

**GROWTH IN THE MIDDLE:  
The Economic Fortunes of Mid-Sized Metropolitan Areas**

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## Introduction

Research into metropolitan economic development, both in the United States and abroad, has focused primarily on the largest metropolitan areas, even though they comprise only a small percentage of all such areas.<sup>1</sup> Case-study research has occasionally delved into the mechanics of economic growth in smaller regions, but studies of this type are few and they provide little data useful for comparative analysis. Two arguments have been made in support of this approach: First, that the largest metropolitan areas deserve study because of the large percentage of the population who reside in them;<sup>2</sup> and second, that case studies are the only type of research appropriate for smaller urban economies because they are idiosyncratic – that is, they rely largely on the activities of one or only a few people or firms, or they represent one-of-a-kind situations.

This research attempts to expand knowledge and understanding of the dynamics of mid-sized metropolitan economies – those with populations between 300,000 and 700,000. We question the dismissal of smaller economies as essentially idiosyncratic, for two reasons: First, all larger metropolitan economies grew from smaller economies, and there is no reason to presume that the forces that generated their growth have ceased to operate in the 21<sup>st</sup> Century. Although urban areas in the United States have long been regarded as holding relatively fixed places in a national hierarchy (Taylor, 2004), some have altered their positions substantially during the last 25 years – for example, San Jose, Seattle, and Austin, due to their concentrations of high-tech growth industries, and Las Vegas, due to climate and the expansion of the gaming industry. Similarly, some older industrial areas – New Bedford, MA and Buffalo, NY, to name just two – have dropped somewhat in prominence, even when they have not suffered actual population losses.

Second, very little empirical research has been conducted that enables comparisons of smaller economies to one another; as a result, there is no real basis on which to conclude that no patterns exist. Ironically, critiques of work that has included smaller metropolitan areas in the U.S. have mentioned some of the potential patterns. For example, Blair *et al.* (1996), in critiquing David Rusk's seminal work *Cities Without Suburbs* (1993), noted that his comparison of fourteen paired MSAs was biased by the inclusion of state capitals only on the "elastic" side of the pairs, thus suggesting that state capitals differ systematically from non-capitals.

We hypothesize that this and other patterns do exist as the result of factors that can be measured across urban areas, both within the United States and elsewhere: the extent to which the home nation is urbanized, industrial mix, presence of major educational or research institutions, national spending (on defense, construction, etc.), environmental constraints, migration, and a host of others.

We compare the collective attributes of five mid-sized metropolitan areas (MSAs) in the United States – Bakersfield, California; Jackson, Mississippi; Lansing-East Lansing, Michigan; McAllen-Edinburgh-Mission, Texas; and Reading, Pennsylvania – to the same attributes in four mid-sized urban areas in Asia: Bishkek, Kyrgyzstan; Cebu and Mandaluyong, The Philippines; and Kathmandu, Nepal. These four Asian cities represent a convenience sample based on the availability of a coherent data set, which was developed for the Asian

Development Bank (ADB) as part of a pilot project to showcase a framework for the collection of urban indicators (Westfall & de Villa, 2002). Data for the same indicators were then matched for the five U.S. metropolitan areas to the extent that this was feasible.

We first discuss the relevance of the various indicators to economic potential, then present the specific indicators used in this study. The section following compares all nine urban areas. Similarities and differences between the two groups (Asian and American) are discussed. The concluding section offers a look ahead with recommendations for consistent global data collection and a more productive research agenda.

## Background

During the 1980s, a seemingly new phenomenon emerged in the U.S. economic literature: the metropolitan area, or urban region, as the primary macro-economic unit (Barnes & Ledebur, 1998; Stegman & Turner, 1996). However, this idea was not at all new. The history of urban economics shows that, except for a relatively short period beginning in the sixteenth century and lasting through most of the twentieth, the only significant economies anywhere in the world were those of cities (Abu-Lughod, 1989; Dollinger, 1970; Braudel, 1984). Not only did nation-states not exist, at least not as we now know them, but the bulk of trade occurred among major nodes, or entrepôts. In the modern era, the Regional Planning Association of New York labeled the region as a primary organic unit as early as the 1920s, although it focused primarily on cultural and environmental attributes (Sussman, 1976, citing Mumford, 1925; see also Friedmann & Weaver, 1977). At about the same time, the urban ecologists argued that the metropolis is the natural form for industrial civilization and, hence, the proper planning unit (Friedmann & Weaver, 1977, citing Wirth, 1942).

For analytical purposes, Perloff *et al.* (1960) distinguished between two major components of urban economies: *volume* – measured using growth in employment and total output – and *welfare* – measured using growth in income and wealth. Income as a measure of well-being has been amply validated since: “Per capita income is a measure of the economic health of places, a reflection of the potential tax base, and an indicator of the economic welfare of a locality’s residents” (Ledebur & Barnes, 1992, preface; see also Dreier *et al.*, 2001; Voith, 1998; Blair *et al.*, 1996; Beyers, 1992). Perloff *et al.* (1960) also recognized that population characteristics differentiate metropolitan areas and are important in shaping economic outcomes. By the mid-1960s, urban economists had laid out four critical elements – market locations and densities; transport costs; availability, quality and cost of the work force; and public expenses (Alonso, 1964). This list has been augmented since then by considerations of agglomeration economies, workforce skill, quality-of-life factors, technological innovation, and entrepreneurial churning (Gottlieb, 2004; Kanter, 1995; Jacobs, 1984).

The American literature is replete with case studies and with empirical analyses limited in scope and inclusive of only the largest metropolitan economies (see, *e.g.*, Chapple *et al.*, 2004; Savitch *et al.*, 1993; Pollard & Storper, 1996; Peirce *et al.*, 1993; Mills, 1992; Levine, 1995). A few, more comprehensive comparative analyses have appeared over the years, but they, too, have been limited in scope. Rusk (1993) compared all U.S. metropolitan areas, but primarily in terms of population growth and “elasticity,” which describes the central city’s ability to capture such growth. Ó’Huallachain (1992) developed a typology of metropolitan areas based on their population characteristics (*e.g.*, level of immigration) and industrial base (*e.g.*, manufacturing, tourism, etc.).

Stanback (2002) offers a similar, but better-developed typology. However, he, too, focuses more attention on the largest metropolitan areas and clusters the rest for purposes of analysis. However, Stanback's work makes it clear that patterns do, in fact, exist among smaller MSAs. His five nodal groupings are broken out by size category, the smallest two of which encompass nodes with populations between 250,000 and one million, and those with populations less than 250,000. These areas are labeled as nodes because they are diversified service centers, a condition identified by an absence of any outsized industrial location quotients. Other groupings include "functional nodal," in which manufacturing or service quotients are high, and "specialized service centers," in which government, military, and/or resort and tourism functions predominate (Stanback, 2002, p. 19). Thus, at least in terms of industrial structure, likenesses among smaller MSAs readily appear. However, potential patterns among other components of regional economies have yet to be explored fully.

Whether the industrial patterns identified by Stanback (2002), or any other patterns impinging on local economies, can be found elsewhere in the world is unknown. Taylor (2004) has done an excellent job of summarizing the state of global urban analysis. He notes that the consideration of urban areas within the context of the globalization of the economy has produced a great deal of theoretical speculation and a few case studies, but virtually no empirical research. For example, despite assertions that "global cities" can be defined by the density of their connections to the outside world (Friedmann, 1986; Sassen, 1994; Castells, 1996; Chapple *et al.*, 2004), the actual existence of those connections has never been measured, except crudely in the form of airline route maps and Federal Express traffic. Moreover, as Taylor aptly points out, the density of airline connections can be misleading: For example, Miami, Florida, and Palma, Majorca, have very high air connectivity because they are major resort destinations. Miami also qualifies as a global regional center, due to its business linkages with Latin America and the Caribbean, but Palma does not (Taylor, 2004). If annual FedEx traffic is measured this year (2004), Athens, Greece will seem to leap into the ranks of global cities without having become one.

The research described in this paper echoes and reinforces Taylor's concern about the "evidentiary crisis" (Taylor, 2004, p. 32). This research was proposed under the presumption that reasonable indicators of metropolitan economic input and output would be available from national governments. After scouring the Worldwide Web, we discovered that little or no information useful for our purposes is posted on national websites (when they exist), and that information from the various United Nations Commissions was either general or aggregated to the national level. We therefore altered our strategy, calling the American embassies of the countries of interest, which originally spanned five continents. We can only report that the words of retired University of New Orleans political scientist John Wildgen kept echoing in our ears: "If you know what you're doing, it isn't research" (Levine, 1997). Responses ranged from no response at all to courteous "We're sorrys."

There is an additional problem with doing this kind of research, one best detailed by Clark (2003): Urban systems – that is, urban hierarchies that conform more or less to a rank-size order as found in the United States and a handful of other nations – are, in fact, rare, and they exist only in industrialized countries. Far more common is the phenomenon of primate cities – cities that, due to the level of national development or deliberate national policy, are far larger than any other city in the same country or, in some cases, in neighboring countries as well (Clark, 2003). Lagos, Nigeria, is perhaps the quintessential example of a primate city – not only in Nigeria but in a large portion of West Africa – in the context of a developing nation, while London is a good example of how national domestic development policy has favored one area to such an extent that it has assumed primate status. The research problem identified in the

United States – namely, that the primary focus has been the largest MSAs – is being replicated globally. Megacities – those urban agglomerations with populations in excess of ten million – are routinely included in the literature (see, *e.g.*, United Nations Commission on Human Settlements [Habitat; hereinafter referred to as UNCHS], 2001a; Clark, 2003 [but threshold is eight million]), while other cities disappear from the map.

However, according to the Population Division of the United Nations Department of Economic and Social Affairs (2001), in 2000, 53.2 percent of the urban population in the more developed regions resided in urban areas with fewer than 500,000 people, while in the less developed regions the comparable figure was 48.6 percent.<sup>3</sup> Although the percentages are declining over time – in the least developed countries, 77 percent lived in areas of fewer than 500,000 inhabitants in 1975 but only 54.3 percent did so in 2000 – something between forty and fifty percent of the world’s urban population will still reside in smaller city-regions in 2015. Therefore, learning something about their current status, economic characteristics, and growth prospects is critical to the well-being of some two or three billion people.

As noted earlier, exploring metropolitan economic outcomes requires information about four general constructs: *economic structure*, *demographic characteristics*, *quality of life*, and *regional structure and capacity*. These inputs combine with idiosyncratic and intangible factors (such as local history and political leadership) to produce economic outcomes. The remainder of the literature review focuses on these four constructs, as developed by Anglo-American scholars.

### *Economic structure*

Neoclassical economic theory identifies four critical inputs: *factors of production* (labor, materials, and capital); *space*, variously defined as land, location, access, or proximity; *transport* with a low cost relative to the value of goods shipped; and *adequate public and private infra-structure*, including telecommunications.

Employment growth is often used to measure economic well-being (Dreier *et al.*, 2001; Mattila & Thompson, 1968). Growth in the number of available jobs (both formal and informal) does measure the capacity of the economy to keep pace with population growth and provide support for its citizens. It can also measure the competitiveness of a regional economy vis-à-vis the economies of other city-regions. However, although job growth is overwhelmingly the means by which persons and households improve their economic standing, “*simple employment growth may well slowly impoverish a region*” (Hicks & Rees, 1993, p. 2-5, emphasis original). In fact, changes in income and employment often correlate negatively, particularly where a high proportion of new jobs occurs in low-wage services (*e.g.*, Las Vegas, Nevada; New Orleans, Louisiana; Sarajevo, Bosnia & Herzegovina) or in low-value manufacturing (*e.g.*, Brownsville, Texas, and increasingly across the border in the Mexican *maquiladora* towns).

Activities within the informal economy also complicate measurements of employment. The informal sector provides a large percentage of all employment in many developing countries.<sup>4</sup> Much of this employment involves the household as the primary production unit. Although informal operations can grow quite large, competition is fierce due to ease of entry, forcing entrepreneurs to reduce costs, particularly for labor (UNCHS, 2001a). This devaluation of needed work means that much of the informal labor force consists of women and migrants (UNCHS, 2001b). Despite the low wages, though, the informal sector does help to compensate for the failure of the formal economy to employ the entire working population, particularly for those lacking the skills or autonomy to compete in the formal job market.

For research purposes, the presence of the informal sector limits the usefulness of official unemployment statistics, as many of the so-called unemployed are actually working – just not in government-sanctioned enterprises. However, unemployment figures are presented in this study to indicate the extent to which the formal economy in each region is succeeding.

Like employment growth, industrial sectors and sectoral shifts have figured prominently in regional development theory (Ó'Huallachain, 1992; Stanback, 2002). Employment and earnings in finance, insurance and real estate (FIRE), as well as in professional and management services, have been touted as economic engines (Jaret *et al.*, 2003; Sassen, 1994), making educational attainment a critical measure of workforce sophistication and adaptability and, hence, of an area's economic potential (Kresl, 1995; Reich, 1991). Meanwhile, the relative importance of manufacturing in the United States continues to be hotly debated (Stanback, 2002; Bartlett, 1999). The role of manufacturing in cities in the developing world is much less contentious: Manufacturing jobs typically offer higher wages than most other work. This situation recalls an earlier era in the industrialized countries, in which manufacturing jobs provided a springboard into the middle class for millions of workers.

Agglomeration economies, or industrial clusters, enhance employee skills and the spread of innovation, and create certain economies associated with density (Stanback, 2002; Jacobs, 1984). Sectoral employment offers a crude surrogate for such clusters: High proportional employment in a particular sector may mark the presence of an agglomeration economy (Chapple *et al.*, 2004). All sectors are not created equal, however: Although adding jobs in education, health care, and social services (EHSS) increases an economy's size (Adams, 2003) and quality of life, in developed countries it may *decrease* income and competitiveness, given the small number of well-paying jobs (*e.g.*, in medicine) compared to the armies of teachers, aides, and food-service workers. Furthermore, in the U.S., this sector has not enjoyed wage growth similar to that in the FIRE or professional/management sectors. Substantial EHSS employment may also signal the presence of a large poor or dependent population.

However, this analysis of EHSS is unlikely to apply in developing countries. There, teachers and nurses are among the most educated members of the populace, and social-service providers are often supported not by the state government but by non-governmental organizations (NGOs), with aid funds from abroad that support middle-class salaries.

Five agglomeration measures are included in this study: the proportions of (formal) employment in *secondary industry* (manufacturing, construction, and utilities); *consumer services* (wholesale and retail trade, transport, personal services, and arts/entertainment/recreation); *producer services* (finance, insurance, real estate; professional, scientific, and management services; and information management); *social services* (including education, health care, and government); and *others* (agriculture, mining, and defense) .

The ready availability of materials, once critical to economic prosperity (North, 1955), has largely ceased being so. Proximity to natural resources continues to decline in importance, even in developing countries, except for areas oriented specifically toward tourism, resource exploitation, and/or retirement (Stanback, 2002). Just-in-time purchasing and production, air freight, computerized tracking, the high-value-to-weight ration of many contemporary products, and telecommunications further reduce the importance of proximity (Clark, 2003; Clark *et al.*, 2002; Kanter, 1995). Similarly, transportation costs have been outweighed by other considerations: Global wage differentials have driven much production out of the industrialized countries and into the developing world, where the relatively low wage scales more than compensate for added transportation costs.<sup>5</sup>

Space and infrastructure, too, are largely irrelevant to metropolitan economic variability, at least within the United States. The availability of land is largely endogenous – that is, it affects

decisions *within* metropolitan areas but not *among* them. Infrastructure behaves much the same way. For example, the widest gap in telecommunications infrastructure exists not between metropolitan areas but between urban and rural areas. Moreover, measuring the comparative adequacy of the infrastructure in different areas has not been attempted in any comprehensive way. Many purported differences, such as the services provided by metropolitan airports, are often captured effectively by metropolitan size. The presence of airline hubs is sometimes suggested as indicative of higher economic potential, but it may also mislead – both Detroit and Charlotte are airline hubs, yet they have performed very differently.

In developing countries, the relevance of space and infrastructure remains high. Few of these countries have succeeded in establishing land markets able to deliver affordable land (UNCHS, 2001b). This is due to a variety of factors that constrain the supply of land, driving up its value and/or complicating the development process – factors that include inappropriate or inefficient institutional structures, out-of-date cadastral systems, inappropriate land-use regulations, lengthy procedures, and inequitable or poorly developed property valuation and tax systems (UNCHS, 2001a). In many places, these market-structure problems are exacerbated by the concentration of ownership in government institutions or the hands of speculators. These dysfunctions tend to drive to the urban periphery or to marginal lands those enterprises that cannot afford to navigate the costly maze, particularly start-up and smaller firms. Further distorting the market are environmental constraints – for example, extensive wetlands in Mandaluyong and steep slopes in Kathmandu – that limit construction potential.

Distortions in the land market also compound problems with respect to local transportation. The far-flung (and often illegal) developments that spring up to house in-migrants, low-wage workers, and informal enterprises often create long trips to locate jobs or materials and to sell goods. Many cities in developing countries already suffer from congestion and poor air quality, and the problems are becoming steadily worse as rising incomes increase demand for motorized transport, especially automobiles. Compounding traffic problems is the wide range of modes jostling for space: streetcars, automobiles, buses, bicycles, rickshaws, pedestrians, motor scooters, trucks. The inevitable traffic accidents add to the cost of business. Gridlock and pollution may dampen economic investment or discourage it altogether, even where economic elites have developed enclaves largely free of such problems (UNCHS, 2001a).

Developing adequate infrastructure, too, remains a major challenge in developing countries. Simply providing basic services – water, sanitation, telephone access, solid waste disposal – is a struggle. The extent of the problem is highlighted by discrepancies between official reports and consumer surveys: For example, 100 percent of Jamaica’s urban population is said to have “access to sanitation,” but survey results from the capital city of Kingston indicate that only eighteen percent of households are actually connected to sewers, while 47 percent report using pit latrines and eight percent report having no sanitary facilities whatsoever (UNCHS, 2001b). The term “access to sanitation” is obviously subject to interpretation when public latrines can be declared “adequate” even when 100 or more people compete for their use (UNCHS, 2001b). Retrofitting infrastructure into established informal settlements is a major challenge, due to high densities and the lack of uniformity in the partitioning of space (UNCHS, 2001a).

Meanwhile, nations unable to keep pace with basic infrastructure needs are investing millions of dollars in high-tech, globally accessible business areas. Bangalore, often referred to as “India’s Silicon Valley,” is a good case in point. The Electronics City complex contains several hundred acres of land configured as an offshore technology campus for high-tech multinational corporations such as IBM and Motorola. Madon (1998) notes that this area is insulated from the outside world by amenities, including power generators that guarantee a steady flow of electricity even if the city’s shaky electrical grid falters. Malaysia has invested

in a Multimedia Super Corridor in similar ways (UNCHS, 2001b). These national governments recognize the critical nature of reliable infrastructure in attracting the outside investment necessary for them to compete in the global marketplace.

The situation outside these favored places is vastly different. The current world cities gained their status because of their connectivity within the globalizing marketplace. This advantage was first gained via early adoption of telephone service, then reinforced by early access to other connective technologies, from air service to computer networks to Internet access to wireless and broadband services. Rapid development of these technologies was driven by the demands of producer-service firms expanding across national boundaries (Taylor, 2004). Access to technology filters down the economic hierarchy over time, such that later adopters may be a full generation of innovation behind (Clark, 2003). On occasion, smaller places sidestep this process, thanks to a major research university or local entrepreneurs, but because the process is largely market-driven smaller places remain at a disadvantage overall.

Outside the developed countries, disadvantage is further reinforced in many places by remoteness. Consider Kathmandu, one of the urban areas included in this study: It is the largest urban area in Nepal and a jumping-off point for international tourists headed into the Himalayas. Yet, until the introduction of air travel and, even more so, satellite and wireless communications, Kathmandu was one of the most remote places in the world. Similarly, cities within many African nations are often less accessible to people in the region, by either transport or communications, than are London or New York. In short, being on the periphery in France or Japan is often far better than being important in sub-Saharan Africa or central Asia.

### *Capital inputs*

The capital essential to economic development comes in three forms: financial, human, and intellectual. Financial capital has lost none of its urgency (Rondinelli & Vastag, 1997; Clement, 1995). However, even in developed countries, local capital resources, such as bank deposits, are not only an unreliable indicator of local wealth but may be used for a variety of non-business purposes, including underwriting home mortgages and municipal bond issues. In the developing world, much local capital never appears on balance sheets at all but circulates informally, typically in small amounts. Most venture capital in the United States originates in a handful of metropolitan areas and funds are lent primarily on the basis of the applicant's merits and only secondarily on other factors such as location. Interest rates are pegged to national benchmarks set, in part, by international currency trading. As a result, the availability of capital is presumed to be more a function of general economic conditions than of any localized characteristics.

Global financial centers are just as easy to identify: London, Tokyo, Singapore, São Paulo, Johannesburg, to name a few (see Taylor, 2004). However, access to capital can vary considerably. Countries with transitional economies (the former Soviet bloc) and at low levels of development have inadequate banking and financial systems. Nations suffering from civil war, terrorism, or social upheaval due to famine, "ethnic cleansing," or natural disasters are generally regarded as too high-risk for traditional lending and must rely instead on international aid. This aid, in turn, does not foster economic growth but focuses instead on social and economic stabilization. Non-relief aid, typically from the International Monetary Fund or World Bank, frequently arrives with strings attached, such as requirements for structural adjustment policies (SAPs) that can sap economic potential via increased borrowing rates and currency devaluations (Peet, 2003). As a result, many urban areas are starved for capital, victims of both local and global circumstances. Yet measuring just how starved they are, given how much money circulates outside of reporting mechanisms, is very difficult to measure.

Measuring human capital is more straightforward. In developed countries, the proportion of adults with high school diplomas remained an effective indicator for many years. However, advanced services and rapid innovation have increased the value of higher education and decreased the earnings of lesser-educated workers (Chapple *et al.*, 2004). In the U.S., the proportion of adults with four-year college degrees or better, and the proportion of adults who completed no more than 8<sup>th</sup> grade, are the most relevant measures. By contrast, in developing and transitional countries, the proportion of adults who have completed secondary education is still relevant; however, international data collection agencies do not routinely report such figures. Luckily, they do report the number or proportion of the population holding college (tertiary) degrees. As a result, this measure is included for all urban areas in this study. Also reported are the percentages of appropriately aged children enrolled in primary and secondary education (kindergarten through grade 8, and grades 9 through 12, respectively), as measures not only of investment in human capital but also of potential future economic productivity. Unfortunately, data about class sizes and adult literacy are not readily available in the United States, so the Asian cities' performance on these educational indicators is contrasted with assumptions about conditions in the U.S.

In addition to human capital, intellectual capital has gained prominence (Florida, 2002; Blakely 2001; Reich, 1991). Research-and-development capacity and opportunities for higher education can foster employment growth, improve the quality of the local workforce, and generate new technologies (Mathur, 2004; Bee, 2003; Luger & Goldstein, 1997). However, the presence of a major research university, or of a cluster of four-year institutions, may not be a reliable indicator of the level of intellectual capital available in a given area, at least not in the United States (Levine, forthcoming). The situation may be quite different in transitional and developing economies; however, in many of those countries, universities are located in national capitals, and so this particular indicator has limited usefulness in this study.<sup>6</sup>

### *Demographic inputs*

Human capital characteristics such as age, race or ethnicity, and gender have been put forth as potential economic factors. However, age affects primarily the size of the labor force (the pool of persons aged 16 to 64, in the United States, or 15 to 59, outside the industrialized economies) rather than its performance. Moreover, more persons now continue to work productively well past expected retirement. Only a significant population over age 75 (developed countries) or 65-70 (transitional and developing countries) is likely to burden the economy, as a larger portion of earned wages may be bled away to support the pensions, government aid, and social and health services needed by this cohort.

Similarly, a large population under age 15, relative to the population's overall size, provides several relevant economic signals:

- < that the urban area must support a large dependent population, which may act as both an economic advantage (to the extent that older children supplement family incomes) and an economic drag (to the extent that resources must be devoted to additional housing, child-rearing expenses, and public education);
- < that the economy must grow aggressively if it is to provide jobs for upcoming labor cohorts; and
- < that many urban residents, particularly recent in-migrants, may have yet to adopt urban social norms, such as family down-sizing.

Race or minority status is certainly a factor in economic performance, but it usually operates indirectly through denial of educational opportunity, employment discrimination, or spatial segregation (Logan *et al.*, 2002; Oliver & Shapiro, 2000; Wilson, 1996). The first avenue is captured by education variables, while the second and third, although recognized drags on the economy (Dreier *et al.*, 2001), are difficult to compare across areas without extensive case research.

Studies of the effects of gender on economic performance are limited. One of the authors tested the ratio between female and male earnings in a regression model predicting to metropolitan per capita income in the U.S., and found no effect, despite a substantial disparity (women in the U.S. still earn, on average, only 73% of what men do) (Levine, forthcoming). However, impediments to women's employment outside the home can seriously limit economic prospects. For example, Shariah (Islamic) law and other patriarchal systems prohibit women from acquiring and inheriting property, denying them the ability to start or own businesses or even to control their own shelter (UNCHS, 2001a). Women often have difficulty obtaining credit due to lack of proof of income or property ownership. Because of the burdens imposed by childcare and domestic responsibilities, many women can take only temporary, part-time, casual, or home-based work, often for low wages. Significant gender gaps appear in terms of both educational attainment and access to formal employment, particularly in African and Arab nations. The continued failure of some nations to tap the economic potential of one-half of their people has no doubt reduced their capacity to lift vast numbers of households out of poverty and to unleash higher productivity.

In-migration also exerts significant influence on employment, wages, and income growth (Kmec, 2003; Elvira & Zatzick, 2002; Yeoman, 2000). In the United States, the last twenty-five years have been characterized by very high rates of immigration from Latin America, and many immigrants have arrived without English-language or high-level job skills. A debate over their effect on the U.S. economy continues to swirl, and so far, the evidence is mixed (Nguyen, 2003; Hanson, 2003; Ramos, 2002; Davis, 2001; Bali, 2001). Moreover, sizable numbers of non-Hispanic people entered the U.S. prior to 2001, some to attend American universities, others in pursuit of economic and political freedom. Many took well-paying jobs in high-tech fields. Their impacts on metropolitan economies are quite different from those of the Latin Americans (Levine, forthcoming).

In the global context, immigrants and rural in-migrants perform much the same blessing-curse role as immigrants to the U.S. do. Immigrants derive primarily from three sources: turmoil in adjacent countries, which drives refugees across borders in search of safety; economic collapse due to famine or fiscal crisis; and ethnic cleansing. Sometimes political and economic refugees are quickly repatriated, but some refugee camps persist for years, as they have in Lebanon and Thailand, consuming resources and hampering economic development. Ethnic cleansing forcibly repatriates populations deemed to be foreign: ethnic Albanians in Serbia, tribal groups in sub-Saharan Africa, Palestinians in areas controlled by Israel. These groups can have widely varying economic impacts as they resettle, depending on the nature and validity of their claims to previously owned property, subsistence payments, and the like.

The larger challenge in the developing world, though, comes from rural in-migrants. Agricultural modernization and international lending decisions, such as those favoring production of export crops over subsistence crops, have driven millions of people off the land. Urban areas offer them more jobs and better livelihoods (Clark, 2003). Migrants often arrive with few or no marketable skills, no understanding of urban culture, and few actionable rights. Most are forced to scratch out whatever living they can in the informal economy, to seize whatever space they can find, and to erect shelter with scrap materials. A small proportion

thrives and manages to educate their children for an economic future in the formal sector. However, the vast majority remains mired in poverty, without secure housing tenure or access to education, health care, and credit, disempowered and shut out of the urban mainstream (UNCHS, 2001a). Their poverty is commonly transmitted from generation to generation, creating a permanent underclass of surplus people (Wilson, 1996). The inability of such populations to participate fully in the urban economy increases economic polarization, with its propensity to spark civil unrest, and represents a serious obstacle to overall economic growth.

The dissemination of political access can affect economic growth as well. In the U.S., progressive forces that increase equity and are typically associated with the Democratic Party (Ackerman, 2000; Peterson, 1981) have also been accused of stifling economic growth via income redistribution, environmental regulation, inclusive decision-making, and expansion of public programs. The exact opposite may be true in less-developed regions: Empowerment of the poor and of women, increased participation in civic planning and decision-making, air-quality improvement via congestion relief, government investments in infrastructure and education, and better growth management can unleash untapped economic potential, while also increasing access to resources for all and reducing income disparities.

Many scholars have noted that the empowerment of women, in particular, can lead to more equitable outcomes (UNCHS, 2001a). The worldwide consensus that women in positions of authority and power are far less prone to corruption is notable in this regard (UNCHS, 2001a). Women are also at the forefront of advocacy for better housing conditions, more secure housing tenure, and community development (UNCHS, 2001b). However, empowering women changes the gender balance in ways that men find disagreeable or even threatening. For example, many Afghani men have refused to allow the women in their families to be photographed for voter-registration cards (National Public Radio, 2004). Men often protest real or perceived declines in domestic serenity and attention, as well as their wives' increased assertiveness and time spent away from home. However, failure to empower women creates serious social and economic consequences, especially for their children (UNCHS, 2001a).

### *Quality-of-life-inputs*

Increasingly, quality of life is recognized as important to economic sustainability (Blair & Kumar, 1997; Mills & McDonald, 1992). Political economist Edward Glaeser reports that "... cities with higher levels of human capital [*e.g.*, adequate health care] have had faster growth in income and population since 1950, and particularly since 1970" (Glaeser, 1998, pp. 148-149). Localized, institutionally derived benefits, such as quality health care, adequate open space, public safety, and a lively arts/culture scene, help to improve life for all citizens. Similarly, higher levels of economic development provide the resources needed for these improvements, a concept not only recognized by the international community but now measurable using the City Development Index recently developed by the United Nations.<sup>7</sup>

### *Regional structure*

Regional structure can influence economic potential in a variety of ways. For example, larger urban agglomerations have access to a broader range of resources, an advantage that helps to promote the diversification and specialization that generate high-income employment. The age of the urban area can be a factor as well, particularly with respect to major infrastructure and industrial stock: Cities that have made recent infrastructure investments and where industrial production is based on new technologies are at an advantage in attracting new industrial growth. Governance may figure prominently as well: region-centered, coordinated

economic development tends to be far more effective than either fragmented and often contradictory efforts at the municipal level or non-targeted efforts at the state level.

For the purposes of this study, however, most structural variables have been omitted. The one exception is size, which has been controlled by selection. Metropolitan age poses conceptual difficulties, thanks to the variety of ways in which it might be measured: By number of years elapsed since it reached a certain size, by time elapsed since the era during which its major industries started up or their original physical plant was put in place, by age of original infrastructure (primarily water and sewage systems), and so on. Using just these criteria, Mexico City might be judged very old or very new. Moreover, determining age using a single criterion will become increasingly difficult as dedicated industrial plant is replaced by telecommunications infrastructure and investment in convertible office buildings.

Governance issues are enormously important to economic development. However, measuring the extent of regional governance also poses significant difficulties, particularly in the U.S. with its multifarious local-government configurations and generally weak metropolitan structures. In developing nations, where suburban employment centers are few and the central city remains the major magnet, the city unit may still be the most relevant; however, provincial or state policies will also affect what occurs at the local level. Rather than attempt to untangle nine separate governance arrangements, we chose to exclude the concept from our analysis.

## Methods

Because of its exploratory nature, this study is largely descriptive. The indicators selected for use are found in the City Data Base created for the Asian Development Bank (ADB) and drawn from *Urban Indicators for Managing Cities* (Westfall & de Villa, 2001), which presents the results of a pilot study designed to develop a set of crucial indicators that could be tracked over time. These data are cross-sectional and date primarily from 1995-2000.

The availability of these data guided the nature of the data collected for the urban areas in the U.S. Many of these data are drawn from the 2000 U.S. Census of Population (STF-1 and STF-3). Other data have been obtained from federal, state, and metropolitan government agencies, from their staffs or websites, or from private sources whose data also come largely from public agencies. Collection dates for the U.S. data range primarily from 1997 to 2001, although more recent data are sometimes used because of limitations on availability. All data were converted to units that are compatible with the ADB data. In a few cases, measures of the attributes of the U.S. metropolitan areas are not identical to the measures of the attributes of those in Asia. Where this is the case, it is noted in Table 2 (see findings beginning on page 13, and Appendix).

Table 1 shows the indicators presented by the ADB (Westfall & de Villa, 2001) and incorporated in this study.

**Table 1. Urban Indicators Used by the Asian Development Bank**

*Source: Westfall & de Villa, 2001*

<b>Population</b>	Tenure type (percent)
Population size	Owned/purchased
Population growth rate	Private rental
Population density (persons per hectare)	Social housing
Urbanization (percent)	Sub-tenant
<b>Demographics</b>	Rent-free
Age distribution: 0-14, 15-59, 60+ (percent)	Squatter, no rent
Average household size	Squatter, paying rent
Households headed by women (percent)	House price-to-income ratio
Male/female ratio	Dwelling rent-to-income ratio
<b>Income and poverty</b>	Floor area per person
Average per capita income (\$US)	<b>Utilities</b>
Households in poverty (percent of all households)	Household connections (percent)
Women-headed households in poverty (percent)	Water
Household expenditures for food, shelter, travel, and other (percent of income)	Electricity
<b>Employment</b>	Sewerage
City (metropolitan) product per capita (\$US)	Solid waste service
Employment by industrial sector (percent):	Service interruptions and line loss (hours per month)
Secondary (manufacturing, construction, utilities)	Water
Consumer services (retail, wholesale, transport, personal services, arts/recreation/entertainment)	Electricity
Producer services (finance, insurance & real estate; professional, scientific, & management services; information management)	<b>Connectivity</b>
Social services (education, health care, public)	Households connected to telephone (percent)
Others (agriculture, mining, defense)	Mobile phone calls per person per annum
Unemployment rate	Large corporations ("Fortune 1000")
Informal employment rate	Total commercial flights (per month)
<b>Social concerns</b>	Cost of executive stay (per day)
<b>Education</b>	<b>Transportation</b>
Primary enrollment (percent of age group)	Mode of travel to work (percent)
Secondary enrollment (percent of age group)	Private automobile
Tertiary graduates (percent of adults)	Train, tram, light rail
Median years of education	Bus, mini-bus
Adult literacy rate	Motorcycle
<b>Health care</b>	Bicycle
Persons per hospital bed	Walking
Infant mortality (deaths per 1000)	Boat, taxi, animal, rickshaw
Child mortality (deaths per 1000 children <5)	Automobile ownership (per 1000 persons)
Life expectancy at birth	Traffic fatalities (per 1000 persons)
<b>Reported crimes</b> (per 1000 persons)	<b>Energy use</b> (mt equiv. per person per annum)
Total	<b>Environment</b>
Murders	Waste treatment
Thefts	Means of sewage disposal (percent)
<b>Housing</b>	Solid waste generated per capita per annum
Dwelling type (percent)	Means of solid-waste disposal (percent)
Houses	Air-quality standard exceeded (days per annum)
Medium density	Airborne oxides
Apartment	Ozone
Temporary dwelling	Suspended particulates
Others	Lead
	<b>Local government</b>
	Investment by sector
	Local government functions

## Findings

We use the indicators listed in Table 1 to compare the four Asian and five American urban areas. These indicators identify significant trends in urbanization that not only reflect current conditions but can also signal warnings about urban change (Westfall & de Villa, 2001). Similarities and differences among the regions are noted, keeping in mind their differing development levels.

Table 2, which presents the full data set for all nine urban areas, appears in the Appendix.

### *Population and Demographics*

Among the Asian cities, Cebu has the highest level of urbanization at 68 percent followed by Mandaluyong at 61.7 percent. Both levels fall below the levels posted by U.S. MSAs, which range from a high of 93.4 percent in McAllen to a low of 74 percent in Lansing. The lowest level of urbanization occurred in Kathmandu, which is only 14 percent urbanized. All nine cities have experienced population growth but their growth rates varied widely. In Asia, Bishkek has the lowest population growth rate, about one percent per year, yet it is growing faster than one of the U.S. MSAs, Lansing, and exhibits growth comparable to that in Jackson and Reading. The fastest population growth (6.0 percent) occurs in Kathmandu, which is followed by an American MSA, McAllen at 4.0 percent. Mandaluyong is growing third-fastest, 3.1 percent. Cebu, at 1.6 percent, and Bakersfield, at 1.9 percent, fall in the middle.

Population density varies widely among the nine cities. The lowest density among the Asian urban areas, 41.6 persons per hectare in Bishkek, would be regarded as extremely dense in the U.S., where the highest density among the five MSAs is 1.7 persons per hectare, in Reading. Among the four Asian cities, Mandaluyong is approaching the density of Hong Kong, with 670 persons per hectare, even though it has the smallest population (314,000) of the nine cities. By contrast, Bakersfield has the largest population (655,000) but the lowest density, a mere 0.3 persons per hectare.

The age distributions of the Asian areas contrast strongly with those in the U.S. Other than Bishkek, the Asian cities all have larger cohorts of children under age 15 than do the U.S. MSAs. Conversely, the cohorts age 60 and over are much larger in the U.S. (again, other than in Bishkek). Seven of the nine gender ratios conform to expectations – slightly more females than males – but two cities stand out: Bishkek suffers from a shortage of males (ratio = 0.85), while Bakersfield has a surplus (ratio = 1.05). Although we can only speculate as to circumstances in Bishkek, it is probable that the excess of males in Bakersfield is a product of two phenomena: One is Latino immigration, which follows a common pattern of males coming for jobs and either going home seasonally or bringing their families to the U.S. later. The other is the presence of a U.S. military installation, Edwards Air Force Base.

Cultural influences play a major role in attitudes about family size. Household size and family composition vary from culture to culture and may include extended families and large numbers of children as well as households headed by women. Large households may signal overcrowding while small households may signal prosperity or problems with declining populations (Westfall & de Villa, 2001). Cebu, Kathmandu, and Mandaluyong all have households that exceed 4.5 persons. Bishkek has an average household size of only 2.4 persons, the smallest of the four Asian cities. In the U.S., household sizes vary less widely, from a low of 2.6 in Lansing and Reading to a high of 3.6 in Latino-dominated McAllen.

### *Income and Poverty*

Even within the U.S., per capita incomes vary widely. McAllen's is by far the lowest among the five U.S. MSAs, at less than \$10,000, while Lansing's and Reading's, both more than \$21,000, are slightly higher than the U.S. national average. It comes as no surprise that per capita incomes in the Asian cities are considerably lower, generally less than \$2,000 – even in Bishkek, where the collapse of the Soviet bloc caused an economic meltdown from which it has yet to recover. However, Mandaluyong is clearly made of different economic stuff: Its per capita income, \$6,516, is beginning to approach that of McAllen, which – although low by American standards – is nonetheless American. This is the first indication that Mandaluyong functions on a higher plane than the other Asian cities, something that is borne out in later findings as well.

A high percentage of households headed by women may signal the absence of a male population or social breakdown. Further, women-headed households may experience more frequent and higher levels of poverty. Poverty is also often associated with malnutrition, illiteracy, social and economic exclusion, social breakdown and crime (Westfall & de Villa, 2001). Kathmandu has the smallest percentage of households headed by women (14.4 percent) among all nine urban areas, but nearly all of them (97 percent) live below the poverty line, in contrast to the 35.6 percent of all households living in poverty. Reading and Bishkek are strikingly similar in percentage of households headed by women (25.9 and 21.6 percent, respectively) and in percentage of all households living in poverty (8.8 and 7.2 percent), although Bishkek has more women-headed households living in poverty (28.7 percent vs. 19.6 percent in Reading). With the exception of McAllen, the American MSAs have lower overall poverty rates than the Asian cities but a comparable range of percentages of women-headed households living in poverty.

An increase in the amount spent on food, shelter, or travel signals declining affordability. Further, the costs of these necessary items may strain budgets and place households below the poverty level (Westfall & de Villa, 2001). The largest expenditure in each of the Asian cities is for food, ranging from 42.8 percent in Mandaluyong to a high of 56.2 percent in Bishkek. These percentages appear huge beside those incurred by residents of the U.S. MSAs, who spend less than 16 percent of their incomes on food, even in the poorest MSA. Meanwhile, residents of Cebu, Kathmandu, and Mandaluyong all spend between 15.1 and 20.2 percent of household income on shelter, proportions comparable to those in the U.S. Off-setting lower housing costs, however, are higher transport costs, which consume more than 15 percent of household income in Bishkek, versus less than seven percent in the other three Asian cities. In the U.S., transport costs more than either food or shelter, thanks to Americans' devotion to automobiles and sprawl. Even so, Americans still enjoy far more discretionary income than do residents of Asia – income that can go toward health care and education as well as to holiday travel and leisure.

### *Urban Productivity, Employment, Household Expenditures*

The concept of urban productivity incorporates various indicators that reflect a city's economic growth and viability: City product per capita, industrial concentrations, and formal and informal employment. City product per capita is considered the most important of all urban economic indicators because it measures the output generated by labor. Moreover, it can be compared to per capita income to give a rough measure of labor productivity, an increasingly important factor in global competition. A high income-to-product ratio (close to one) describes an economy that is barely self-sustaining and has few extra resources to invest in infrastructure,

education, and other public goods. A low ratio (approaching zero), by contrast, indicates that the economy is generating a substantial resource base that the community can invest in its future. Mandaluyong has the highest city product per capita among the Asian cities, and the highest productivity, which is indicated by a low income-to-product ratio (0.37). In fact, Mandaluyong has the highest productivity among the nine areas examined here, noticeably higher than the three best American performers – Jackson, Lansing, and Reading (0.44, 0.45, and 0.46, respectively). Cebu and Bishkek have per capita products substantially lower than that of Mandaluyong, and meager productivity ratios (0.96 and 0.91). Kathmandu has the lowest per capita product, but its productivity ratio (0.48) is comparable to the top performers among the American MSAs.

Figures related to employment by industrial sector yielded several significant findings. First, the three Asian cities for which data are available each have two strong sectors: social services and manufacturing (secondary) in Bishkek, social services and primary industry/defense in Kathmandu, and consumer services and manufacturing in Mandaluyong. In fact, the consumer service sector, which is largely population-driven, is larger in Mandaluyong than it is any of the other eight urban areas, even though it is the smallest of the nine. Mandaluyong also has the highest proportion of employment in the producer service sector among all nine areas – another distinguishing economic mark. Meanwhile, each of the American MSAs leads the others in one employment sector: Jackson, like Mandaluyong, in producer services; Reading, like Bishkek, in secondary/infrastructure; McAllen, with its cross-border trade, in consumer services; Lansing, home of Michigan State University, in social services, and Bakersfield in the other sectors, which include both agriculture and defense.

Determining the extent of informal employment in the U.S. is difficult, but the highest local estimates do not exceed five percent, and most are considerably lower. Bakersfield and McAllen, with their high immigrant populations, have the highest rates of informal employment, although the exact nature of those rates is indeterminate. Westfall and de Villa (2001), however, provide estimates of informal employment rates for the Asian cities, and all three fall between thirty and forty percent. These rates contrast sharply with the official unemployment rates, which do not exceed 15.8 percent (Mandaluyong), but they indicate the ingenuity of local residents in creating employment for themselves and their neighbors. It is worth noting that unemployment rates in the U.S. are highest in the two regions most likely to generate informal employment, Bakersfield and McAllen.

### *Social Concerns: Education, Health Care, and Crime*

Data about social concerns provide essential information about the adequacy of service-delivery systems, literacy, employment skills, and quality of life. These three social concerns, to a great extent, all affect the potential of people to earn livable wages, increase earning potential, and improve economic and social standing. Literacy is associated with access to education, which in turn is tied to school enrollment and retention. Although some countries have different enrollment expectations for boys and girls, which reflect cultural attitudes, education is crucial to the development and sustainability of human resources. High rates of illiteracy signal that few people will be available for economic activity or administration (Westfall & de Villa, 2001). Access to adequate health care and sustained health care delivery systems can reduce the incidence of child mortality as well as lost worker productivity. Conversely, “child mortality is the primary outcome of inadequate health care and sanitation” (Westfall & de Villa, 2001, p. 62).

Personal safety and the protection of private property enhance the quality of urban life at the same time that they influence economic activity and the willingness of businesses to invest (Westfall & de Villa, 2001).

The ages of children enrolled in primary and secondary schools vary but are typically 6-12 years for primary school and 12-17 years for secondary education (Westfall & de Villa, 2001). At least 75 percent of younger children are enrolled in primary education in the Asian cities, and two cities – Cebu (93.7 percent) and Mandaluyong (94 percent) – approach American enrollment rates. Secondary enrollment rates for all four cities appear almost as high as those at the primary level, as they do in the U.S. Tertiary graduates ranged from a low of 1.5 percent in Bishkek to a high of 24.5 percent in Mandaluyong. Once again, Mandaluyong outperforms all the other urban regions – not even Jackson or Lansing, with high levels of producer-service employment and employment in higher education, respectively, approach this rate of college graduation.

The number of students per primary and secondary classroom is generally higher among the Asian cities than is usually the case in U.S. MSAs. The one exception is Kathmandu, which has only 23 children per classroom at the secondary level – although, curiously, it has 40 per class at the primary level. The reason for this unexpected decrease in class size is not known. Kathmandu also has only a 78.2 percent adult literacy rate, compared to rates of rates above 90 percent in the two Filipino cities, even though school enrollment rates are not all that much lower. Median education levels are also higher in the Philippines than elsewhere in Asia. The figures reported for Bishkek are difficult to assess: On the one hand, 98 percent adult literacy is claimed, while on the other, only about three-fourths of the residents attend school at any level. The apparent disparity cannot be resolved without additional investigation.

Mandaluyong has the lowest child mortality – 2.5 percent – of the nine cities – once again indicating it is following a different trajectory. The remaining three Asian cities have child mortality rates ranging from 4.1 percent to a high of 9.0 percent. Child mortality rates in the U.S. MSAs are discouragingly high, and one – Jackson’s – exceeds that of Kathmandu. Jackson’s high mortality rate is even more depressing in view of the presence of its state’s largest medical center within its borders. Given the relative development indexes of the countries involved, the Asian urban areas are excelling where American areas show a surprising weakness.

With the exception of Cebu, all the Asian cities have low infectious-disease mortality rates (less than one percent), while all, even Cebu, have life expectancies of 66 years or more. The reason for the high mortality rate from infectious diseases in Cebu is not clear from the data, although it does have the highest number of persons per hospital bed among the Asian cities. Still, its ratio of 306 persons per bed is lower than the ratios in four of the five U.S. MSAs; only Jackson has a lower ratio, thanks to the university medical center and several other large hospitals. The high ratio in Cebu may reflect a variety of conditions: a failing health infrastructure with crowded hospitals and poor health services, its geography, surrounded as it is by water in the tropics, or sanitation or water-quality problems. Regardless, there is reason for concern about the area’s ability to provide adequate health care.

The total number of crimes is segmented into three categories: Murder, drug-related crimes, and theft. Among the Asian urban regions, Bishkek has by far the highest total crime rate, 15.5 per 1,000 persons, and the highest crime rate in each of the three reported categories, all by substantial margins. However, aside from the murder rate, Bishkek would look like a sleepy family town in the U.S.: The lowest overall crime rate among the five U.S. MSAs is in Reading, 32.83 crimes per thousand, and both Jackson (69.6) and McAllen (63.96) suffer from rates twice

as high. Moreover, theft in the U.S. is more than three to six times as severe a problem as in Bishkek, which itself has a theft rate nearly eight times the rates in either Kathmandu or Mandaluyong and fully 36 times as high as the rate in Cebu. These statistics bring into stark relief the toll taken by the tolerance for violence that characterizes American society.

### *Housing*

Housing indicators include information specific to the mix of dwelling types, common forms of tenure, and housing affordability. Eighty-two percent of Cebu's residents live in houses, a rate comparable to those in the U.S., while fewer than one in five residents of Bishkek does so. In Bishkek, seventy percent of all households live in high-density apartments, by far the highest rate among all nine urban areas. Medium-density housing is prevalent in both Kathmandu and Mandaluyong, although over half of households in Mandaluyong live in houses as well. In the U.S., house-dwelling is the norm: More than 75 percent of all households in the five MSAs live in houses, while the remaining 15-20 percent are distributed among medium- and high-density dwellings and mobile homes. This last type of housing is found at the highest rate in McAllen.

Tenure defines the legal relationship between households and their dwellings (Westfall & de Villa, 2001). Home ownership is relatively high in all nine cities, ranging from a low of 41.0 percent in Cebu to a high of 85.0 percent in Bishkek. The five U.S. MSAs fall in between, at home ownership rates between 62 and 74 percent. Private rentals are similar, at 26 to 38 percent, in eight of the nine urban regions; only in Bishkek are private rentals uncommon, comprising only five percent of the housing market. Information on squatters was available only for Cebu and Mandaluyong, where a surprising 33 percent and a more modest eight percent of households, respectively, fall into the no-rent category. Mandaluyong also has another four percent of its households living in rent-paying squatter housing. The high rate of squatting in Cebu clearly implies that the formal housing market is unable to keep up with demand and/or to provide affordable housing to all residents.

The house price -to-income ratio measures the "median free-market price of a dwelling unit [relative] to the median annual household income" (Westfall & de Villa, 2001, p. 75). High ratios, particularly those above ten-to-one, indicate ineffective housing markets or scarcity of land, or both. At 13.0, Bishkek has the highest house price-to-income ratio of all nine cities, although it is closely followed by Mandaluyong (12.0) and Kathmandu (10.6). The low price-to-income ratio in Cebu, a mere 2.2, perhaps reflects the high numbers of squatters, who may use scrap materials and any vacant land, rather than what the formal housing market is able to provide. Homes are relatively affordable in the U.S. regions, costing between two and three times the median household income, with housing being most affordable in Jackson (2.0) and most "expensive" in Bakersfield (2.6), but none approaching the soaring ratios in Bishkek.

Bishkek has by far the highest rent-to-income ratio, .41, while Kathmandu had the lowest ratio at .064. Generally speaking, though rents fall between 15 and 20 percent of income in the rest of the urban regions.

The remaining housing statistics – floor area per person, percentage of housing in compliance with regulations, and homelessness – are notoriously difficult to estimate. The densities of the Asian cities, by themselves, indicate that dwelling units are likely to be smaller than in the U.S., and aside from the relative spaciousness of dwellings in Bishkek, residents of Asian regions seem to generally have between eight and twelve square meters of floor space. Comparable figures are not available for the American MSAs, although crude estimation based solely on

median household and housing characteristics would yield a figure of about 37 square meters, or more than three times the amount available per resident of the Philippines. Housing compliance in the U.S. is believed to be more than ninety percent, although firm estimates can be made only via a sampling of actual inspections. The compliance rate shown for Cebu (Westfall & de Villa, 2001, p. 107) is highly suspect, given that 33 percent of all households are squatters paying no rent. It is highly unlikely that even three percent of those squatters occupy housing that complies with all municipal regulations. As for homelessness, estimates are even harder to come by. However, it appears that the rates of homelessness in the U.S. and homelessness in the Asian cities appearing here are fairly comparable, except for that in Kathmandu.

### *Utilities*

Low percentages of households connected to common public utilities – water, electricity, sewerage, and solid waste service – signal insufficient service provision and poor access to needed services (Westfall & de Villa, 2001). