home for multiple generations, which is a finding consistent evidence from other countries (Lilford et al., 2017; Perlman, 2006; Zulu et al., 2011). Our data show that only 29% of residents migrated to Patna from elsewhere (Table 2). Nearly half (48%) of the residents report that two or more previous generations of their family have lived in Patna, and residents have lived in their current homes for an average of 22 years. The average tenure among first-generation migrants, at 16 years, is not much lower, suggesting, once again, a great deal of fixity. In community focus group discussions, we also ask how many households have moved into and out of the settlement in the past 2 years. Out of the 43 settlements we surveyed in Patna, only three communities reported that at least five households had moved into their neighbourhood from outside of Patna in the past 2 years. Similarly, only four focus groups reported that at least five households had moved out of their settlement in the past 2 years. Two reported that these households left because they could not find sufficient work, one reported they left because their houses were damaged, and one because railway construction began (which they presumably left to work on). Overall, our evidence suggests that slum residents are largely not peripatetic.

Relatedly, and again in contrast to some popular beliefs, slums are not the sites of untrammelled upward mobility, taking in raw rural migrants at one end and turning out at the other end, an urban bourgeoisie. As studies show, most people in slums have been stuck in place, often for generations. The experience constantly of high levels of precariousness, the risk and uncertainty associated with persistent

informality, have a great deal to do with limiting upward mobility. The lives of people in slums are largely unchanging at different points on the slum continuum.

We calculate levels of upward (and downward) mobility in Patna slums using two measures. First, we calculate the stages-of-progress score—that is the number of assets or capabilities out of 10 the respondent is able to possess or achieve—at the time of the survey as well as 10 years prior to the survey (Krishna, 2010; Narayan et al., 2009). The average household in Patna reports being capable of achieving 3.8 of the 10 stages. This level corresponds to the ability to acquire food, shelter and primary education for children, but not yet being able to purchase a television. Most (94%) are considered poor according to this measure, which is higher than in slums in Bengaluru or Jaipur (Figure 4).

To provide evidence on mobility over 10 years, we compare the level that the household is capable of achieving at the time of the survey to the level the household reports they were capable of achieving 10 years prior to the survey. We find Patna's slum residents, in addition to being poorer on average, also experience less upward mobility than their counterparts in Jaipur and Bengaluru. While 60% of Patna's slum residents experienced some upward mobility based on the changes in their stages-of-progress score, the corresponding figure for Jaipur is 65% and for Bengaluru is 95%. Furthermore, 92% of Patna slum residents remained poor over this duration, compared with 70% in Jaipur, and 83% in Bengaluru.

We also examine a second measure of intergenerational mobility by comparing parent-child occupations (Rains & Krishna, 2020). The most common category of employment in Patna is in manual labour (44%); the second most common (31%) is in lower-status vocational occupations like working as a carpenter or butcher. Most slum residents across cities are employed in these two occupational categories (Figure 5). The majority of male slum residents (54%) in Patna work in the same occupational category as their fathers did before them, while 29% work in a higher-prestige occupational category than their fathers did.³ We observe larger intergenerational occupational gains in Jaipur (35%) and Bengaluru (44%). Overall, the evidence from this section reveals relatively high and persistent levels of low-income occupations in Patna's slums as well as lower average capabilities and asset possession.

These three features—the variation in the kind of slums; the rootedness of people in slums, with multiple generations typically living in the same slum; and the prospect, at once vivid, of the abyss of downward mobility, and blurry, of upward mobility—these contextual variables serve as a useful backdrop for examining the effects of the pandemic. Slum residents, to varying degrees, experience pervasive informalities and disconnections from urban institutions that thwart their ability to experience transformative gains and leave them susceptible to downward shocks. Yet, they are rooted in the city; few have any links with rural resources. The import of these findings, insofar as the pandemic and the subsequent economic recovery are concerned, has to do with the source and the extent of assistance, which has, in each case, to be generated within the city. But

