

On the Origins and Consequences of Slums

Sean Fox

*Development Studies Institute
London School of Economics and Political Science
s.fox1@lse.ac.uk*

February, 2008

Abstract: *Approximately 1 billion people live in slums. Why, and at what cost? Using cross-country regression analysis informed by qualitative evidence, three historically contingent factors are found to have a significant influence on contemporary slum incidence: a) rapid urban growth; b) colonial legacies of governance; 3) political fractionalisation. In a second stage of analysis, an instrumental variables strategy indicates that slum incidence exerts a negative effect on income. This relationship may reflect un-captured agglomeration benefits due to poor urban governance and management in the face of rapid urban growth, and/or the possibility that slum incidence is a proxy for quality of governance more generally.*

Key Words: colonialism; slums; governance; institutions; urban development, economic development.

Word count (excluding references):

WORKING DRAFT - NOT FOR CITATION

I. INTRODUCTION

UN-Habitat (2006) estimates that 72 percent of Sub-Saharan Africa's urban population lives in slums; 59 percent of Southern Asia's urban population lives in slums; and 32 percent of Latin America's urban population lives in slums. Overall, nearly 1 billion people worldwide (32 percent of the world's urban population) live in what are variously known as slums, squatter settlements or informal settlements without access to essential services or state-sanctioned property or tenancy rights. Why, and at what cost?

This study uses cross-country regression analysis informed by historical and theoretical analysis to explore these questions. Although the analysis is not confined to countries in Sub-Saharan Africa (which exhibit the highest rates of slum incidence in the world), it is inspired by, and draws principally upon qualitative studies of African urban development.

To date, no systematic cross-country comparisons of this nature have been done, due in part to data restrictions, which have (and continue to be) a serious obstacle to quantitative analyses of questions related to urban development in low income countries. This study is a crude first attempt using a new index of slum incidence at the national level. The objective is not to draw firm conclusions, but rather to advance some hypotheses and attempt to identify some empirical regularities with the data at hand.

The slum incidence index¹ was developed by UN-Habitat's Global Urban Observatory to assist in monitoring Target 11 of the Millennium Development Goals: "By 2020 to have achieved a significant improvement in the lives of at least 100 million slum dwellers". A slum household is defined by UN-Habitat as lacking one or more of the following: access to secure tenure, a durable dwelling, access to safe water, access to sanitation facilities and sufficient living area. The index was compiled from a combination of data sources, including

¹ The index is presented as a "slum population index" by UN-Habitat. However, in this paper I use the series which reflects the percentage of a nation's population living in slums, and hence use the more intuitive phrase "slum incidence."

household surveys (primarily DHS and MICS) and census data. While the validity of the data at the individual country level may be subject to criticisms of measurement error, the index remains useful in the context of this study assuming that the relative orders of magnitude between countries are reasonably accurate.

In order to identify determinants of contemporary slum incidence I begin with an examination of possible historical and theoretical explanations of slum formation and growth, focussing in particular on rapid urban growth, colonial legacies of governance, and political fractionalisation. Rapid urban growth strains public resources, even where governments make a concerted effort to accommodate urban growth. But rapid urban growth is not confined to cities within the regions with the highest slum incidence rates. In search of complementary explanations, I examine how legacies of colonial governance may have affected trajectories of urban development. While there is evidence of path dependency in urban planning, investment and management, path dependency is an unsatisfactory explanation. Why do inappropriate urban governance frameworks persist? Political fractionalisation, exacerbated by colonial experience is explored as a possible explanation. Where political contestation persists – that is, where a stable system of political order has not been established due to rivalry between ethnically or geographically circumscribed groups – the formulation of policies and institutions that serve the interests of the general population may be hindered (in rural and urban areas alike). These hypotheses are tested by employing data on urban growth rates, two separate proxies for the nature of colonial governance, and two separate proxies for political fractionalisation. All are found to exert a significant effect on slum incidence.

I then turn to the question of the potential economic effects of slum incidence. Cities benefit from the external economies of scale generated by the clustering of people and economic

activity in space – but only if they are governed and managed well. Poor infrastructure, inappropriate planning frameworks and inefficient land use management and property rights regimes can produce an insecure investment environment fraught with transaction costs. A high transaction cost environment results in market inefficiencies (e.g. in land and housing markets) and hence reduced productivity. Slum settlements, it is argued, are ‘high transaction cost zones,’ and their presence is evidence of spatially uneven economic governance.² In such a context, the costs associated with slums may mitigate the potential benefits of urban growth, exerting a negative influence on the overall economic performance across a nations economy in the long run.

Not surprisingly, slum incidence is shown to be highly correlated with income (see Figure 1), but the direction of causality is not obvious. Slum incidence may reduce economic performance through its general effects on transaction costs within the urban economy (i.e. higher rates of slum incidence indicate a higher degree of transaction costs in the overall urban economy, dragging on productivity and growth), or slums may be a consequence of limited public and private resources available for investment (i.e. low income per capita leads to slum formation and growth). Or alternatively, the correlation may be driven by a third, unobserved factor that drives income and slum incidence simultaneously. To determine causality an instrumental variables strategy is employed, exploiting differences in colonial strategies of rule and political fractionalisation as natural experiments. The effects of slum incidence on income are found to be negative, significant and robust to a variety of specifications, suggesting that failure to effectively govern and manage cities exerts a negative influence on economic performance. However, evidence is also presented that the slum incidence index is serving as a proxy for quality of governance more generally.

²The term ‘economic governance’ is used here to refer to public provision of market-supporting public goods (such as basic infrastructure) and the regularized enforcement of market-supporting institutions such as property rights and the rule of law.

Section II expands upon historical and theoretical explanations for slum incidence. Section III presents a statistical analysis of the determinants of slum incidence. Section IV presents a hypothesis regarding the potential economic consequences of slum incidence and a statistical test of this hypothesis. Section V concludes. In particular, it is noted that the strength of the correlation between slum incidence and income is suspiciously strong. I hypothesise that the slum incidence index is serving as a proxy for a spatial dimension of the quality of economic governance more generally. States that fail to govern their cities effectively – where populations are concentrated, permitting economies of scale in the provision of law and order and public goods – are unlikely to govern their overall territories (including rural areas) any more effectively. However, when quality of institutions is controlled for in an attempt to identify whether the slum incidence index is capturing a different effect than quality of governance generally, the results are inconclusive. The slum index may or may not be capturing the relative success or failure of governments to minimise transaction costs across their populations and territories through ‘encompassing’ economic governance. Further research with city-level data is needed to test these hypotheses further.

II. ON THE ORIGINS OF SLUMS: HISTORY AND THEORY

Urban researchers have attributed the growth of slum settlements to an array of factors operating at local and global levels including colonial legacies of town planning and governance, rapid urban growth, global economic dynamics, liberalization policies, poor governance and 'lack of genuine political will to address the issue in a fundamentally structured, sustainable and large-scale manner' (Habitat, 2003; 5). Of the many possible explanations, rapid urban growth and the quality of urban governance are emphasised here.

