Multiple shocks and slum household economies in South India

Barbara Harriss-White, Wendy Olsen, Penny Vera-Sanso and V. Suresh

Abstract

This research uses a fresh perspective to trace the impact of multiple economic, financial and environmental shocks on slum-dwellers in the South Indian city of Chennai from November 2008 to May 2009. It examines the effects of a concatenation of events scaled from the global to the local, consisting of economic shocks (speculation in financial, fuel and food markets) and extremes of rainfall and temperature, on a cross-section of the urban poor (differentiated by age and gender), taking in household dynamics and work status. The paper also traces the rapidity with which these shocks transfer from the global economy to slum settlements. The method involved twelve-month recall over three survey periods during the shocks and their aftermath, a comparison of emic and etic measures of economic well-being and the comparative use of mixed methods. This research is also the first application of qualitative comparative analysis to slum conditions.

Keywords: informal economy; ageing; gender; poverty; shocks and crisis; qualitative comparative analysis.

The geographer Mike Davis, extrapolating from current trends, has predicted that over the next generation 95 per cent of the ‘final build-out of humanity’ (2004, p. 6) will be located in the cities of developing countries, already

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pock-marked with sites, swathes and peripheries of the unregulated and poor-quality housing known as slums. Three-quarters of this ‘final’ urban revolution will be in slums. On a world scale, Davis finds that these settlements are unrelated to the capacities of specific cities to provide work. Rather they reflect the general failure of stable employment possibilities anywhere else, together with the state’s incapacity to supply secure titles to land, or housing, energy and water. He also finds many states unable to cope with solid and liquid urban waste. In all respects India conforms to Davis’ findings. Of the 377 million people thought to live in India’s 53 million-plus cities and 8,000 towns, 93 million are estimated to inhabit slums.\(^1\) These settlements are reckoned to be growing at 5 per cent per year — a factor 3.8 times greater than the population as a whole.

In India the concept of ‘slum’ is well-established in both technical and legal terms. Technically slums are residential sites with poor infrastructure.\(^2\) Legally ‘notified slums’, sites classified by state and local government as slums, have greater legal protection and provide greater access to state resources for people living in notified slums than for those in un-notified slums.\(^3\) Slums are sites of poverty, yet they are also marked by inequality and differentiated economic and social status. And, while higher concentrations of Dalit and ‘Most Backward Classes’ (MBC) people\(^4\) may be found in slums than in other areas, slums are not exclusively made up of these lower castes, nor are urban Dalits and MBCs to be found exclusively in slums. Economically productive work takes place in slums, some of which is integrated into local, national and even international markets. Slum-dwellers also work away from slum sites. So, while slum household economy is a meaningful concept, there is no such thing as a slum economy. Now that India’s formal economy has become linked to the global economy through liberalization and deregulation it has also harnessed the informal, unregistered economy to global markets, ensuring in the process that risks are transferred downwards and profits upwards (Harriss-White, 2009). Slum-dwellers are left among the most vulnerable and least rewarded producers in the bloated underbelly of the global economy. Far from being marginal, the key feature of slum populations is their marginalization from the fruits of their labour.

This paper explores the impact of the financial crisis on slum-dwelling people, but, unlike other studies of financial crises, it explores this impact within a real-world framework that includes other coinciding, interconnected and interlocking shocks: in this case environmental shocks and instabilities in global oil and food markets.

In the literature on Indian slums two aspects of the household economy have been strikingly absent. The first is the role of interlocking shocks and crises which may trigger downward mobility and reinforce marginalization. The second is the economic contribution of ageing slum-dwellers. In the research reported here, we combine the two, relating a series of shocks, on the one hand, to the life worlds of impoverished workers, of slum-dwellers and of ageing citizens, on the other. Our findings from mixed methods in field-work are
more nuanced than most quantitatively based economic studies. Before we develop our general themes in this paper, we start by introducing the specific context of the field research project which developed from 2007 to 2010. We then introduce the repertoire of shocks that hit the Chennai slums and the new analytical methods we used to trace their effects on individuals and households.

Introduction: the city, its slums and the ‘accumulated disadvantage’ of their workers

With a population of 72.1 million, Tamil Nadu is the sixth largest state in India. According to the 2011 census, the proportion of its urban population to the total is 48 per cent (significantly higher than the national Indian urban average of 31 per cent). This urban population is spread across six main cities, with Chennai’s official population, at 4.7 million, accounting for 13.5 per cent of the state’s urban total. The Chennai Metropolitan Area, comprising the 8.9 million people living in the city and its extensive suburbs (Government of India, 2011), is not only the fourth largest metropolitan agglomeration in India but also one of the fastest-growing metropolitan economies. This is due in considerable measure to its skilled manpower, its FDI-friendly environment and the flourishing information technology/information technology enabled services (IT/ITES)-related industry in the city and its hinterland.

Chennai may be FDI-friendly, but, it is also one of the most densely populated cities in India. With 26,903 persons per sq. km as against Tamil Nadu’s overall population density of 555, Chennai city is by far the most densely populated district, a differential maintained over three decades. From 2001 to 2011 Chennai city’s density grew by some 7.7 per cent – due mainly to migration from inside and outside Tamil Nadu. As a result of migration and as the by-product of prestigious growth, Chennai has India’s fourth largest population of slum-dwellers, representing at least 26 per cent of Chennai’s population, with an average household size of 4.5 members (Chandramouli, 2003). Compared with non-slum areas, slums have higher concentrations of people who are constrained by a reinforcing set of deprivations including low caste, less education, insecure work, limited economic resources, unenforceable rights, low and irregular incomes and malnutrition and other health deficits. These result is what is glossed here as ‘poverty’, involving heightened vulnerability that in turn exposes people to deeper deprivation. While the best-researched vulnerability is to ill-health (Kabir et al., 2000; Pryer, 2003) others are policy-induced. In particular, the city’s beautification, slum clearance and road building schemes raise land values in beautified tracts and lead to the extrusion of inner-city slum-dwellers to the suburbs, in a process of cleansing the city of the urban poor that is now widespread in all of India’s largest and densest cities.5

Chennai’s slums are of long standing, many founded by migrants in the 1940s on what was unused public or private land that was low-lying and
flood-prone. With rising densities, the shortage of affordable housing and the lack of opportunities elsewhere, city slum-land and property have long been informally privatized and commercialized. The resulting physical and economic pressures on slum-dwellers have major impacts on everyone’s life but in particular they disadvantage ageing workers. In mixed-methods research undertaken by Vera-Sanso and Suresh between 2007 and 2010 in a randomly sampled Chennai slum population of 800 households (containing 3,474 people) in five slums and from the monitoring of a busy central Chennai market for 30 months – and drawing on the theoretical ideas of Dannefer (2003) – Vera-Sanso (2010) identified these pressures and developed a theory of the accumulation of disadvantage over a lifetime’s exposure to them. Among the most important pressures generating progressive disadvantage are:

- lack of rights to work, at work and employers’ obstruction of labour organization;
- changes in the structure of the urban economy in which slum-dwellers’ labour is displaced and demand for their skills evaporates;
- changes in slum land values (which rise) and urban land use (malls, offices and new gated residential complexes);
- removal of street markets by local government;
- relocation of housing to sites from which previous work is inaccessible;
- wage goods inflation;
- the privatization of basic needs and essential infrastructure (further increasing household budgets);
- growing credentialism in labour markets (replacing recruitment by affinity or by ascribed status through raising the minimum standards for labour market entry by slum children – and thus raising the cost of their education and socialization to work);
- absence of entitlement to social security provision for maternity, sickness or unemployment;
- thresholds for pensions entitlement which exceed life expectation; restrictive eligibility; access procedures which exclude the poorest and weakest; stingy provision and rationed pension allocations.