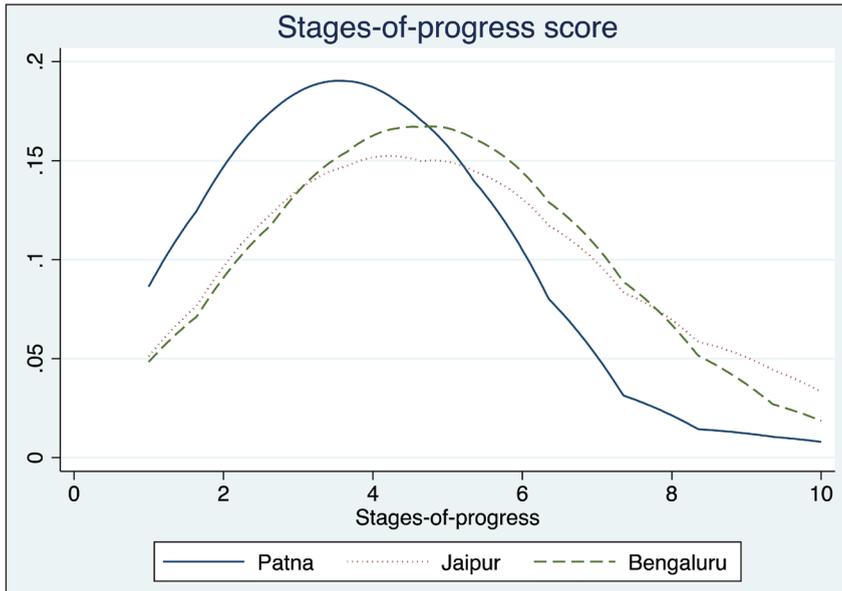


Figure 4. Distribution of Stages-of-Progress Scores by City.

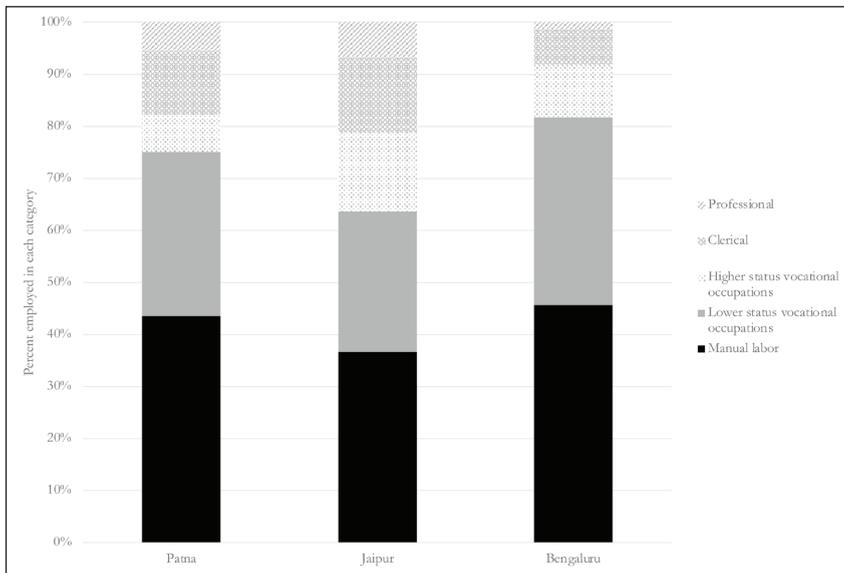


Figure 5. Occupational Categories Among Slum Residents by City.

who in the city steps up to help—whether it is the state or the city government or NGOs or whether neighbours' charity is the principal vector—and the extent to which this help is needed varies from city to city.

Additional Layers of Informality and Exclusion in Patna

We identify two factors that substantially enhance informality and a sense of alienation in Patna's slums, which likely contribute not only to our findings in the preceding subsections but also to understanding the particularly severe effects of the pandemic on Patna's slum residents. These factors have to do variously with aspects of state policy and features of community organization. Closer examinations are required for establishing the relative importance of each factor.

The first factor has to do with state policy. The degree of informality is heightened for the average slum dweller in Patna on account, first, of the near-complete absence of a property rights regime. Even a cursory examination of satellite images of Patna reveals vast tracts of slum-like conditions, but the Census of India nevertheless reports that less than 5% of Patna's residents live in slums (Bhan & Jana, 2013; Krishna, 2017). Informal estimates by scholars suggest that over 90% of Patna remains unplanned and up to two-thirds of the population resides in slums in these unplanned areas (Rodgers & Satija, 2012).

The official undercounting is part of a larger policy of non-recognition of slums in Patna, which are simply not 'recognized' by an official authority. Other cities and states have implemented policies that delineate a process for slum residents to petition for, and gain access to, legal rights to the land under their slum homes. Part of the process of granting land rights entails the grant of official recognition to the neighbourhood concerned. In Bengaluru, for example, a 'Slum Act' stipulates how slums gain recognition following which individuals are granted property rights.⁴ Though the actual process of acquiring property rights is heavily politically mediated (Krishna et al., 2020), the policy at least affords slum residents a viable goal to work toward. No such statutory Act or legal process has existed in Patna (or the rest of Bihar). A draft slum policy was proposed as late as 2011, which included provisions for the identification and listing of slums, exploring options for *in-situ* upgradation, and slum relocation,⁵ but to date, Bihar has not implemented any official slum policy.

The realization on a daily basis that their homes are—and will remain—illegal and liable to demolition severely erodes the Patna slum resident's basis of resilience. A slum leader we spoke to in September 2019 in Patna reported that:

Demolitions are happening all around. We have put all our earnings and constructed this [house]. If this gets demolished, where will we stay? If it gets demolished, where will we go? ... The government still wants people from here to be evicted... I have photographic evidence that I submitted to the Ministry of Rural Development to show that more than 10,000 people today haven't got anything but their houses have been demolished.

Overall, our survey data reveal higher reported rates of 'squatting', lower rates of possessing official housing documents, and greater perceived difficulty of liquidating homes in Patna (Figure 6).

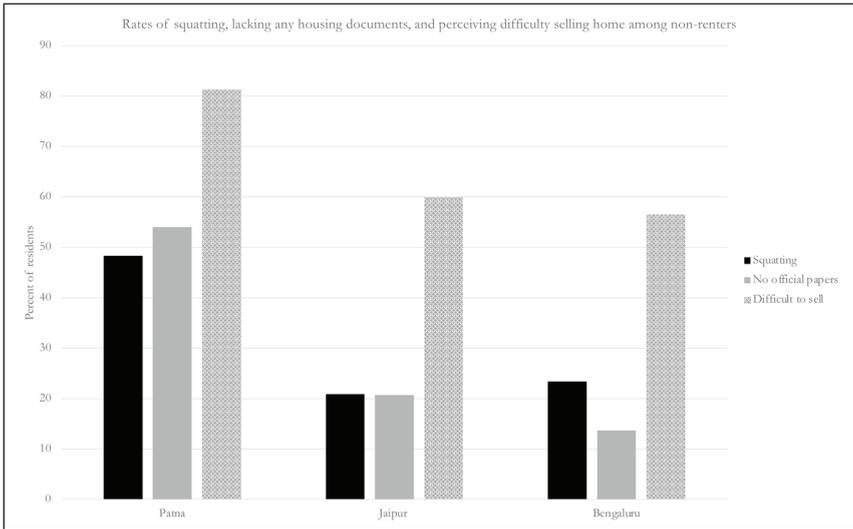


Figure 6. Property Rights by City.

These weaknesses in property rights render more uncertain the daily lives of slum residents in Patna more while making it difficult for them to avail themselves of government development assistance. Most government schemes related to housing require a land ownership certificate, which only a small fraction of slum dwellers possess—and much smaller yet in Patna compared to Jaipur or Bengaluru. Some settlers who received some form of a receipt from the city administration decades ago may have failed to preserve these records,⁶ while the vast majority never received any official papers. In such cases, financial aid available for the urban poor remains underutilized.⁷ These weaknesses also make evictions more likely. Of the 43 slums we surveyed in 2016, 11 (26%) had been partially or fully displaced as of January 2021. Residents of the remaining settlements express substantial concerns about security in their neighbourhoods.

A second factor, not unrelated to the first, that limits the relative resilience of Patna’s slum dwellers, arises from the more limited connections these slum residents have with diverse mediating institutions—such as political parties, community leaders, NGOs, or local officials—compared to slum residents in Bengaluru. Studies have shown how such mediating agencies play large parts in poor people’s lives in developing countries, helping them connect with otherwise inaccessible formal institutions (Auerbach, 2016; Krishna, 2011; Kruks-Wisner, 2018).