There is no doubt that historically unprecedented rates of urban growth in low-income countries present a daunting challenge for local and national governments seeking to consolidate human settlements. Between 1950 and 2005 the average annual rate of urban growth in Africa was 4.29%, in Asia 3.44% and in Latin America 3.31% – compared with 1.62% and 1.17% in North America and Europe respectively (United Nations, 2006b). By way of a more dramatic illustration of the problem, the population of Accra, Ghana grew from 393,000 inhabitants in 1960 to 1.2 million in 1990; Jakarta, Indonesia grew from 2.68 million inhabitants to 7.65 million over the same 30-year period; and Porte Alegre, Brazil grew from 880,000 to 2.93 million over the same period. Persistent demographic pressure on infrastructure, services and urban land is clearly a factor to be considered. However, this is an insufficient explanation of slum growth in itself. Phoenix, Arizona grew from 558,000 inhabitants to 2.02 million over the same period – adding more people at a faster rate than Accra – without generating significant informal settlements. Tokyo added nearly 16 million residents between 1960 and 1990 – the equivalent of nearly 14 Accras – without an appreciable increase in squatting.

Clearly the Japanese and American people – and by extension their local and national governments – have significantly more financial resources at their disposal to tackle problems

associated with rapid urban growth than the Ghanaian people do. But again, this cannot be the whole story. Egypt and Peru had similar income levels in 1990 and 2001, roughly similar degrees of slum incidence in 1990, and similar rates of urban growth between 1990 and 2000 (Peru's was a bit higher), and yet Egypt has managed to significantly reduce the percentage of its urban population living in slum conditions (from 57.5% to 34.9%) while Peru has seen a significant increase in slum incidence (from 60.4% to 70.1%).³ This divergence of outcomes cannot be explained by initial income levels, especially given that Peru's initial income was slightly higher than Egypt's. A more likely explanation for divergent outcomes under similar initial conditions is variation in the quality of urban governance in each case.

As cities grow, their morphologies are influenced by the nature of urban plans, investment patterns and institutional characteristics (such as land management and property rights regimes). Ideally, urban plans are flexible and attentive to demographic and economic realities, public investment is sufficient to maintain and extend essential infrastructure and services to urban populations, and the design and effective enforcement of institutions ensures the maintenance of law and order and the efficient functioning of land, housing and labour markets in urban areas. The result is a dynamic urban environment that generates external economies of scale for economic agents. Conversely, where urban growth is poorly managed, unplanned, under-serviced settlements with tenuous legal status emerge, forcing residents to rely on localised collective action solutions to solve problems such as security of tenure and access to basic services. The first scenario represents an 'ideal type' of good urban governance; the latter of 'bad' (or ineffective) urban governance. The operational hypothesis tested here is that rapid urban growth in a context of poor urban governance generates slums. But how do we measure the quality of urban governance?

³ Egypt had a real GDP per capita (PPP adjusted) of I\$2820 in 1990 and I\$4729 in 2001. Peru's real GDP per capita was \$2991 in 1990 \$4223 in 2001. Egypt's average annual rate of urban growth between 1990 and 2000 was 1.67 and Peru's was 2.14.

Typical indicators of governance (at local and national levels) include transparency, accountability, participation, rule of law, bureaucratic efficiency, enforcement of property rights, etc. Measuring governance directly is tricky; indices usually consist of subjective evaluations of these indicators by firms and specialists. While UN-Habitat does collect data on urban governance at the city level (such as decentralization, transparency, accountability and participation), the slum incidence index is not currently available at the city level, nor is city-level GDP data for a large sample of countries, making a robust quantitative study of the effects of specific indicators of urban governance on slum incidence and of slum incidence on economic performance in a sample of cities impossible. Instead, the effects of governance on slum incidence are inferred by identifying exogenous historical and geographic factors that have been shown in the past to affect contemporary governance. The relationship between these factors and *urban* governance specifically is demonstrated historically, but cannot be confirmed statistically without more comprehensive data. However, the approach adopted here does have the added benefit of allowing us to assess the effects of slum incidence on economic performance.

As a starting point, many studies have argued theoretically, and demonstrated empirically that colonial occupation has had profound and long lasting effects on the quality of institutions and governance (at the national level) in developing countries (see Banerjee and Iyer 2005; Lange 2004; Engerman and Sokoloff 2002; Acemoglu, Johnson and Robinson 2001 for recent examples). In their now famous study, Acemoglu, Johnson and Robinson (2001) argued that the extent of European colonial settlement had a direct impact on the kinds of institutions that were established in colonial territories and handed down to post-colonial governments. Where colonial settler mortality was high due to unfavourable disease environments, fewer colonisers settled; where fewer colonizers settled, more extractive

institutional regimes were introduced, and these persisted after independence resulting in poor economic outcomes. However, in their study “institutions are treated largely as a ‘black box’” (*ibid*,1395). In a more recent study, Banerjee and Iyer (2005) found evidence that variations in colonial land revenue institutions across regions *within* India account for contemporary variations in agricultural productivity, as well as investments in agriculture, health and education across these regions. Both of these studies highlight the path-dependent nature of colonial institutions and their effects on contemporary outcomes.

In an urban context, the lasting effects of colonial town planning, investment, and the design and enforcement of institutions (i.e. colonial urban governance) have been noted by urban researchers (Okpala 1987; Awotona 1988; Farvaque and McAulsan 1991; Simon 1992). As Hardoy and Satterthwaite (1989) observe:

Many colonial governments...put in place a range of laws, norms and codes governing housing, building and planning which remain today, largely unchanged...[These were developed] at a time when the nation’s economy was predominately agriculture and rural based, and people’s right to move to urban centres was often restricted. Not surprisingly, they are very poorly suited to an independent nation where rapid urban growth and increasingly urban societies have become the norm (20).

Even where there have been significant reforms to dismantle colonial institutions designed to restrict access to urban areas and enforce racial segregation, many of the institutional dynamics and technical planning features implemented under colonial rule persist. For example, in post-independence Tanzania colonial restrictions on urban migration and explicitly racist zoning regulations were abolished, but the essential features regarding density requirements remained the same (Lugalla 1995, 27). As a result, spatially articulated

socio-economic divisions established under colonial rule coinciding with a three-tiered model of density requirements persist to this day in cities such as Dar es Salaam. Furthermore, space standards for residential areas, which date as far back as the colonial Township Ordinance of 1920, have restricted “the number of residential plots that can be realised” through formal planning mechanisms, resulting in a significant shortage of formally planned and allocated plots and the proliferation of unplanned settlements (Kironde 2006, 465). To make matters worse the Town and Country Planning Ordinance of 1956, which remains to this day the key legislation relating to distribution of powers concerning land allocation in Tanzania, established a highly centralised system of land management that generates significant delays – in some cases seven years or more – in the planning, surveying and allocation of urban land (*ibid*).

Of course, colonial rule was not a uniform experience, and its effects on human settlements were various. Lange (2004) created an index of ‘indirect rule’ for 33 former British colonies by “dividing the number of colonially recognized customary court cases by the total number of court cases in 1955, the latter of which includes both customary cases heard by chiefs and magistrate court cases presided over by colonial officials” (909). The index captures the extent to which British colonial authorities relied on indigenous authorities to maintain law and order in their territories. Using cross-country regression analysis, Lange demonstrated that the degree of indirect rule employed by British colonisers is correlated with contemporary variations in government quality and effectiveness.

According to Home (1990), strategies of British colonial rule were reflected in approaches to town planning and urban development. In the British Empire under direct rule, “rapidly growing ports of the Empire...created severe problems of housing and traffic movement which the colonial administration was reluctantly forced to address” (*ibid*). Conversely, under

indirect rule colonial authorities limited their planning and investment to small settlements designed to facilitate the extraction of resources (such as administrative towns, mining towns, and railway towns). These were usually planned by consultants hired from Europe, and were designed to accommodate a small, static population (*ibid*, 26). In other words, extractive institutional regimes were mirrored by the development of extractive urban systems designed to 'evacuate exports.'

The path-dependent legacies of colonial governance may, then, include failure to plan for urban growth and hence insufficient initial investment in urban areas, contextually inappropriate planning norms, and overly-centralised systems of land management. If these factors were significant determinants of future trajectories of urban development, we should be able to identify the effects statistically by testing whether or not variations in the nature of colonial governance are correlated with variations in contemporary slum incidence. This would corroborate the qualitative historical research which has identified path-dependent colonial institutions as an important contributing factor to slum formation and growth.

But as Hardoy and Satterthwaite note, "clearly, inappropriate planning norms and codes still enforced today cannot be blamed on only on the colonial past or on the import of inappropriate models several decades ago" (1989; 23). Similarly, in the Tanzanian context, Kironde argues that "More than 40 years after Independence, it may not be appropriate to blame the colonial legacy for the bureaucratic procedures, centralised set-ups and the high standards aimed at. Numerous opportunities to change the system have presented themselves" (2006, 467). Whither reform?

All post-colonial governments were confronted with the challenge of consolidating a stable, legitimate political order. However, variations in the nature of colonial rule affected the nature of the post-colonial political context in which consolidation took place. Mamadani

(1996) argues that indirect rule in Africa, whereby colonial regimes relied on alliances with local authorities to maintain order in their territories, produced 'bifurcated states'. In the post-colonial period the parallel and ultimately incompatible systems of rule established under colonial occupation – formal/statutory and local/traditional – generated rural-urban and interethnic conflicts that inhibit democratization and economic development. According to Lange (2004), 'dispersed forms of domination' encouraged by indirect rule persist and

hinder state governance when they create extremely powerful local intermediaries and limit infrastructural power. This, in turn, not only limits the state's ability to act corporately to provide basic public goods but also impedes its ability to regulate social relations through law, thereby placing extreme constraints on the mere possibility of state governance and broad-based development (Lange, 2004: 917-918).

There is empirical evidence that political fractionalisation along ethnic and regional lines has inhibited effective governance. Similar to Lange, Easterly and Levine (1997) argue that ethnic diversity can "impede agreement about the provision of public goods and create positive incentives for growth-reducing policies...that create rents for the groups in power at the expense of society at large" (1206), and present evidence that ethnolinguistic diversity is negatively associated with a range of indicators of good governance in a cross-country analysis. Similarly, Easterly, Ritzen and Woolcock (2006) argue that "socially cohesive societies will be more likely to generate governments that have an 'all-encompassing interest' in promoting growth" (109), and that in a context where social cohesion is lacking, "opportunistic politicians can and do exploit ethnic differences to build up a power base" (116). The conflicts that result from groups competing for control over national resources can lead to sub-optimal institutional arrangements and policies. These studies are corroborated

by many others in the quantitative literature (e.g. Mauro, 1995; Alesina, Baqir and Easterly, 1999; Alesina and Ferrara, 2005). There is also some evidence that political fractionalisation has a geographic component. Herbst (2000) argues that the practical difficulty of controlling large territories with low population densities using a small administrative apparatus is one of the reasons colonial powers often relied on indirect rule, and that this challenge has also been a constraint to post-independence state consolidation in Africa.

How would political fractionalisation along ethnic or geographic lines affect the quality of *urban* governance and the pace of reform at the city level? With rural populations far exceeding urban ones at independence in virtually all former colonies, simple political calculus would suggest a prioritization of rural over urban constituents by political leaders. It is generally believed that post-colonial governments exhibited an 'urban bias' in public policy and investment,⁴ but this was largely directed towards large-scale infrastructure projects and the cultivation of heavy industry designed to solidify emergent national identities (Graham and Marvin, 2001). Far less money and effort was directed towards the more mundane tasks of improving and extending water and sanitation infrastructure, thoroughly revising urban planning frameworks, or designing and implementing institutions that would encourage the efficient and equitable use of urban land. In other words, where a bias did exist, it was generally a *sectoral* or *elite* bias – not an urban bias per se. To be sure, disgruntled urban populations represent a political threat to those in power, providing an incentive for

⁴ There is an extensive literature on the 'urban bias' debate. For an excellent review see Jones and Corbridge (2008). While Lipton (1976) and Bates (1981) provided evidence that macroeconomic and agricultural policies were biased against rural producers, many of these forms of bias were eliminated during the period of structural adjustment. Furthermore, There is very little evidence that urban populations, as a defined 'class' of individuals, have acted corporately to advance their own collective interests at the expense of rural populations. Casual observation suggests that urban bias has manifested itself in practice as an elite bias that has not served the interests of urban populations at large, nor to stimulate urban economic development, but rather to serve the interests of a privileged few. For example, Rodgers (2004) documents the 'disembedding' of Managua, Nicaragua – a process that has entailed significant public and private urban investment, but only in the service of an elite who have supported the development of transport infrastructure that allows these individuals to move safely between their privately guarded enclaves of the city.

politicians to invest in urban areas, but in practice authorities have responded in different ways. Some have made concessions (e.g. in the form of electricity provision⁵). Many have responded by implementing population policies and development strategies to discourage urban growth – particularly in capital cities – such as investing in rural service centres and ‘growth poles,’ implementing migration controls, bulldozing squatter settlements and making it difficult for migrants to secure property or tenancy rights in urban areas (UN, 1996; Gilbert, 1991; Becker and Morrison, 1997).

Tanzania provides a particularly stark example of such an anti-urban bias. At independence, the rural-urban contrast was seized upon by Julius Nyerere and used to justify decidedly anti-urban policies, including pass laws and slum clearance. Over time, a general neglect of the plight of urban dwellers resulted in the burgeoning of unplanned urban settlements.⁶ While Nyerere’s policies were perhaps extreme and probably not bourn out of a cynical political calculus, his appeal to rural constituents and prioritisation of rural development were certainly not unique in the region. A far more pernicious example of anti-urban bias bourn out of political calculation is the 2005 slum clearance programme in Zimbabwe designed to crush the urban-based opposition party Movement for Democratic Change.

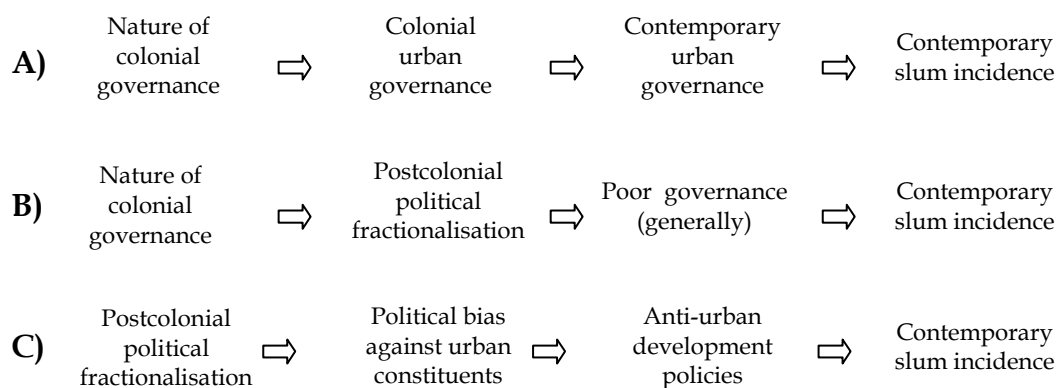
In sum, political fractionalisation along ethnic or geographic lines may influence urban governance through a general failure to formulate and implement effective policies (in rural and urban areas alike) and/or an active political bias against urban populations where they do not constitute significant constituencies for national political entrepreneurs. These

⁵ An informant, who serves as a professional political advisor to African governments, described the logic behind providing electricity, but not water, to residents of informal settlements: “Politicians want to keep them entertained, distracted. But they don’t want them to get too comfortable”.