Not only do these factors threaten self-provisioning by ageing workers, they threaten filial support as well because of the accumulation of disadvantage in the next generation. India’s inadequate old age support has a disproportionate impact on women because women outlive men. For the slum population of people aged over 50 there are 1.5 times as many women as there are men in the sample (see also IIPS, 2008). Throughout the life course, gender discrimination (in property relations, in several dimensions of human development, in wages and returns from self-employment) leaves older women relatively more deprived of resources than ageing men (Vera-Sanso, 2012). Field research shows that almost half the male slum-dwellers aged 75–9 in Chennai had younger working wives (Vera-Sanso, 2010). Not only are women saddled with a
double burden of subsistence and household reproductive work but, as they grow older, they also tend to become the primary earner while their deprivation deepens with advancing age. With India’s large and rapidly increasing over-60 population, the question of the impact of shocks on ageing people is timely.\footnote{7}

**Threats, shocks and the slum household economy**

Over and above the relations resulting in the accumulation of disadvantage among ageing workers, among which episodes of ill health or the onset of incapacitating disability are generally found to be the most economically damaging (Erb & Harriss-White, 2003), the household economies of slums have recently been hit by a series of severe economic and environmental hazards. Without income-smoothing safety nets from social security or savings, household reactions to a shock will incur both direct costs and opportunity costs – the latter being the income forgone while crippled by an unexpected event and the terms and conditions of a bailing-out loan, a debt that would otherwise not need to be contracted. Several trajectories are possible. A shock may initiate downward mobility. Or it may generate a crisis – a turning point – after which the household recovers, in which case poverty may be transitory. Alternatively, the hysteresis effect of a shock may knock the household permanently off-course into poverty quagmires. Our understanding of shocks developed as the research progressed in the Chennai slums. It is laid out here in the sequence of discovery.

**The global financial crisis and impact on informal/slum household economy** The 2008 crisis in global finance was a shock to mainstream economics, which had famously not predicted it.\footnote{8} Nor was there any theory about its impact on the informal non-state-regulated economy or the household economy of slum-dwellers. The late Peter Gowan’s (2009) political economy explanation for the financial crisis is a useful backcloth to a summary of what is known about its impact on India’s informal economy. Gowan situates the most destructive speculative bubble – US housing – as part of a regular series of bubbles necessary to the new Wall Street-based financial system. This is dominated by an oligopoly of banks and their satellites which have been permitted to speculate on future assets and collateralized debts. It is this integrated structure which collapsed in 2007–8, immediately paralysing lending and debt-fed consumption alike.\footnote{9}

While, the impact on India’s formal economy was felt immediately by the financial system, only a few Indian banks were directly exposed. Even so, it suffered rapidly from atrophy in lending, outflows from the stock market and shrunken flows of remittances (ADB, 2009).\footnote{10}

The major impact in India, however, was felt in the real economy where oil and food price instabilities in the formal, registered sectors had already generated inflation, and slowed corporate investment, with a destructive
impact on growth. The Planning Commission’s predicted 9–11 per cent growth rate for 2008–9 was reduced to 6.7 per cent. It was just 6 per cent in 2011.11 The demand for exports declined during 2009 and India’s IT exports, already under pressure in 2008, were expected to be badly hit (UNCTAD, 2009, p. 19). The manufacturing growth rate halved from November 2007 to 2008 (Government of India, 2009). Lack of export credit hit the smallest export firms disproportionately while the volatility of currency markets hit imported components. India’s exports are relatively labour-intensive (Sardar, 2008) – textiles, handloom garments, leather, gems and jewellery, metal-ware, carpets, agricultural products (spices, basmati rice and sea-food) together with IT and back-office processing services. In fact the main impact of the fall in demand for India’s exports has been shown to be on employment, with even small declines in exports leading to hundreds of thousands of lost jobs (UNCTAD, 2009, p. 39). Most livelihoods in the affected sectors are in the informal economy.

By December 2008, 100,000 jobs were known to have been lost in the diamond industry in Surat and 750,000 in power-loom weaving (Alagh, 2008). A survey of 11 states in October–December 2008 recorded significant drops in capacity in the automobile, metals and export industries with about 500,000 job losses in the automobile, transport and gem/jewellery sectors. The rate of job losses in the informal sector was estimated to be six times greater than in the formal sector (Government of India, 2009). Women in the Informal Economy Globalising and Organising (WIEGO)’s responsive research in 14 urban locations in 10 countries across Africa, Asia and Latin America, including India, during 2009 showed a rapid and dramatic drop in demand and prices for recyclable waste from the informal economy – metals, cloth, plastics and glass – more insecurity in contracts, greater delays in payment in informal textiles and garments production and reductions in days worked and wage rates in the construction industry (WIEGO, 2009).12

It follows from this that the informal economy in Chennai’s slums was threatened by the Wall Street crisis through four pathways. First, a shortage of formal business credit has a negative multiplier effect on informal credit and hampers informal transactions and inventory holding. A credit shortage also raised real informal interest rates.13

Second, price rises resulting from the continuing volatility in currency markets affect urban consumers through the rising costs of imported goods. Demand would then shift towards local substitutes. As the field research progressed, however, it was apparent that not all price hikes that battered the slum-dwellers related directly to the global crisis. Back in the domestic economy, food prices – basic to all budgets – were spiking. Exposure to volatile international prices, mediocre to stagnant performance in food and agricultural production (except in a few northern states) and constraints imposed by the central government on the operation of the Public Distribution System had combined to shove a widening wedge between farm–gate wholesale prices and destination wholesale prices and also between the latter and retail prices. Food price inflation has not returned to the status quo before the global speculative
price spike in 2007–8. Nor are food prices stable. Food price inflation was at 17.5 per cent in the year between November 2008 and November 2009 and the wholesale price index rose at 17.9 per cent between February 2009 and February 2010, remaining almost as high until the end of 2011. There are four food zones in India. Chennai is in the southern zone. Here the average retail price of rice shot up by 69 per cent in the two years to January 2010. That for wheat/atta increased by 13 per cent; that for sugar by 109 per cent (Ghosh & Chandrasekhar, 2010). While the price of rice distributed through the Public Distribution System (PDS) had been promptly reduced to Rs 1 per kg by the state in October 2008, given the rapid and pervasive nature of entitlement shortfalls, slum-dwellers’ budgets were squeezed by the costs of food purchased outside their PDS rations.

The third pathway is that of the indirect employment multiplier. A reduction in activity in the construction industry, IT-related services and other exports affects the hourly and weekly earnings of wage workers such as kualies (those working on casual arrangements as labourers) as well as service providers. Most cities in India had a rapid downturn in construction investment in 2008–9, leading to a reduction in new investment, a slowing of development and negative multipliers in transport. The closure of big building sites in Chennai itself also resulted in workers from local sites crowding into the even more insecure, intermittent lower reaches of the construction industry.

By early 2009, field research in Chennai slums had revealed that the negative multiplier of the decline in exports not only reduced demand and finance for construction, it also reduced demand for auto-transport and domestic services, street vending, laundry and ready-made food supplies. In order to try to increase household incomes, households dependent on unskilled wage labour put more people into the labour market, seeing such responses as a measure of their own downward trajectories.

Fourth, given changes to the second and third pathways, families with high consumer-worker ratios and a larger proportion of people in middle age and older may face rising entry barriers to work which take both old forms (age) and new forms (school diplomas being required) (Vera-Sanso, forthcoming). This was particularly the case for skilled and semi-skilled construction work and cleaning and other low-skilled work in supermarkets and shopping malls.

Environmental shocks and their impact on the informal economy and slums Other shocks were weather related. Whether these are accurately conceptualized as ‘shocks’ when they happen fairly regularly may be debated; the point is that their impacts are unavoidable, they are severe, they increase daily costs of survival for, and reduce the incomes of, most slum households and can result in asset loss and increased debt. We discuss them here under temperature and rainfall.

In South India, high temperature (especially when combined with humidity) grinds outside activity to a virtual halt. The reduction in consumer demand and capacity to work – even for auto-rickshaw drivers with inadequate
insulation from the glare and heat—affects livelihoods, reducing the incomes of those depending on outside work. The exceptions are sales of water, fruit juice and water-laden fruit such as melon and mango, whose off-season is in the cooler months. While 2008–9 did not have higher monthly maximum temperatures or lower minima than other years in the preceding decade, maximum mean monthly temperatures have risen steadily over the period 2005–9 from 28.8 degrees to 31. April and May are inexorably hot: 18 May 2008’s average exceeded 42 with humidity above 58 per cent and 18 April 2009’s average exceeded 39 degrees at over 69 per cent humidity. These are severe weather conditions for human beings.

Rainfall threatens non-agricultural urban livelihoods and domestic economies directly and indirectly through quantity and distribution. Low rainfall affects dry season water tables and triggers food price inflation due, first, to speculation on anticipated harvest shortfalls and, then, to rises on actual shortfalls. Mal-distributed rainfall leads to flooding not only from overflowing rivers in spate but also from clogged drains, collapsed culverts and burst sewage mains. Chennai’s drainage is built on the colonial pattern, using natural gradients. But, these gradients have been disturbed with the re-laying of roads. New drains have been put in badly, impeding drainage. While the rainfall for 2008–9—at 1181 mm—was the second lowest in the previous decade, Chennai slums fell prey to the outer tendrils of cyclone Nargis in May 2008 (which devastated the south of Myanmar) and much more severely to the clutches of cyclone Nisha in November–December 2008. Some people in slums lost their homes; others had to stay with relatives in cramped quarters for long periods; for yet others it was impossible to leave home. Income was threatened. Damage needed repair, ruined possessions and tools needed replacement, sickness added to costs. ‘Demand’—in fact need—for cash doles and relief packages was such that they had to be rationed by the Tamil Nadu government. In such ways, many of the urban poor are trapped in seasonal cycles of extreme events and environmental insults which lower incomes and assets and raise costs and debts.

On discovering that the domestic economy of slum households had been affected by all the insults discussed above, that is, contraction of credit, slumps in demand, food and fuel price hikes and extreme weather conditions, and that these households were arguably less able than other classes to mitigate their consequences, it was clear that attempts to disentangle these shocks and their dynamics in order to make detailed cause-effect analyses of every pathway would be theoretically to miss their cumulative and interactive quality and practically to be impossible. In etic, cause-effect terms, the set of shocks constitute a series of multiple causes with multiple effects. In emic terms of historical experience, these shocks and the relationships they disturb were experienced as a concatenation process. What follows here then is an analysis of the impacts of these combined environmental and economic insults.
Survey methods, evidence and initial results

While other contributions to this collection examine specific industries and sectors (see Parry, Bear, this volume) our research explores the impacts of varied shocks from November 2007 to May 2009 on Chennai’s slum-dwellers and their livelihoods. Five slums had been chosen, two of 50 years standing and previously researched by Vera-Sanso together with two founded in the 1940s in the old centre of Chennai and one comparatively recent slum abutting the new IT corridor on the periphery. The economic crisis hit India after we had spent a year in these slums completing an 800-household face-to-face survey and were undertaking multiple in-depth interviews with 179 households. A subset of the 179 households was identified for three further rounds of longitudinal surveys covering an eighteen-month period spanning November 2007 to May 2009. In face-to-face surveys, respondents were asked to compare their economic circumstances in November 2008 with those in November 2007, January 2009 with January 2008 and so on. We gathered evidence for two ‘ways of knowing’ about the experience and impact of the set of shocks. Not only were detailed economic data on income, assets, savings, debts and budgets collected, which form the raw material for orthodox economic analysis of poverty trajectories and vulnerabilities (Erb & Harriss-White, 2003; Hyat, 2001), but informants’ own experiences of improvement, deterioration or stasis in their ‘economic conditions’ were also elicited along with the criteria they used for their evaluations and their own narratives of the causes of their trajectories. Certain respondents also wanted to discuss the changes between one round of survey and the next. This ‘point to point’ comparison along with informants’ explanation for change, or its lack, helped to overcome the ‘noise’ of seasonal, weather- and festival-related variations in their work and household economy. It enabled the impact of unusual seasonal and economic variations to be revealed. Further, the self-assessment provided insight into people’s economic circumstances that metric methods could not achieve.

‘Economic circumstances’ is a well-understood concept involving the balance between assets, income and savings on the one hand and liabilities and expenditure on the other; narratives about economic circumstances revealed that, even in those households where income had not fallen and spending on food appeared to be unchanged, people met price hikes by cutting out vegetables and many protein sources and dropping a meal — leaving some eating once a day.

To explore how the impact of shocks on livelihoods translated into household experiences of shock, each household was allocated to a work status group and an industrial sector according to their main economic base — understood by respondents either as the source of the largest income or as the longest-standing source of income in households where recent entry of a new worker, though paid a higher wage, has not had time to affect the household’s overall economic status. The data represent a purposive sample
drawn to reflect the main economic activities and household structures found in the larger study – as well as a spread of adults by age and gender.

Leading the sample choice was work status and occupation. Self-employment and wage work are conflated by some labour economists and in many work-related official statistics in such a way that the slums in question would be glossed as sites of poorly employed and under-employed workers – self-employed workers being theorized as ‘disguised wage labour’ (Banaji, 1977) and legislated for quite openly as wage labour (Sankaran, 2008). But there are sufficient theoretical and practical differences between the two forms of work to differentiate them as work status groups. While wage workers are exploited on labour markets, self-employed people may operate according to a logic of super-exploitation (in which they gain less per unit of time than wage workers) and in addition may be exploited on four (non-labour) markets – those for property, raw materials, money and finished products. Embodying both capital and labour, they expand by multiplication rather than accumulation (Harriss-White, 2009, 2012).

Forty-one ‘business’ individuals were chosen. These people saw themselves as self-employed, as not working for others but for themselves and owning or hiring the means of production from which their predominant personal earnings were obtained. They included, for example, snack-makers and sellers, fish sellers, broom sellers, labour contractors, auto-drivers and cycle rickshaw pullers who owned or rented their vehicles. Eighty-two ‘worker’ individuals were chosen, self-identified as workers who labour for those who own the means of production. These included salaried, casual and piece-rate workers in sectors such as domestic work, security guarding, construction work, lorry driving and call centre work. A few worked in the lower rungs of the formal economy, others were paid regular wages in the informal economy and yet others toiled on piece rates or for daily wages. The sub-sample choice also reflected the main occupations in the slums we studied, which in turn reflect both the age- and gender-segregated nature of work in Chennai and the site-specific, localized opportunities for work. When the work status label was applied to the individual respondent it was not measured using the occupations or assets of the rest of the household.

From the resulting 123 individuals, 91 had surveys that were complete over all three time-periods surveyed, comprising 17 business individuals and 74 worker individuals in 58 households. The adults and households had already been intensively studied by the field research team covering the large face-to-face household survey together with a year of qualitative research.

Slum household economy in Chennai

While a household is a residential unit, a unit of reproduction and a unit of commensality, it may be provisioned – and its assets may be controlled – in
many ways (Vera-Sanso, 1994, 1997). Individual household members may have
their own separate assets and their individual (seasonal) portfolios of
production and services; they may trade on their own account together with
wage working for others.26 Even wage workers may possess work-related assets
and bear work-specific costs. A household’s economy will then not be the
pooled aggregate of the assets and net incomes of its economically active
individuals – which is how the concept of a household is generally understood
by economists. There may indeed be a pooled set of assets and incomes but not
all assets and income will be pooled. Some people’s incomes (women’s,
particularly that of unmarried daughters) are more likely to be completely
pooled than others. The only occupation that will be fed directly into the
household economy is the housewife’s efforts (paid or not) to meet immediate
food consumption needs. So no household head – indeed no household
member – necessarily knows the assets, debts and net incomes of all
economically active household members. For this reason our research gathered
detailed data on the household economy from the household head or spouse
and from individual workers and self-employed/business owners and did so
without others present. It was possible to ascertain the veracity of the
responses both by our knowledge of the families due to the recursive
methodology of the larger study over the prior year of field-work and by
comparison with other informants’ responses.27

We examined the change in the economic circumstances of individual
workers and self-employed (reported by themselves) and of households
 reported by their lead representatives) by asking for recall for the same
period 12 months prior to each of three reference periods.28 A range of
economic and social attributes and experiences were collected both for
households and for individuals (listed in detail in Olsen et al., 2010). And all
respondents were asked to evaluate whether for each reference period their
economic circumstances had gone up, gone down or stayed the same by
comparison with the period twelve months earlier, on what they based their
evaluation and to what cause they attributed any change. The last two were
open questions to ensure that we included the summative indicator used by our
respondents. Since the sample was not chosen at random we avoid using
significance tests that assume randomness. All methods chosen for this analysis
are appropriate to non-random small samples.

Slums are containers of marginalized people but the equation of slums with
homogeneous sinks of poverty and/or of dominant processes of margin-
alization (whether as the ‘reserve army’ (Altvater, 1993) or the ‘needs’ or
’subsistence’ economy (Sanyal, 2007)) deserves interrogation. Our research
cannot avoid assessing the impact of shocks against the backcloth of existing
differentiation in slum households that are part of the global capitalist
workforce. While the average household income within the slums (Rs 6300/
$128 per month) was similar across all sectors other dimensions of inequality
involve inter-sectoral differences (see Table 1). Over the 2008–9 period,
households where income was mainly derived from trading and retail had
household assets on average 2.5 times greater in rupee value than those in the manufacturing sector. Between 80 and 90 per cent of assets were held in the form of property, including business-related assets, the remainder being small amounts of jewels, gold and consumer durables.

Table 2 shows assets inequality far exceeding income inequality. Across the slum household sample, the Gini coefficient of inequality of assets is 0.59 contrasted with 0.37 for monthly income. Within the sectors there is least asset inequality in trading and retailing, most in services; least income inequality in manufacturing, most in trading and retail.

Inequality is not a matter of income alone, it is also a matter of relationship to the means of production – or class. Slum residents work on their own account or for wages from others. However, as we argued earlier, self-employment is a different category, not insofar as assets are required for it – for many wage workers are forced to own a hod, a head-loading basket, a pickaxe or a hoe and, increasingly, in urban areas a mobile phone in order to secure casual work and to manage workloads across a number of employers, as

Table 1 Averaged levels of assets and income 2008–9 (rupees) – work status and industry sector

<table>
<thead>
<tr>
<th>Work status groups</th>
<th>Household income (Rs/month)</th>
<th>Assets (Rs)</th>
<th>Total number of households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wage worker</td>
<td>5,950</td>
<td>300K</td>
<td>49</td>
</tr>
<tr>
<td>Self-employed</td>
<td>8,130</td>
<td>380K</td>
<td>9</td>
</tr>
<tr>
<td>Industry sector</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trading &amp; retail</td>
<td>6,130</td>
<td>519K</td>
<td>3</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>6,550</td>
<td>202K</td>
<td>15</td>
</tr>
<tr>
<td>Services</td>
<td>6,200</td>
<td>236K</td>
<td>40</td>
</tr>
<tr>
<td>Overall</td>
<td>6,290</td>
<td>301K</td>
<td>58 households</td>
</tr>
</tbody>
</table>

Note
November 2008–May 2009 exchange rate $1 = Rs 49 (average household incomes ranged from $121 to $166 per month and average assets ranged from $4,122 to $10,591). Assets included the value and number of 21 different consumer goods including mobile phones and bicycles, plus the value of rural and urban land and houses, as reported by one respondent on behalf of the whole household.

Table 2 Inequality measures for slum dwellers 2008–9

<table>
<thead>
<tr>
<th></th>
<th>GINI among trading &amp; retail</th>
<th>GINI among manuf.</th>
<th>GINI among services</th>
<th>Overall GINI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total assets</td>
<td>.26</td>
<td>.54</td>
<td>.60</td>
<td>.59</td>
</tr>
<tr>
<td>Monthly income 2008–9</td>
<td>.41</td>
<td>.29</td>
<td>.39</td>
<td>.37</td>
</tr>
</tbody>
</table>
happens for domestic workers, office cleaners and construction workers. Rather, the difference lies in self-employment's embodiment of both capital and labour in a single minute enterprise – operating according to the distinctive logic of self-exploitation (Harris-White, 2009). However, in being vulnerable to self-exploitation the self-employed may also be more resilient than wage workers in relation to shocks such as those which occurred in 2008–9. Table 1 reveals that income is not evenly distributed between the two work status groups. While average household assets were 25 per cent higher for households where the head of household was self-employed than for those with the household head in wage work, average monthly income (which was quite similar across the sectors of the economy) was 33 per cent higher for self-employed people.

Slum households are often characterized as having multiple and diverse sources of income and this is particularly so in contexts where formal-sector employment has been comparatively widely available, as in Latin America (e.g. de la Rocha, 2007); however, in a country such as India where at least 86 per cent of people work in the informal economy (NCEUS, 2009) and where occupation is still strongly stratified by caste, religion and regional origin (Harriss-White, 2003) as well as gender and age (Vera-Sanso, 2012, forthcoming), diverse livelihood combinations were not common and tended to be found only in the very largest households. It was therefore not possible to test for the impact of diversity in livelihoods on the change in economic circumstances – or vice versa.

Savings can represent a cushion against the costs of shocks. Figure 1 summarizes information about household savings, debt and income. The savings that were covered in our survey were provident funds (usually linked to life insurance), chit funds (i.e. rotating informal savings, of which only some are formalized under the law for cooperative banks), bank savings, post office savings funds, sangams, i.e. unions such as trade associations or women's groups. Jewellery was not considered under the heading of savings. The quantities saved varied but averaged Rs 3600 ($73), comparing adversely with average debts of Rs 15,000 ($306) per household. Table 3 not only shows the exiguity of savings in relation to debt, it shows that in all industry sectors the minority of households which saved continued to save during the period of economic and environmental shocks. Locked into a pattern of monthly cash saving intended to cope with shocks like sickness or death or to redeem pawned valuables, families reduce food consumption in order to protect existing savings in chit funds and self help groups. Yet the overall picture of poverty remains: 74 per cent of households had no savings at all.

By contrast, in trading and retailing households, which had the highest average level of assets, debts to various sources equal the amount of annual income. The stock of debts is double the annual income in manufacturing households and three times as high as income in the households in services. Formal credit is available to many households in informal settlements through housing loans, but informal credit is also widely available either as a
complement to or substitute for formal credit. Credit included informal loans, bank loans, chit fund loans and self-help group loans. Thus the savings recorded here tended towards formal savings vehicles while the credit included both formal and informal loans.

Table 3 Household savings and debt*

<table>
<thead>
<tr>
<th>Work status groups</th>
<th>Mean bank savings</th>
<th>Mean total savings**</th>
<th>Mean debt (Rs)</th>
<th>% with rising overall savings (periods 1–3)</th>
<th>Total number of households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wage workers</td>
<td>Rs 461</td>
<td>Rs 4392</td>
<td>15,832</td>
<td>27</td>
<td>48</td>
</tr>
<tr>
<td>Self-employed</td>
<td>Rs 167</td>
<td>Rs 1797</td>
<td>32,383</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Industry sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade and retail</td>
<td>Nil</td>
<td>Rs 4133</td>
<td>6,066</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>Rs 963</td>
<td>Rs 7369</td>
<td>23,427</td>
<td>33</td>
<td>18</td>
</tr>
<tr>
<td>Services</td>
<td>Rs 186</td>
<td>Rs 2145</td>
<td>18,051</td>
<td>20</td>
<td>35</td>
</tr>
<tr>
<td>Overall average</td>
<td>Rs 411</td>
<td>Rs 3937</td>
<td>18,686</td>
<td>24</td>
<td>58</td>
</tr>
</tbody>
</table>

Notes

N = 58.

*The debt and savings had been reported and summed across the whole household over three periods. These are then averaged across households in each group.

**Total savings’ sum savings in banks, post offices, provident funds, *sangam* and self-help groups, chit funds and government funds. Mean total savings ranged from under $37 to $150 and mean debt ranged from $323 to $660.
State transfers, such as the targeted social pension, are an exceedingly small component of income. All pensions were Rs 400/m ($8/m). In the 9 per cent of households that included people receiving pensions, the household income ranged from a monthly average income of Rs 700/month ($14), for a single person household, through a monthly average of Rs 24,000 ($490) for the richest single household. The 25 poorest households received total incomes of under Rs 5000/$102 per month, with an average Rs 460 from government. Twenty of these households had some state cash transfers, primarily as a one-off flood-relief payment of Rs 2000 ($40.84). In addition, the qualitative research undertaken as part of the larger mixed-methods research project found that numerically capped and targeted pensions tend to exclude the poorest eligible people. They and their families cannot afford the bribes, the payments to agents or the time off work to pursue a pension application (Vera-Sanso, 2010).

With 43 households out of 58 having no savings whatsoever and debts substantially outweighing savings, especially in the service sector — which includes auto-drivers and others who are buying their work assets on hire purchase — vulnerability to economic and climatic shocks is acute. The rising savings that were recorded by some households between periods 1 and 3 present an interesting analytical conundrum; they can result from improving economic circumstances or they can trigger further deprivations in other areas of well-being (nutrition/education/health care) as families try to protect the type of assets in formal and informal saving systems (chit funds especially) that lock families into ongoing savings.

**Mobility in economic circumstances: fuzzy variables and logic**

Under conditions of complexity, and when data vary in their precision or their mode of assessment or measurement, it is difficult to make precise statements about behaviour. The comparison of self-assessed ‘economic circumstance’ across three sets of point-to-point comparison is an evident example of complexity. Fuzzy variables are concepts that simplify complexity in precisely specified ‘if-then’ ways. If numerical values can be assigned with reasons to a complex set of measured and intuitive conditions, they unblock the road to further analysis. A fuzzy variable was constructed from the combinations of upwards and downwards trajectories in the self-reported economic circumstances of the 91 wage workers and self-employed respondents. Another fuzzy variable reflected the self-reported upward or downward trajectories of the 58 household economies. The values given were:

- 0 if an individual or household’s economic circumstances went ‘down’ in the three periods,
- .17 if they went ‘down’ in two periods and were neutral in one period
- .33 if they went ‘down’ in one period and were neutral in two periods
• .50 if they were neutral in three periods
• .67 if circumstances went up in one period, and were neutral or down in the other periods (i.e. if an ‘up’ was mentioned at all).
• .83 if they improved in two periods, and were neutral or down in a third period (i.e. if two ‘ups’ were mentioned at all).
• if in all three periods they reported their economic circumstances as having gone ‘up’.

Summaries of the movement of the household economic circumstances by household head’s age and by the age of individual workers are presented in Figures 2 and 3. Table 4 presents summary measures of the outcomes for both ‘economic circumstances’ and incomes. These constitute the dependent variables in the later qualitative comparative analysis – in the ‘Results of QCA models’ section below.

Powerful answers to the principal research question emerge. First, from an analysis of the 91 workers surveyed in depth, there is clearly much deterioration in economic circumstances during 2008–9. The majority (82 per cent of wage-working individuals and 72 per cent of those who were self-employed) experienced no improvement in economic circumstances while a subset of over 20 per cent went continually downwards. While a fifth of individuals had episodes of improvement in otherwise downward or stagnant trajectories, only four out of 91 individuals (4.4 per cent) considered that their economic circumstances had improved throughout each of the three periods in 2008–9 over those a year earlier. The trend for households (as opposed to individuals) was even more unambiguously downwards. A third had absolute declines in household incomes from November to March, the median being Rs 500 and the most severe drop exceeding Rs 5000. Forty per cent of households faced absolute decline in incomes from March to May 2009, the median being about the same as the first period while the most extreme crash exceeded Rs 10,000 ($204). All households experienced their economic circumstances as ‘going down’ during 2008–9 – except for two of the three trading and retailing households who considered their circumstances had gone up in the final period (after two downward phases that had forced the pawning of jewellery and the taking on of work as housemaids).

Second, irrespective of the age of the household head, the economic circumstances of the overwhelming majority of households deteriorated or stagnated throughout the reference period. In a few households with household heads under 45 or over 60 years the period of November 2007–May 2009 was reported as one of no change or some improvement. However, for households with heads in the 46 to 59 age range with high consumer-worker ratios and incomes from wage work in services, economic circumstances deteriorated consistently. Third, the older the individual respondent the less likely s/he is to have reported any upward change in economic circumstance during the period. Not only do respondents over 60 earn a third less than younger people
but of the 30 out of 91 individual respondents whose age exceeds 60 years only three reported anything but deterioration in all of the three periods.

There are differences between trajectories tracked, on the one hand, using fuzzy variables of perceived economic circumstances and several background factors, including dimensions un-measurable by money, and those, on the other hand, using outcomes reported as monthly income. Table 4’s two right-hand columns showing fuzzy variables reveal that, for households where the household head was self-employed, there was general downward movement compared to the preceding year in periods 1 and 2, while some recovery was reported for period 3. The service sector persists in recording deterioration throughout the survey rounds. Wage-worker households have less dispersed values for economic circumstances, declining less dramatically than did the self-employed households in the early phase and recovering less dramatically in the later one. Such trajectories reflect the impact of three trading and retail households on the total sample of nine self-employed.

By contrast average reported monthly incomes (in the two left-hand columns) rose slightly throughout the period with three exceptions: 1) households with a self-employed household head – whose income plunged significantly in the period March to May 2009 after a small rise in the November 2008 to March 2009; 2) households whose household head worked in services – where some incomes plunged later, from March to May 2009 (the services average is affected by a few outliers with extreme negative trajectories) and 3) households whose household head worked in trading and retail (where

**Figure 2** Change in economic circumstances of households by age

*Notes*

N = 58.

The vertical axis is the fuzzy intersection of whether the household’s economic circumstances were thought to have improved or deteriorated in the three twelve-month periods ending November 2008, January 2009 and May 2009.
they nose-dived between November 2008 and March 2009 and one out of three did not recover in the later period). The two methods of experiencing and of analysing this period of shocks can be reconciled because the perception of economic circumstances includes the aggregate effect of incomes, expenditures under conditions of rapid inflation of basic wage-goods prices, assets, debts, shifting intensities and duration of work, enforced up-take of paid work by carers and others and changes in work security. But the absolute averages are confined to incomes and exclude the effect of the full range of factors by which people assess their economic circumstances. When asked to provide the main reason for their household’s changed economic circumstance 50 per cent of respondents cited price rises, 20 per cent cited insufficient work and the remainder of those who considered their family to have ‘gone down’ during the period cited illness (raising costs/ lowering income) and shifts in family make up (including married sons leaving because of overcrowding or married sons no longer being able to support older parents). Informants describing changes in the income/expenditure balance that lies at the core of their economic circumstances spoke of their

Figure 3 Change in economic circumstances of individuals by age

Notes
N = 91.
The figure shows the individual respondents’ work status with self-employed as triangles and wage workers as diamonds, against their age on the x-axis, and whether their economic circumstances improved at all on the vertical axis. The vertical axis is the fuzzy intersection of whether their personal economic circumstances were thought to have improved or deteriorated in the three twelve-month periods ending November 2008, January 2009 and May 2009.
deteriorating debt status, reduced food consumption and compromised capacity to replace broken and worn-out things. Twenty per cent said their main measure of ‘going down’ was going into debt and pawning their assets, 15 per cent cited significantly reduced income and 20 per cent cited lower quality and less food intake – in a state in which over 50 per cent of women had anaemia prior to the series of economic shocks discussed here (Government of Tamil Nadu, 2003).

So the aim of the final part of the analysis presented here is to explore detailed evidence to discover whether and if so why there may be differences in the patterns of deterioration in economic circumstances during 2008–9 among the people and households represented in these diagrams.

**Table 4 Changing economic circumstances in 2008–9 in slums of Chennai**

<table>
<thead>
<tr>
<th>Work status groups</th>
<th>Average change in monthly income (Rs) period 1 to 2</th>
<th>Average change in monthly income (Rs) period 2 to 3</th>
<th>Overall movement of econ. circs*</th>
<th>Movement of econ. circs in periods 1, 2, and 3**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wage worker</td>
<td>+192</td>
<td>+147</td>
<td>0 = down</td>
<td>0 = down 1 = up</td>
</tr>
<tr>
<td>Self-employed</td>
<td>+386</td>
<td>−1105</td>
<td>.24</td>
<td>.22, .26, .28</td>
</tr>
<tr>
<td>Industry sector</td>
<td></td>
<td></td>
<td>.34</td>
<td>.17, .23, .45</td>
</tr>
<tr>
<td>Trading &amp; retail</td>
<td>−333</td>
<td>+1350</td>
<td>.53</td>
<td>.17, .17, .84</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>+83</td>
<td>+783</td>
<td>.35</td>
<td>.30, .30, .37</td>
</tr>
<tr>
<td>Services</td>
<td>+262</td>
<td>−171</td>
<td>.19</td>
<td>.18, .24, .24</td>
</tr>
<tr>
<td>Overall</td>
<td>+185</td>
<td>+155</td>
<td>.25</td>
<td>.20, .25, .30</td>
</tr>
</tbody>
</table>

|Notes| N = 58. |

*The subjective question about changing economic circumstances is described in detail earlier.

**The use of a fuzzy set for each period gives a simple coding which is averaged out here using the group mean. The set membership scores are 0 = went down. 0.51 – went neither down nor up. 1.0 = went up.

Detailed data analysis and methods: qualitative comparative analysis (QCA)

The QCA method formalizes the logic of qualitative analysis. It is appropriate for problems in which the researcher assumes an ontology where factors operating at different ‘levels’, ‘scales’ or ‘dimensions’ (such as region, occupation, household, sector and individual) work in tandem to cause outcomes that emerge at the various levels. Clearly a prior qualitative (and partly theoretical) step is needed to develop views about what may be causing
the outcome, and how sensibly to delineate that outcome. Our in-depth field research provides confidence in reasons for claiming that causes A, B and C may be sufficient for an outcome Y. In each main age group there are men and women, workers and self-employed, old and young with roughly equal parts of the sample. Data are being used here as relatively simple proxies for complex aspects of economic and demographic realities in slums.

In QCA, Boolean logic is used to reduce a simplified fuzzy ‘truth table’ to get a more parsimonious summary of the configurations associated with the outcome (Ragin, 2009). We tested hypotheses about the impact pathways theorized from the economic and environmental shocks reviewed earlier. That is, we hypothesized that being female, being 60 or over, being a wage worker and being a member of a household with a high consumer-worker ratio would threaten economic circumstances. The service sector was hypothesized as being more robust than manufacturing or trade and retail, as were comparatively stable incomes from monthly wage contracts or state pensions. For a given level of income, multiple and diverse sources of income will protect a household more than a single source (and these incomes will be likely to aggregate to a higher total).

There are data to test the following variates for individuals and their economic circumstances in 2008–9: being female, being older (fuzzified age), being a worker (versus self-employed), having a household of higher than average age, being in the trading and retail sector, being in the service sector, having a salary that is regular (but with a few exceptions, notably railway salaries and pensions, the sampled salaries are informal-sector salaries), having a high level of state pension in the income portfolio in 2008–9, together with the consumer-worker ratio of the household. Household level variates tested for households’ being associated with rising economic circumstances in 2008–9 include: a household that has a wage worker, average household age, household size, the household head’s engagement in trading and retail, manufacturing or services; the total value of all mobile and immobile property including jewellery and 21 other assets; income from government pensions; whether the household was putting regular savings into liquid or illiquid destinations on a rising basis over 2008–9; whether the household had been made to pay bribes in the last year; the consumer-worker ratio of the household and, last but not least, whether the head of the household is self-employed or a wage worker.

We made fuzzy sets for several variables which, unlike the dependent variable, split the sample into seven equal parts. Age of household head, average household age, household size, income and total property value were each put onto a fuzzy membership scale with values 0, 0.17, 0.33, 0.51 (to avoid the ambiguity of 0.50), 0.67, 0.83 and 1.0 to correspond with the fuzzy set membership values for outcomes. First, these data were examined using regression methods, with logged income and assets, but, with small sample sizes, no strong results emerged. Some variables were expressed as binaries (the household containing a widow/er, the household head being a widow/er
or deserted; the gender of respondent; forced bribery; and self-employment vs. wage–work status as two fractions within the slum working class).

Results of QCA models

Much stronger results were obtained with QCA than could be obtained by examining individual cases. First, results for individuals could be differentiated from the economic circumstances of the households. Second, although slum-dwellers’ experiences were diverse, QCA has the capacity to pick up patterns which the human eye and intellect would struggle to discern unaided.\textsuperscript{36}

The first row of Table 5 shows that individuals in households with salaried work were badly affected with a three-period decline in 2008–9. Households with people on fixed incomes faced rising prices which caused a decline in real incomes. The second row reveals that a larger group comprising men in households with a high consumer-worker ratio were also badly affected. Households relying on one male income were much less able to weather the effects of sudden contraction in the economy, price rises and climatic shocks.

The model for households indicates clearly that having a household head who is 1) a wage worker and 2) in the service sector (e.g. security guard, sweeper or housemaid) is sufficient to cause a three-period decline in economic circumstances. Table 6 summarizes this information. Either of the two configurations shown is sufficient to cause deterioration. The first row shows that the large group of households whose head of household was a wage worker in services had a three-period decline in 2008–9. The second row shows that a very small group comprising relatively young households (not necessarily small ones) where the head of household was self-employed in sectors other than services was also badly affected.

Conclusions

We have examined the impact of a series of economic and environmental shocks from November 2008 to May 2009 on the economic circumstances of individuals and households living in five Chennai slums in Tamil Nadu. While economists still tend to examine welfare outcomes through income, the concept of income ignores vital components of the household economy such as the income-expenditure relation, the dynamics of assets and distress-induced changes in the consumer-worker ratio.\textsuperscript{37} By contrast, the idea of ‘economic circumstances’ was well understood by slum-dwellers to involve the capacity to balance income and expenditure, to reconcile combinations of assets and liabilities (including loans) and to control expenditure and other outlays (in conditions when (forced) savings may even be conceived as an outlay). Our research uses both etic and emic concepts (income and economic circumstances respectively) to trace outcomes.
Table 5 Two configurations causing declining individual economic circumstances, slum dwellers of Chennai, 2008–9

<table>
<thead>
<tr>
<th>Configuration X</th>
<th>Degree of coverage of the intersection of X &amp; Y*</th>
<th>Consistency of X being sufficient for Y (cut-off 0.80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1 Household has a salaried worker</td>
<td>.32</td>
<td>.84</td>
</tr>
<tr>
<td>X2 Respondent is male and the consumer-worker ratio is high</td>
<td>.44</td>
<td>.88</td>
</tr>
<tr>
<td>Overall with these two configurations</td>
<td>.60</td>
<td>.86</td>
</tr>
</tbody>
</table>

Note
*In the fuzzy Boolean algebra the meaning of coverage varies slightly from its usage in crisp set analysis/QCA although the formula is the same. Coverage and consistency are both scaled from 0 to 1. Consistency shows the shared set membership of X and Y, standardized by X. Coverage is an indicator of a configuration’s shared set membership standardized by the Y for the whole set of configurations. Column 2 shows the unique coverage.

At the outset, these households were expected to be challenged by the local effects of the national slow-down in growth that were in turn predicted to be due to multiplier effects on India’s real economy of the global financial crisis of late 2008. During the real time of the research these households also had to

Table 6 Two configurations causing deteriorating household economic circumstances, slum dwellers of Chennai, 2008–9

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Degree of coverage of the intersection of X &amp; Y*</th>
<th>Consistency of X being sufficient for Y (cut-off 0.80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1 Household head is in services and is a wage worker (not self-employed)</td>
<td>.67</td>
<td>.82</td>
</tr>
<tr>
<td>X2 Household head is not in the service sector, but is self-employed and the household has a low average age</td>
<td>.04</td>
<td>.92</td>
</tr>
<tr>
<td>Overall with these two configurations</td>
<td>.71</td>
<td>.83</td>
</tr>
</tbody>
</table>

Note
*In the fuzzy Boolean algebra the meaning of coverage varies slightly from its usage in crisp set analysis/QCA although the formula is the same. Coverage and consistency are both scaled from 0 to 1. Consistency shows the shared set membership of X and Y, standardized by X. Coverage is an indicator of a configuration’s shared set membership standardized by the Y for the whole set of configurations. Column 2 shows the unique coverage.
confront resurgent price inflation in basic wage goods such as food and fuel, together with intense heat-waves, cyclones and floods. So the research was framed to investigate shocks as a concatenation phenomenon.

We found no existing theory to guide this research so developed hypotheses of our own. Since the quantitative data were unsuitable for standard analysis using regression, we also applied novel methods involving fuzzy variables and QCA. This is the first such application to slum research.

Our data show that slum-dwelling households were more resilient at the beginning than later but were unable to sustain that resilience over the whole period as growth in the wider economy deteriorated, as inflation eroded real incomes and environmental impacts hit (notably the May heat).

Substantive conclusions

Our analysis had three stages. First, to make the complexity that we encountered tractable, we classified household occupations – almost all of which were in the informal economy – in terms of the three broad industry sectors in which the household head works: the service sector; trade and retail; and manufacturing. We further disaggregated households in terms of the work status distinction between the household head’s self-employment in informal business (such as petty trading) or as a wage worker (including as casual labour).

Our descriptive research revealed structures of diversity and complexity within slums. Worker households were spread across a spectrum of assets, debt status, household sizes together with the average age of the household. They were differentiated in differentiated ways – as has also been observed for rural Tamil Nadu (Colatei & Harriss-White, 2004). Assets inequality exceeded income inequality and, while these assets may have also involved debt (instalment purchase, housing loans and stock on credit), the capacity to secure credit is a measure of comparative advantage. Of households, 80 per cent had no assets whatsoever and 74 per cent no savings. Incomes of self-employed households exceeded those of wage-worker households by a third. Small households tended to be poorest. And older workers’ incomes were lower than younger people’s by nearly a third.

Second, we analysed economic trajectories during the period of environmental and economic shocks. For these we used monthly incomes together with a fuzzy variable for economic circumstances at three points in time from November 2008 to May 2009 that made a point-to-point comparison with the period 12 months earlier in order to iron out regular seasonal variation. The results are clear but nuanced. We find a difference between trajectories traced through income and those from perceived/experienced economic circumstance. There were further differences according to economic sector/industry group and also in the two work status groups. In 80 per cent of individual cases economic circumstances deteriorated or stagnated. Incomes in self-employment and in trade and retail nosedived in the early phase, then rallied.
Economic circumstances in self-employment plunged early but by May there had been some recovery. Self-employed retailers did better than wage workers, probably due to their capacity to work until they had secured the income they needed – while wage workers did not have that option. The latter said their wages stagnated in absolute terms but declined in real terms as competition for work in the labour market rose. In the service sector economic circumstances declined in the early phases and tended to stagnate later on. Age mattered. Of individuals aged over 60, 90 per cent reported decline in all three periods.

Third, QCA revealed the different characteristics of individuals from household experiences during 2008–9 and confirmed the important finding that individuals (both men and women) aged 60 and over suffered more than those below 60.

Just as we theorized in the third and fourth impact pathways at the start of this paper, we find that respondents doing wage work whose households had higher than average dependent-to-worker ratios were most injuriously hit by the shocks.

Among the 58 households studied, the rarer upward changes in economic circumstance towards mid-2009 were associated more closely with the economic characteristics of the household than with demographic features such as their age composition. This strongly confirmed the vulnerability of wage work in the service sector to deterioration during the period of shocks, and this was especially so for people aged 46–59 who were additionally hit by age discrimination in the context of increased competition for work. A small group of young households, self-employed in other sectors (manufacturing and trade and retail), also deteriorated badly. However, in general the reverse is true and households which had a self-employed respondent and those depending on trade and retail were better protected against economic and environmental shocks than those in manufacturing and services especially wage workers.

Policy conclusions

Policy conclusions to both exploratory and hypothetico-deductive research are usually residual and made in ignorance of the politics of policy and the common technologies of power operating within policy processes (Fernandez, 2008). A quarter of a century ago in public administration research this tendency to residualize policy implications and conclusions was criticized as being irresponsible, on the grounds that residual policy suggestions create plenty of escape hatches for the researcher and policy maker alike (Schaffer, 1984). Meanwhile evidence-based policy continues to be rejected in favour of policy-based evidence. Given this epistemological quagmire, here we examine aspects of the state welfare system that would need to be solidly in place before other policies for slum-dwellers have any chance of being implemented in ways they appear to be intended.
The physical fabric of slums is by definition a series of sinks of infrastructural neglect, on top of which slum-dwellers are vulnerable to many shocks – including the environmental and economic ones discussed here. While India’s national financial arrangements turned out to be relatively well protected from the crisis for what mainstream economists in the Planning Commission argued were the wrong reasons (their global integration was insufficiently rapidly advanced), the global financial crisis hit the real economy and rippled through the slums, compounding the effects of cyclones and heat-waves. Wage work (which 84 per cent of sample households were providing) proved more vulnerable than self-employment; services (which 69 per cent of sample slum households engaged in) proved more vulnerable than manufacturing or trade and retail. Yet Tamil Nadu’s economic agenda provides little effective protection for people at work, particularly in wage work – outside state work-fare in rural areas (e.g. the NREGA; see Reddy & Upendranath, 2009). More effective protection at work could include the enforcement of minimum wages, three elements of the ILO’s Decent Work agenda (rights to work, at work and to organization and ‘dialogue’) and even the extension of the Employment Guarantee to slums to improve their physical infrastructure.

However Tamil nationalist political parties have for decades been locked in competition to develop a wide-ranging project protecting people outside work. Its scope extends not only (often hardly at all) through the health and education system but more distinctively through noon meals, subsidized essential commodities and the beginnings of a below poverty line welfare state, including some targeted pensions. Lately (aided by revenues from alcohol) the state has even started to subsidize consumer durables – newly conceived as ‘basic’ needs – such as TVs and cooking-stoves. Tamil people have referred to this project as ‘our socialism’. But, although their objective is to help stabilize income, state transfers are currently a minute component of slum income. If these transfers were no longer rationed among poor households, they would relieve the distress of most vulnerable people. Our research shows that the de-rationing of pensions would be particularly effective in this respect. Measures to stabilize the prices of basic wage goods would also protect slum households from what we have shown are punitive economic and environmental shocks. Apart from the consumer durables, none of this is other than the project of promotive, preventive and protective social security already developed in the 1990s by the late S. Guhan (2003). And rights to social security, the fourth strand of the ILO’s Decent Work agenda, have been long championed by the National Commission for Enterprises in the Unorganised Sector.

In these Chennai slums, however, all these projects have a long way to go.

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Notes

2 According to the Government of India 2011 Census a slum is ‘a compact area of at least 300 population or about 60–70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities’, http://www.indiaonlinepages.com/population/slum-population-in-india.html
3 The Slum Areas (Improvement and Clearance) Act 1956 provided for the improvement and clearance of slum areas and for the protection of residents from eviction, requiring that the state re-house slum-dwellers in non-slum conditions on the same site. The Corporation of Chennai first notified 1,202 slums in 1971 and added 17 more slums in 1985. The failure to notify more slums is one of the focuses of Chennai slum-dweller associations’ current campaigns. Increasingly state and local governments are coming under pressure from central government and national institutions to reduce the minimum number of households for slum notification from 60 households to 20. In the context of India’s new ‘slum-free cities’ Rajiv Awas Yojana programme, following on from the UN’s Cities Without Slums campaign, notified slum status is not providing the legal protection it once did (PUCL, 2010; see also Gilbert, 2007), yet ‘slum’ as a technical and legal term, placing the burden of providing minimum housing standards on the state, retains deep political salience for slum-dwellers.
4 The Indian Constitution defines the government’s responsibilities to Backward Classes, which include Scheduled Castes (Dalits), Scheduled Tribes and Other Backward Classes (OBC), made up of caste groups considered to fulfil the constitutionally defined criteria of being ‘socially and educationally backward’ (Article 340, Constitution of India, 1949) (Revankar, 1971). The State of Tamil Nadu has added the category Most Backward Classes (MBC). Following a Supreme Court decision a permanent National Commission for Backward Classes was set up in 1994.
5 Relocating slum settlements onto the urban periphery is the standard recourse of urban planning when implementing infrastructural changes. In recent years a number of highly controversial policies including the Jawaharlal Nehru National Urban Renewal Mission, funded by the World Bank, and its successor the Rajiv Awas Yojana, are producing much wider slum relocations that severely hit incomes and reflect what is essentially an attempt by the state, capital and the middle classes to cleanse the poor from India’s major cities (see Chatterjee, 2004, on Kolkata, formerly Calcutta; Anand, 2006; Anjaria, 2006; Fernandez, 2004 and Rajagopal, 2001, on Mumbai, formerly Bombay; Bhan, 2009, on Delhi). The slum relocation programme has not, as yet, affected the five slums on which this paper is based.

6 Chennai slums have a female to male sex ratio of 968 to 1000 which is higher than the non-slum population’s sex ratio of 945 (Chandramouli, 2003).

7 In 2001 over 70 million people were aged 60 and over, representing 6.9 per cent of the total population; projections for 2011 and 2026 place the 60+ population at 8.2 per cent and 10.2 per cent respectively (Government of India, 2006).

8 An array of views has been tabled ex post, ranging to name but a few – from contagion from sub-prime lending, through business cycle explanations, misconceived expectations, mis-management of reserves, Hayekian instability, to moral hazard in the financial sector, incompetence and stupidity among policy-makers. See, respectively, Bouchaud (2008), Holland (2009), Soros (2008), Ackerman (2008), Edmund Phelps and Joseph Stiglitz (both presentations at the Cornell-IHD conference on Amartya Sen’s 75th birthday New Delhi – henceforth ‘Sen-conf’ – December 2008).

9 This collapse was triggered by the realization that ‘the suppliers of credit funding... had no way of knowing how much of the mountain of collateralized debt obligation was junk’ (Gowan, 2009, p. 17).

10 Keen (2011) presents a wide-ranging theory consistent with Gowan’s critique.


12 WIEGO does not distinguish petty commodity producers from other labour. By comparison our Chennai study found that economic crisis, food and fuel price hikes and environmental shocks significantly reduced demand for informal-sector manufacturing, trade and services by the formal sector and by people working in the formal and informal economies. The 2010 re-study of thirteen of WIEGO’s sites found that persistent unemployment and underemployment in the formal economy continued to drive new entrants into informal employment and a persistent lag in recovery for informal workers (Horn, 2011).

13 The Asian Development Bank has documented formal credit shortages in India in 2008–9 (ADB, 2009).

14 This was itself a concatenation event involving, among other factors, poor harvests worldwide, land competition between food and biofuel, conversion of food to biofuel, rising petro-based input costs, plant and animal diseases and speculation in food futures markets. India stopped grain exports.


16 The Public Distribution System is the policy instrument protecting the calorie supply of people below poverty lines.

17 In addition to putting more people onto the labour market, ‘difficulties finding work’ were mentioned by some respondents, so we explore and test whether ‘workers’ suffered worse during 2008–9 than ‘self-employed’ (i.e. trading and business) households. The study found that in addition to increasing the worker-dependent
ratio there were widespread concerns about rising education costs and evidence of some withdrawal of girls from education. See also Horn (2011).

http://www.thehindu.com/news/cities/chennai/article3353857.ece. To deal with the 2012 heatwave the Government of Tamil Nadu supplied lemonade to traffic police to prevent heat stroke. By comparison slum-dwellers’ access to water, especially energy-dense, sugared water, is much more constrained especially while working away from home.

The highest daily average was 45 in 2003 and the lowest was 17.9 in 2004. http://www.kea.metsite.com/monthly_summaries.htm

http://www.thaiindian.com. These averages underestimate temperatures in the city centre because the Meenambakam weather station is in a cooler periphery of the city. http://www.thehindu.com/news/cities/chennai/article3494345.ece. The slightly lower 2012 heatwave is described by the national paper, The Hindu, as bringing Chennai ‘to its knees’. Environmental insults are particularly severe for the quarter of the population living in slums without the benefit of regular water, electricity generators, air-conditioned vehicles and so on.

This paper draws only on the economic surveys. For the larger survey and qualitative research, see Vera-Sanso (2010, 2012, forthcoming).

Eggs, chicken, mutton and fish have been cut from diets. Some informants measured their decline by having to start eating beef, which is a cheaper and highly stigmatized source of protein for caste Hindus.

For the purposes of this paper the National Industrial Classification 1998 has been used to simplify industrial sectors into the three categories of trader, manufacturing and service.

Younger people tend to be in sectors and occupations that are more highly capitalized such as large-scale construction and auto-driving, while older women tend towards street vending or services such as domestic help and older men towards services such as the night watch, cycle-rickshaw pulling and small-scale piece-rate construction/building repair work (Vera-Sanso, 2012).

Detailed field methods are in Annex 1.

While some readers might question the reliability of verbal data, in essence all social research shares the method of taking the informant’s word and recent events in international banking have emphasized the fallacy that written accounts are any more complete or accurate than verbal accounts. With familiarity and trust, established over 12 months of prior field–work, a comprehensive knowledge of the social context can be achieved through repeated visits to people’s homes and informants’ willingness to fully participate in economic surveys rises. We think that the veracity of responses to our extensive questionnaires is as good, if not better, than surveys based on written records, especially those gathered on a rapid single visit.

Monthly income includes that from state pensions.

Where households had more than one income the income of the household head was taken to define the household’s class and industry sector as they either had the largest income or were the longest-standing source of income in households where recent entry of new workers had not had time to affect the household’s overall economic status. In Chennai’s slums, large households are small in number as married children set up independent households soon after marriage; longer-standing larger households are established through the re-incorporation of widowed and deserted daughters’ families (Vera-Sanso, 1997).
That is, $10 and $102 – significant in households with monthly incomes ranging from $121 to $166.

The average monthly incomes for individual respondents aged under 60 was Rs 7708 ($157) and Rs 5611 ($114) for individuals over 60.

In the case where A (but not B and C) are present, the outcome might not occur, because A may require a conjuncture with B and/or C to cause Y. To test for conjunctural causality, every permutation of the A B C Y set may need to be tested. Our results focus on sufficient causality and these results are based on sets of cases where we have contrasts on both the independent variables and the outcomes.

A ‘truth table’ refers to a table with information regarding the different combinations of conditions that may or may not have produced a specific outcome. See Ragin (2009).

In making a fuzzy set, two calibration decisions were made here. First, it was useful to have seven set membership levels for each of these sets since there were seven natural boundaries for the ‘down’ fuzzy set. It was thus considered desirable to split up the variables’ histograms approximately into seven equal parts for these fuzzy sets. We have set the neutral middle values to 0.51 for technical reasons (Ragin, 2006; see also Rihoux & Grimm, 2006; Rihoux & Ragin, 2009).

A point confirmed by Ragin (2006).

The analysis of expenditure is a future project.

See Appendix 4, in Olsen et al. (2010) for details.

http://www.decentwork.org/


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