Mediating agencies of these types are palpably weaker among slum residents in Patna. Interviews with local leaders reveal that Patna’s leaders are less integrated into local political networks (Figure 7). About two-thirds of local leaders interviewed in Patna report they are associated with a political party, compared with over 80% in Jaipur. Our household survey data confirm not only that local leaders are less partisan in Patna than in the other cities considered, but also that

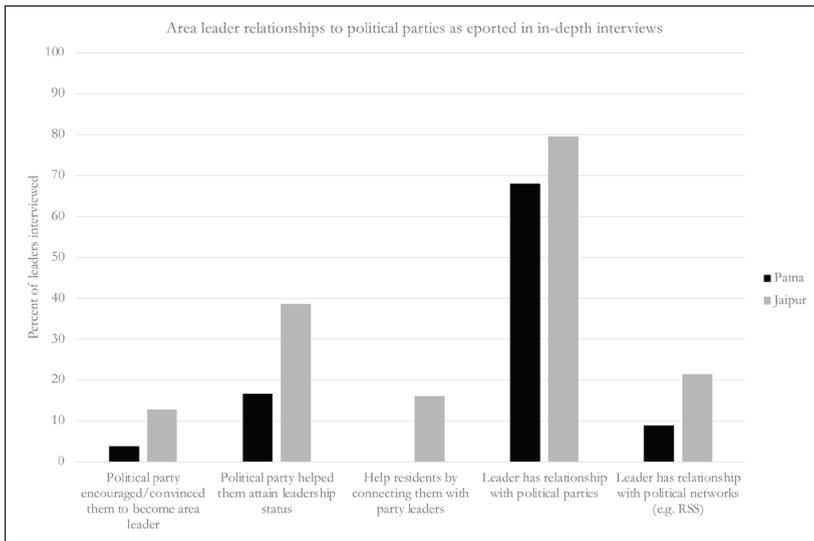


Figure 7. Linkages Between Local Leaders and Political Networks.

there are fewer neighbourhood leaders in Patna, and these leaders help individuals less frequently than in other cities.

One upshot of the lack of connections, and the inability, therefore, of slum dwellers to put pressure on state leaders, was observed during the pandemic. Government assistance was more frequent and generous in the slums of Bengaluru and less visible in the slums of Patna, where the generosity of neighbours played a larger part in keeping alive the most indigent slum residents during the fiercest parts of the pandemic.

Access to food rations was relatively high and stable in Bengaluru (residents from 80% to 90% of neighbourhoods reported they were consistently able to access rations), but this pattern appears quite different in Patna. In mid-July, residents from only 5% of neighbourhoods were accessing food rations from the government. While interview respondents in Bengaluru expressed sentiments such as, ‘During the first wave we were worried but the government supported us with rations’, respondents in Patna were more likely to express sentiments such as

People in this settlement have never expected anything from the government as we do not have much say to convince or ask the government to help us. Even during the last [wave] and this time, we wanted the government to help us but we did not get help.... (quoted in Rains, 2022)

Instead, we find neighbours provided the biggest source of assistance to Patna’s most vulnerable slum residents during the first wave of the pandemic. Seema Devi, 60, a physically disabled woman who lives alone in the Hasanpura slum, told us, ‘It was my neighbours who offered me food grains, vegetables, and a little money’, and Najma, 37, a mentally challenged woman who lives together with her two children in another Patna slum, added,

The community has always come forward to help the poor here... Since the death of my husband last year, the community has never let me feel alone. The *basti* people ensured my children and I take at least two meals a day throughout this pandemic.⁸

There is a limit, however, to how long poorer people can keep on providing such support, relying on little, if at all, on others less unfortunate than themselves.

The larger lesson is that informality and lack of connections can be mutually reinforcing, explaining why parties have underinvested in the slums of Patna. Because more people are informal and lack voter IDs and because the homes of a bigger majority are untitled and lacking permanence, parties find it less worthwhile to invest in developing vote banks among slum residents of Patna.

Conclusion—Inducing Formality

Slums are, by definition, zones of informality. Volatility is their normal condition. Informality engenders riskiness and foments uncertainty, and upward mobility is not only limited but fluctuations and reversals of small gains are not infrequent. There is, however, substantial variation in the level of informality within and across cities; *ceteris paribus*, a higher degree of informality goes together with greater precariousness and vulnerability. We expect some cities, particularly second- and third-tier cities, to experience greater informalities and disconnections, making slum residents in these cities particularly vulnerable to adverse shocks. In Patna, where we argue residents are particularly poor, face greater informality, and have weaker institutional connections than in the other cities we describe in this article, slum residents were particularly vulnerable to the economic consequences of the coronavirus pandemic. They lost larger parts of their incomes for longer periods compared to slum residents in Bengaluru.

How can a policy response help remedy these situations, inducing more economic buoyancy in the short to medium term and more resilience in the long term? We suggest that the path to addressing the concerns that beset slum residents is by getting to the root of what gives rise to these concerns—informality in its different guises. Informality is what produces the risks of falling into the abyss of poverty that persists. Introducing more buoyancy in slum residents' lives will require progressively reducing the degree of informality in different parts of their economic lives.

Toward this end, we have two suggestions. First, the slum policy has to be revised based on the recognition that large numbers of people have been living in slums for far longer than official data or rhetoric suggest and that these numbers are rising unabated. The process of slum recognition must be expedited, so the threat of eviction passes, even where individual titles may not be given immediately. These means will help anchor a more solid and stable lower-middle class rather than leaving people vulnerable to eviction and therefore less resilient against future calamities.

Second, stabilizing livelihoods is necessary which will involve making the conditions of working and earning a living less informal for slum residents. Less than 5% of residents in Patna's slums have formal jobs (with Employees' State Insurance, Provident Fund, or gratuity benefits). The conditions of employment

must be made more secure progressively, with workplace protections, old-age supports, health care benefits and tenure protection included incrementally. The lowered vulnerability resulting from these measures will also help anchor a more stable yeomanry in cities.

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Appendix

Calculating 'Slum Score'

We calculate a slum score by running principal components analysis on the indicators listed in the table below. Principal components analysis is used to reduce multiple indicators to a single score, essentially weighting each indicator by how well that indicator explains differences across observations. We use the predicted first component, which explains the majority of the variance in the data. For the five indicators measured at the household level, we first compute the average by slum. Households in slums with higher scores have sturdier roofs, better toilets, better water and drainage infrastructure, and more spacious and taller homes, and they hold more assets on average.

Condition	Indicators	Data Source	Calculation
Durability of housing	Roof type	Household surveys	Average score (tarp = 0, brick = 1, tin = 2, cement sheet = 3, concrete = 4)
Sufficient living space	Square footage per person	Household surveys	Median household area per capita. The median is taken across the neighbourhood rather than the mean to account for potential measurement error in the area.
	Building height	Household surveys	Average height (single storey = 1, double storey = 2, triple storey = 3)

(Continued)

(Continued)

Condition	Indicators	Data Source	Calculation
Access to safe water	Water source	Neighbourhood surveys	Average score of all water sources present in the neighbourhood (tanker = 0, borewell = 1, handpump = 2, private connections = 3). Data are not available on the proportion using each type of water.
Access to adequate sanitation	Toilet source	Household surveys	Average score (none = 0, shared public = 1, shared private = 2, private toilet = 3)
	Drainage type	Neighbourhood surveys	Weighted average of the proportion of the neighbourhood covered by each drain type (none = 0, open rough = 1, open sturdy = 2, closed = 3)
Availability of economic resources	Asset score	Household surveys	Average first component score from principal component analysis of 20 binary variables indicating whether or not the household owns that asset

Notes

1. Author calculation based on data from the Reserve Bank of India 2021 Handbook of Statistics on Indian Economy: Table 9: Per Capita Net State Domestic Product.
2. Names have been changed to preserve anonymity.
3. We do not consider mother and daughter differences because we expect the occupational schema we use may differ by gender. Developing an appropriate schema to measure female mobility is an important avenue for future research.
4. Section 3 (Chapter 2) of the Karnataka Slum Areas (Improvement and Clearance) Act ('Slum Act') of 1973 directs a local authority to manage the process of officially declaring a settlement as a slum, a process that ends with this declaration being notified in the official gazette. Notification is a precondition for accessing individual property titles.
5. Bihar Slum Policy draft, <http://www.ielrc.org/content/e1132.pdf>
6. Interview, May 2016.
7. Under the flagship programme for urban development, Jawaharlal Nehru National Urban Renewal Mission (JNNURM), Patna's administration was reportedly able to construct only 522 of the set target of 25,477 homes for the urban poor. See <https://timesofindia.indiatimes.com/city/patna/Unrest-over-renewal-mission-failure-inBihar/articleshow/26984191.cms>
8. Interview, December 2020.

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