⁶ Nyerere summed up his philosophy of development succinctly in a speech given at the FAO in 1979: “Every aspect of government and public activity, in other words, has to be angled towards promoting mass welfare in the rural areas, while yet enabling the urban areas to service effectively the rural needs from which their sustenance and which are their justification for existing” (Nyerere, 1979: 10-11).

hypotheses are tested by using two proxies for political fractionalisation: an index of ethnic diversity and a an index of the relative size of a nation’s land mass (pursuing the logic of the Herbst hypothesis).

The statistical strategy adopted here in an attempt to identify cross-national generalisations about the origins of slums is limited in it’s inferential capacity. *If* variations in colonial rule and political fractionalisation have affected trajectories of slum formation and growth, we would expect to find correlations between proxies for the nature of colonial rule and slum incidence, and between proxies for ethnic and geographic fractionalisation and slum incidence. However, demonstrating correlation cannot assist in identifying the specific causal mechanisms linking these variables. It may be that path-dependency is the primary mechanism linking strategies of colonial rule to slum incidence, or that generally poor governance exacerbated by the nature of colonial rule is the mechanism – or a combination of the two. Similarly, if the ethnic or geographic proxies for political fractionalisation are correlated with slum incidence, the causal chain may operate through general collective action failure, or through a political bias against urban constituents. These possible causal chains can illustrated as follows:



Qualitative, historical research on a case-by-case basis is more appropriate than quantitative analysis for clarifying these potential causal mechanisms that link colonial experience and political context to patterns of urban development.

III. STATISTICAL ANALYSIS OF THE DETERMINANTS OF SLUM INCIDENCE

Table 1 presents descriptive statistics of the key variables in the following analysis. Table 2 reports the results of a series of OLS regressions of slum incidence in 2001 on the potential determinants of slum incidence outlined above. First, the relationship between urban growth rates and slum incidence are examined. Urban growth data is drawn from the UN Department of Social and Economic Affairs Population Division database. Column (1) demonstrates that there is a significant correlation between the average rate of urban growth in a country between 1991-2000 (AvUG9100) and slum incidence in 2001. This simple model explains approximately 40% of the variation in slum incidence. Column (2) adds controls for level of urbanization in 2000 (URBZ00) and the log of GDP per capita in 1975 (LNGDP75) measured in purchasing power parity. More urbanized countries could theoretically have higher slum incidence rates than other countries with similar income levels, and countries with higher initial GDP could benefit from a greater availability of resources for investing in cities as they grow. Column (2) demonstrates that when these controls are added, urban growth continues to be a significant determinant of slum incidence, although the magnitude of the coefficient is halved. Levels of urbanization do not appear to exert a significant effect on slum incidence, but initial GDP does. This may reflect a greater availability of resources for investment, or LNGDP75 may be capturing the effects of a range of unobserved country characteristics that affect GDP levels and slum formation alike.

Columns (3) and (4) introduce the first proxy for the nature of colonial governance and tests the relationship between degrees of indirect rule (INDRULE) and slum incidence in a sample of 30 former British colonies. Data on British indirect rule (INDRULE) is borrowed from Lange (2004). The correlation between INDRULE and slum incidence is strong, explaining approximately 67 percent of the variation in slum incidence when AvUG9100 is controlled for.

Interestingly, the significance of AvUG9100 evaporates in this model, suggesting that legacies of indirect rule may be more a significant determinant of slum incidence than urban growth rates. This result is not driven by decreased variation in average urban growth rates within the sub-sample, as these range between .42 percent and 11.5 percent with an average of 4.43 percent and a standard deviation of 2.64. The strength of these results are confirmed in column (4) with the added controls: the only variable that is significant (at the 1 percent level) is INDRULE. Furthermore, this model explains approximately 73 percent of the variation in slum incidence in this sub-sample of former British colonies.

These results are further confirmed in columns (5) and (6), which introduce the second proxy for colonial strategies of rule, combining AvUG9100 with a measure of colonial settler mortality (LOGMORT) borrowed from Acemoglu, Johnson and Robinson (2001). In the first model, both AvUG9100 and LOGMORT are highly significant and together explain over half of the variation in slum incidence. With controls, LOGMORT remains highly significant while AvUG9100 loses a significant degree of explanatory power, again suggesting that legacies of colonial governance may exert a stronger effect on trajectories of urban development than raw urban growth rates. And again, initial income and level of urbanization do not appear to exert a significant effect on slum incidence when variations in colonial governance and urban growth rates are accounted for.

Columns (7) and (8) report the results employing the first proxy for political fractionalisation: ethnic diversity. Following Easterly, Ritzen and Woolcock (2006), Easterly and Levine (1997) and Mauro (1995), I utilise an index of ethnolinguistic fractionalization (ETHNO) as a measure for ethnic diversity. The ETHNO index reflects the probability that two randomly selected individuals from a country's population (around 1960) will not be members of the same ethnolinguistic group. The index was originally developed by the

Department of Geodesy and Cartography of the State Geological Committee of the USSR and published in the *Atlas Narodov Mira* in 1964. In a simple model, AvUG9100 and ETHNO are both highly significant and explain over 50 percent of the variation in slum incidence in a sample of 139 countries. These results are robust to controls as well, although it should be noted that the coefficients decline in magnitude and initial income is highly significant.

Finally, I introduce the log of a nation's total area (LOGAREA) as the second proxy for political fractionalisation following the Herbst hypothesis that large nations are more prone to political conflict. AvUG9100 is highly significant in the simple model and LOGAREA is marginally significant (at the 10 percent level). The R-squared statistic is very similar to column (1), suggesting that LOGAREA has only a marginal effect on slum incidence. However, once controls are added the significance of the coefficient improves while the magnitude remains relatively stable, suggesting that this marginal effect is consistent, if small.

Overall, urban growth rates between 1991 and 2000 appear to exert a relatively consistent and significant effect on slum incidence in 2001. However, the fact that the significance evaporates in columns (3) and (4) is suggestive. The INDRULE index is the most precisely specified indicator of colonial governance available, and its effect overrides that of urban growth, as well as initial income. Taken together, columns (3)-(6) provide support for the hypothesis that variations in colonial governance have had a significant effect on future trajectories of urban development, but the mechanism remains unclear. The institutional path-dependency interpretation developed by Acemoglu, Johnson and Robinson (2001) and suggested by Home's (1990) analysis regarding colonial urban planning is plausible given the historical evidence, but so too is the Lange (2004) hypothesis, which identifies political fractionalisation as the mechanism. They are not mutually exclusive. The results may reflect a combination of institutional path dependency and political fractionalisation.

Columns (7)-(10) provide empirical support for the hypothesis that political fractionalisation (generally) has an effect on slum incidence, regardless of variations in colonial rule. Precise inference is impossible with the data at hand, but it is possible to theorize that path-dependent colonial legacies of urban governance have played a part, and that political fractionalisation, and its negative influence on the effective management of a society's resources, has also contributed to slum incidence. Isolating causal mechanisms requires further city-level research and data. This analysis merely suggests that there are empirical regularities that are consistent with the hypotheses presented.

IV. ON THE ECONOMIC CONSEQUENCES OF SLUMS: THEORY AND EVIDENCE

What of the economic consequences of slums? Urban growth, properly managed, can yield significant economic benefits by stimulating agglomeration economies, which enhance economic productivity and encourage innovation in the urban sector (Rosenthal and Strange, 2004). However, unregulated urban growth can produce inefficient and undesirable outcomes in the form of sprawling slums (Overman and Venables, 2005). Slum settlements are fraught with transaction costs: inadequate infrastructure increases transportation costs and the disease burden of urban dwellers; ambiguous property and tenancy rights can reduce the efficiency of urban land and housing markets, generate insecurity and informality, and may discourage investment or reduce participation in urban labour markets.⁷ Rigid or outdated planning frameworks can exacerbate these problems by making it difficult for households and firms to comply with zoning regulations or building codes. In other words, slums are high-transaction cost spaces.

Figure 2 provides a visual illustration of this idea. The rectangular space represents an urban agglomeration and the dots represent economic agents (e.g. individuals, households or firms). The shaded area (A) represents an area within the city with networked infrastructure, clearly defined property rights and a police presence. The rest of the area within the rectangle (B) represents zones characterised by an effective absence of infrastructure, clearly defined property rights or third party enforcement of the law. In this context, area (B) is a high transaction cost zone relative to area (A). Those living within a serviced urban core with clear titles to their assets and access to public infrastructure face lower transaction costs than those relying on localised tenure security arrangements and ad-hoc solutions to the absence of essential infrastructure (such as water and sanitation). The larger the proportion of an urban

⁷ For example, in a recent study of land titling in Peru, Erica Field (2006) found that providing titles to slum dwellers increased labour force participation outside of the home and led to a substitution of adult labour for child labour as slum dwellers felt less vulnerable to land invasion.

area with slum characteristics, the higher the *overall* transaction cost burden of the settlement. In other words, in any given city the overall burden of transaction costs can be said to be a partial function of the size of (B) relative to (A). The slum incidence index is used here as a rough proxy for this relationship at a national level, and (not surprisingly) there is a strong negative correlation between slum incidence and income.⁸

Table 3 demonstrates that the negative and significant correlation between slum incidence and income shown in Figure 1 remains robust and significant (at the 1 percent level) with the inclusion of controls for geography, region, natural barriers to trade (a dummy variable for landlocked status), a dummy variable capturing whether or not a country was a former colony, and level of urbanization in the year 2000. Models (5) and (6) test whether or not the inclusion of a standard indicator of quality of governance (rule of law) significantly diminishes the explanatory power of slum incidence and demonstrates that it does not.⁹ Although the magnitude of the coefficient on the slum incidence variable drops, both variables remain highly significant and the model explains approximately 88 percent of income variation in a sample of 157 countries.

This correlation only tells us that there is a strong relationship between slum incidence and income, but tells us nothing about causality. It is plausible that un-captured agglomeration benefits due to poor urban governance depress overall economic performance, but it is equally plausible that poor economic performance makes public resources to manage urban growth scarce – even in the best governed cities. To solve this endogeneity problem, I employ

⁸ Levels of income instead of rates of growth are used in this analysis, as it is assumed that the economic effects of slum incidence would work themselves out over long periods of time. Given the high variability of short and medium-run growth rates, we would not expect to find a strong association between slum incidence and growth rates in the short or medium-run. Income levels are essentially a measure of long run economic performance. See Hall and Jones (1999) for a justification of using levels of income as opposed to rates of growth in this kind of analysis.

⁹ Slum incidence is highly correlated with a range of quality of governance variables, including control of corruption, regulatory quality, rule of law, government effectiveness and political stability. Rule of law was chosen as a control variable for institutional quality here and in models presented later in the paper because it consistently demonstrated the greatest explanatory power.

an instrumental variables strategy, exploiting variation in colonial strategies of rule, as well as ethnic and geographic characteristics of individual countries. The colonial episode in international history serves as a natural experiment: colonial occupation was an exogenous 'shock' to the process of human settlements development, and more generally to the institutional environment and governance structure of affected territories.¹⁰ Colonisers imported town planning and management practices and pursued various urban investment strategies depending upon their interest in the territories they controlled. More generally, colonial strategies of rule influenced future political contestation, which may be responsible for a general neglect of urban development or even anti-urban bias in human settlements policy. By exploiting this natural experiment it is possible to overcome the endogeneity problem noted above. I also exploit variations in the ethnic diversity and relative size of individual countries following a similar line of reasoning concerning the relationship between political fractionalisation and urban development. More ethnically diverse societies, and larger countries, may experience more political fractionalisation and hence less effective governance (generally), or political fractionalisation may translate into an anti-urban bias in government policy.

The predicted values of slum incidence generated in the initial OLS analysis of the determinants of slum incidence (Table 2) are used in a series of second stage regressions of slum incidence on income. As the determinants of slum incidence are assumed to be exogenous to contemporary income levels, the predicted values of slum incidence are also assumed to be exogenous permitting a (cautious) causal inference. The following provides a schematic illustration of this strategy:

¹⁰ See Mauro (1995), Hall and Jones (1999), Acemoglu, Johnson and Robinson (2001) and Rodrik, Subramanian and Trebbi (2004) for examples of this approach.

- (1) Average urban growth rate, 1991-2000 (AvUG9100) \Rightarrow Slum incidence, 2001 (SLUM01) \Rightarrow Income level, 2001
- (2) Degree of indirect rule (INDRULE) + Average urban growth rate, 1991-2000 (AvUG9100) \Rightarrow Slum incidence, 2001 (SLUM01) \Rightarrow Income level, 2001
- (3) Colonial settler mortality (LOGMORT) + Average urban growth rate, 1991-2000 (AvUG9100) \Rightarrow Slum incidence, 2001 (SLUM01) \Rightarrow Income level, 2001
- (4) Ethnic diversity (ETHNO) + Average urban growth rate, 1991-2000 (AvUG9100) \Rightarrow Slum incidence, 2001 (SLUM01) \Rightarrow Income level, 2001
- (5) Relative country size (LOGAREA) + Average urban growth rate, 1991-2000 (AvUG9100) \Rightarrow Slum incidence, 2001 (SLUM01) \Rightarrow Income level, 2001

Five similar models employing five different combinations of instruments are used in succession as a robustness check. Tables 4a and 4b report the results of these models.

Across these 20 specifications the results are generally consistent: slum incidence in 2001 (SLUM01) remains highly correlated with income when instrumented, and the magnitude of the coefficient on SLUM01 is relatively stable. In the simple correlations between SLUM01 and income – columns (1), (5), (9), (13) and (17) – the coefficient on SLUM01 ranges between a relatively narrow band (-.031 and -.037) and the R-squared statistic ranges between .63 and .67. These results are similar to the original OLS model. Indeed, the magnitude of the coefficient is marginally larger when SLUM01 is instrumented.

When controls are added the picture becomes a bit more complicated, but remains relatively consistent with the following caveats. In column (4), SLUM01 becomes insignificant and the coefficient declines significantly. This may be due to poor specification, or possible multicollinearity. Similarly, in columns (11) and (12) SLUM01 becomes insignificant, but the coefficient remains within the established range. It should be noted that none of the

independent variables are significant in these models, which continue to have robust explanatory power, suggesting that multicollinearity is indeed a problem.

Apart from these three anomalies, the results are consistent across 17 specifications utilising five different combinations of instruments and five different samples. Furthermore, these models have significant explanatory power, accounting for anywhere between 63 and 91 percent of income variation across countries. It should also be noted that the geographic controls are generally insignificant, although the dummy variable for South Asia is marginally significant in column (15) and shows a *positive* sign across all models. The only control variable that is consistently significant is URBZ00, which is not surprising given that urbanization levels are highly correlated with the structure of a nations economy and hence income levels. Overidentification tests confirm that the instruments are valid, with the exception of the AvUG9100/INDRULE combination of instruments, which are marginally valid.

It is difficult to determine from these results whether the apparent causal relationship between slum incidence and income is reflecting (specifically) the economic costs of inefficient urban morphologies (as hypothesised), or whether slum incidence is serving as a proxy for governance more generally. The strength of the correlation is suspicious, similar in fact to empirical studies that explore the relationship between quality of institutions and governance and economic outcomes (see Acemoglu, Johnson and Robinson, 2001; and Kaufmann and Kraay, 2002). Is slum incidence merely a proxy for quality of governance? And if so, is it capturing the same effect as standard indicators, or is it perhaps capturing a *spatial* aspect of the quality of governance?

There is often significant variation in the quality of economic governance across space within a nation in terms of public goods provision and the provision of law and order – just as

there is within cities with large slum populations. The slum incidence index may be serving as a proxy for the degree to which individual countries have managed to reduce transaction costs across their territories – not just within their cities – by providing the necessary physical and institutional infrastructure. From a theoretical perspective this can be understood as a corollary to the institutions school of thought that emphasises the importance of ‘the rules of the game’. In this case, however, the emphasis is on the importance of ‘getting players into the game’ by ensuring that institutions are enforced and infrastructure is provided evenly across space to reduce transaction costs for economic agents within a nation.

In an effort to determine whether or not the slum incidence index is serving as a proxy for the *spatial quality of governance*, as opposed to quality of governance more generally, a final stage of regressions incorporate a proxy for rule of law (RL02) alongside the slum incidence index. In the original OLS regressions, both slum incidence and rule of law were significant when placed within the same model, suggesting that they may indeed be capturing different effects. In this final stage both variables are instrumented and a reduced form model is used (omitting the controls that were consistently insignificant in the previous models). Results are reported in Table 5.

Columns (1)-(4) report results using AvUG9100 and LOGAREA as instruments for SLUM01 and RL02; columns (5)-(8) utilise AvUG9100, LOGAREA and ETHNO as instruments. Overall, the results are inconclusive. In the simple models with no controls – columns (1) and (5) – neither SLUM01 nor RL02 are significant, although the R-squared statistic suggests that these models do have significant explanatory power. This suggests that the two indicators may be capturing the same effect. However, when controls are added in columns (2) and (4) we observe similar results to those obtained in the original OLS model. Using the expanded set of instruments, the results become more volatile: when controlling for latitude in column (6),

SLUM01 is marginally significant while RL02 remains insignificant. Conversely, when latitude and level of urbanization are controlled for RL02 is marginally significant and SLUM01 is not. We appear to have reached the limit of the data and methods at hand.

Overall, the above analysis provides provocative but inconclusive evidence that there may be a causal relationship between slum incidence and income, but the mechanism linking these variables is unclear. Does the high transaction cost environment of slum settlements represent a serious drag on long run economic performance? Is the slum proxy merely a proxy for quality of governance? Or is it a proxy for the generally neglected *spatial* quality of governance? Better data (and probably a more talented econometrician) are required to answer these questions.

V. CONCLUSION AND DISCUSSION

This paper has demonstrated certain empirical regularities regarding the origins and economic consequences of slums, and has highlighted areas for further research.

Rapid urban growth does appear to exert a significant influence on slum incidence, but urban growth alone explains less than half of the variation across a large sample countries. Colonial legacies of governance appear to exert a more significant effect. Political fractionalisation also has a significant albeit weaker effect. The analysis presented here does not, however, clarify the mechanisms through which these factors influence slum formation and growth, highlighting the need for further research in this area. I have suggested that the following mechanisms be examined in greater detail:

- 1) Legacies of colonial governance and management (i.e. path-dependency in urban planning and management practices);
- 2) A political bias against urban populations that hinders the formulation and implementation of 'encompassing' urban development strategies.

The first can be explored with historical research on a case-by-case basis, as well as through regulatory audits, such as those presented in Payne and Majale (2004). The second has generally been neglected (at least in the literature concerning African development) and requires extensive historical research. In Africa, Asia and Latin America, a large majority of governments have stated a clear preference towards reduced migration into urban areas in 2005 (United Nations 2006a). Is this born out of a genuine concern with effective urban management, or a perceived threat of political turmoil? Understanding the attitudes and

beliefs of government actors regarding urbanization and slum residents is critical to understanding barriers to institutional reform (North 2005).

Regarding the economic consequences of slums, it is clear that slum incidence and income are highly correlated, and the above analysis presents some evidence that causation from runs from slum incidence to income – a measure of long run economic performance. Once again, however, the mechanisms driving this correlation have not been firmly demonstrated. Instead, three hypotheses have been presented:

- 1) Urban agglomerations characterised by large slum settlements suffer from sub-optimal productivity given their size due to the high transaction costs associated with this kind of urban morphology;
- 2) Slum incidence may be serving as a proxy for quality of governance generally;
- 3) Slum incidence may be serving as a proxy for a *spatial* aspect of quality of governance.

Slum areas are (arguably) high transaction cost zones, and as such may represent spaces of unrealized economic potential. Hernando de Soto (2000) has advanced such an argument from an institutional perspective by advocating land titling, and Field (2005;2007) has demonstrated in a pair of studies that land titling in Peru has had some impact on individual residential investments and has encouraged adult participation in labour markets. However, titling alone does not solve the technical, financial, institutional, organizational and political coordination problems involved in extending infrastructure to underserved areas, or the provision of law and order in such areas. A better understanding of the transaction cost environment in slums – and a comparable set of city-level data – would permit a useful

analysis of the economic costs of excluding such areas from public investment schemes, state-enforced property and tenancy rights, and the formal provision of law and order.

The slum incidence index may also be a useful proxy for quality of governance. In OLS regressions of income on various indicators of governance that incorporate standard controls, slum incidence is consistently significant while the explanatory power of other governance indicators fluctuates. This may indicate that slum incidence is a particularly strong proxy for quality of governance. Or, alternatively, it may be capturing an often overlooked aspect of the quality of governance: the fact that it is variable across space. Figure 2 was introduced as an abstract model of an urban agglomeration divided into high-transaction cost and low-transaction cost zones. The same diagram could represent a country, with a relatively low-transaction cost area around a capital city and a high transaction cost environment beyond it (for example). Perhaps the relative consolidation of urban settlements in a nation (as measured by the slum incidence index) is a proxy for the consolidation of economic agents across a territory more generally. If this is the case, the slum incidence index could be understood as a spatial measure of the quality of governance, as opposed to an aggregate (aspatial) measure, such as 'rule of law'. A general hypothesis to be explored further is that long run economic performance is not only a partial function of the quality of institutions or governance (generally), but rather the quality of governance across national space. Uneven or 'un-encompassing' economic governance may represent a drag on long-run growth performance by fragmenting economic agents in space – in cities and nations alike. Conversely, 'encompassing' governance may serve to reduce transaction costs between economic agents dispersed in space, yielding significant economic dividends over time.

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FIGURE 1 *Slum incidence and income*

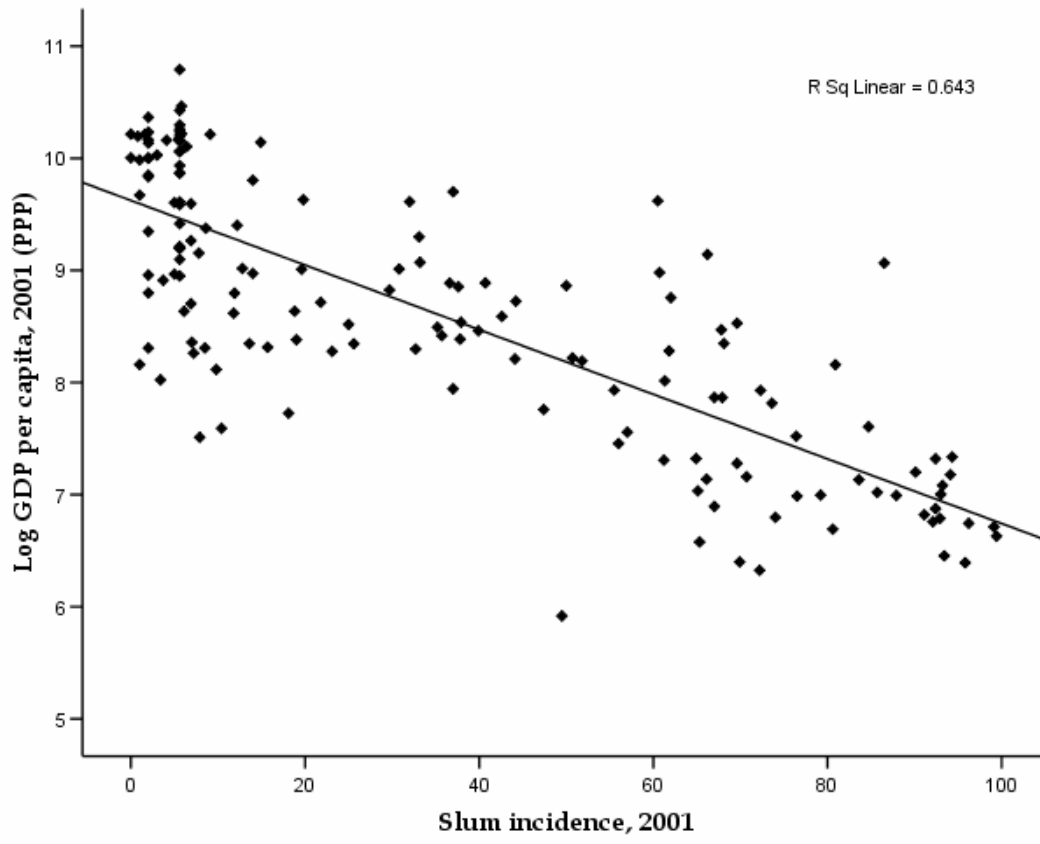


FIGURE 2 *Illustration of low and high transaction cost zones in an urban agglomeration*

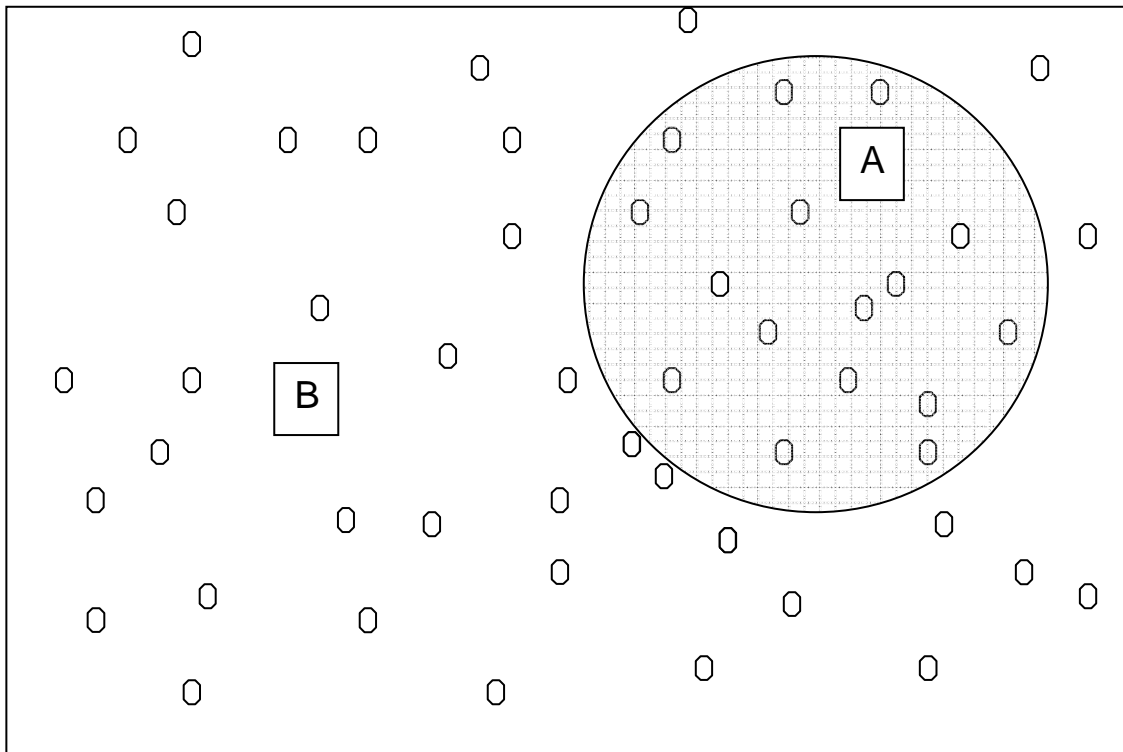


Table 1 Descriptive Statistics

	Mean	Observations
Log GDP per capita, 2001 (PPP)	8.56 (1.18)	181
SLUM01	35.43 (32.76)	163
AvUG9100	2.33 (1.95)	195
INDRULE	37.47 (32.46)	33
LOGMORT	4.65 (1.25)	64
ETHNO	.334 (.304)	154
LOGAREA	10.27 (2.54)	189
LAT	.285 (.190)	198
URBZ00	54.78 (24.35)	200
LOGGDP75	7.24 (1.09)	155
RL02	-.030 (.993)	192

Notes: standard deviation in parentheses.

TABLE 2 Determinants of Slum incidence

Dependent Variable = Slum incidence, 2001										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
AvUG9100	10.24*** (1.01)	5.11*** (1.21)	1.37 (3.14)	.593 (3.13)	9.18*** (2.76)	4.72* (2.74)	8.80*** (1.24)	4.48*** (1.23)	10.24*** (1.04)	4.89*** (1.20)
INDRULE			.860*** (.137)	7.15*** (2.05)						
LOGMORT					11.71*** (2.86)	7.23*** (2.73)				
ETHNO							41.17*** (7.34)	27.22*** (6.80)		
LOGAREA									1.96* (.996)	1.83** (.899)
URBZ00		.066 (.131)		.087 (.267)		-.302 (.228)		.106 (.124)		.069 (.130)
LNGDP75		- 17.96*** (2.13)		-9.44 (7.93)		-9.39 (6.26)		- 18.02*** (3.06)		- 19.71*** (3.17)
R-squared	.39	.60	.67	.73	.54	.65	.52	.66	.41	.62
Observations	160	136	31	30	64	62	139	131	154	135

Notes: Standard errors are in parentheses. Significance at the 1, 5 and 10 percent levels are indicated by ***, **, * respectively. LOGMORT = log of colonial settler mortality rates; INDRULE = degree of indirect rule employed by British colonists; ETHNO = ethnolinguistic fractionalisation; FMRCOL = dummy variable for former colonies; LNGDP75 = log of GDP per capita in 1975 (PPP adjusted international dollars)

TABLE 3 *Slum incidence and income*

Dependent Variable = Log of Average GDP per capita, 2001 (PPP)						
	(1)	(2)	(3)	(4)	(5)	(6)
SLUM01	-.029*** (.002)	-.025*** (.002)	-.025*** (.003)	-.016*** (.002)	-.017*** (.002)	-.011*** (.002)
LAT		1.15*** (.331)		.293 (.345)		-.127 (.283)
LAC			-.024 (.152)	.089 (.136)		.148 (.110)
SSA			-.422** (.209)	.000 (.168)		-.130 (.137)
SA			-.217 (.347)	.562 (.272)		.307 (.222)
LNDLCK				.042 (.116)		.052 (.094)
FMRCOL				-.212 (.128)		-.230** (.104)
URBZ00				.025*** (.002)		.018*** (.002)
RL02					.613*** (.055)	.442*** (.050)
R-squared	.64	.67	.68	.82	.80	.88
Observations	158	158	158	157	158	157

Notes: Standard errors are in parentheses. Significance at the 1, 5 and 10 percent levels are indicated by ***, **, * respectively. SLUM01 = slum incidence, 2001; LAT = latitude; LAC = Latin America and the Caribbean dummy; SSA = Sub-Saharan Africa dummy; SA = South Asia dummy; LNDLCK = dummy for landlocked status; FMRCOL = dummy variable for former colonies; RL02 = index of rule of law, 2002.

TABLE 4a Slum incidence and income, IV results

	Dependent variable = Log of GDP per capita, 2001 (PPP)											
	Instrument = AvUG9100				Instrument = INDRULE & AvUG9100				Instrument = LOGMORT & AvUG9100			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SLUM01	-.031*** (.003)	-.013*** (.004)	-.016** (.006)	-.009 (.008)	-.036*** (.005)	-.025*** (.005)	-.016*** (.006)	-.016*** (.006)	-.037*** (.004)	-.028*** (.007)	-.032 (.026)	-.028 (.024)
LAT		.803** (.362)		.722 (.369)		1.44 (1.03)		.596 (.923)		.499 (.521)		.477 (.513)
LAC			-.099 (.130)	-.011 (.140)			.192 (.264)	.171 (.271)			.064 (.523)	.034 (.480)
SSA			-.192 (.337)	-.397 (.367)			-.571 (.427)	-.543 (.441)			.528 (1.26)	.361 (1.17)
SA			.399 (.336)	.204 (.363)			.222 (.374)	.168 (.389)			.787 (.692)	.676 (.646)
LNDLCK		-.009 (.126)	.094 (.117)	.006 (.129)		-.028 (.287)	.470 (.286)	.409 (.311)		.205 (.240)	.326 (.289)	.281 (.268)
URBZ00		.026*** (.003)	.026*** (.003)	.026** * (.003)		.019*** (.006)	.024*** (.005)	.024*** (.005)		.013* (.007)	.018 (.013)	.019 (.012)
R-squared	.64	.80	.81	.80	.63	.83	.90	.91	.67	.80	.78	.82
Observations	158	157	157	157	29	29	29	29	61	61	61	61

Notes: Standard errors are in parentheses. Significance at the 1, 5 and 10 percent levels are indicated by ***, **, * respectively.

TABLE 4b *Slum incidence and income, IV results (cont'd)*

Dependent variable = Log of GDP per capita, 2001 (PPP)								
	Instrument = ETHNO & AvUG9100				Instrument = LOGAREA & AvUG9100			
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
SLUM01	-.034*** (.003)	-.019*** (.003)	-.026*** (.020)	-.019*** (.007)	-.031*** (.003)	-.017*** (.004)	-.019*** (.006)	-.017*** (.006)
LAT		.802** (.328)		.801 (.365)		.504 (.333)		.441 (.343)
LAC			-.039 (.140)	.052 (.140)			-.065 (.124)	.008 (.131)
SSA			.283 (.351)	.071 (.337)			-.001 (.304)	-.037 (.311)
SA			.714* (.353)	.494 (.343)			.503 (.316)	.446 (.324)
LNDLCK		.025 (.135)	.123 (.137)	.034 (.135)		.036 (.132)	.095 (.124)	.054 (.128)
URBZ00		.022*** (.003)	.023*** (.003)	.023*** (.003)		.024*** (.003)	.012*** (.003)	.024** (.003)
R-squared	.64	.82	.80	.83	.65	.81	.82	.82
Observations	135	135	135	135	150	149	149	149

Notes: Standard errors are in parentheses. Significance at the 1, 5 and 10 percent levels are indicated by ***, **, * respectively.

TABLE 5 *Slum incidence, rule of law and income*

Dependent variable = Log GDP per capita, 2001 (PPP)								
	Instrument = AvUG9100 & LOGAREA				Instrument = AvUG9100, LOGAREA & ETHNO			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SLUM01	-.009 (.075)	-.016*** (.006)	-.006 (.020)	-.011*** (.004)	-.006 (.024)	-.015* (.008)	-.004 (.020)	-.009 (.006)
RL02	1.09 (3.61)	.738** (.352)	.941 (1.46)	.589** (.296)	1.04 (.955)	.680 (.441)	.854 (.954)	.682* (.375)
LAT		-.081 (.624)		-.174 (.443)		.012 (.888)		-.414 (.671)
URBZ00			.011 (.020)	.016*** (.005)			.014 (.009)	.015*** (.004)
R-squared	.70	.79	.78	.87	.74	.81	.82	.87
Observations	150	150	149	149	134	134	134	134

Notes: Standard errors are in parentheses. Significance at the 1, 5 and 10 percent levels are indicated by ***, **, * respectively.

“Quick and dirty” overidentification test

	Dependent variable = Log GDP per capita, 2001 (PPP)				
	(1)	(2)	(3)	(4)	(5)
SLUM01	-.017*** (.002)	-.005 (.004)	-.010*** (.003)	-.018*** (.002)	-.017*** (.002)
LAT	.700** (.346)	.610 (.785)	.563 (.411)	.803** (.390)	.666* (.349)
LAC	.040 (.131)	-.087 (.272)	-.200 (.166)	.039 (.141)	-.004 (.131)
SSA	-.084 (.162)	-.856** (.311)	-.348 (.246)	.001 (.186)	-.029 (.164)
SA	.434 (.263)	.035 (.325)	.276 (.287)	.442 (.272)	.453* (.260)
LNDLCK	.046 (.117)	.643** (.260)	.189 (.189)	.028 (.132)	.047 (.124)
URBZ00	.024*** (.002)	.024*** (.005)	.027*** (.004)	.023*** (.003)	.024*** (.002)
AvUG9100	.030 (.030)	.101 (.069)	.038 (.065)	-.009 (.036)	.032 (.030)
INDRULE		-.011* (.005)			
LOGMORT			-.105 (.065)		
ETHNO				.018 (.218)	
LOGAREA					-.032 (.023)
R-squared	.81	.94	.89	.83	.82
Observations	157	29	61	135	149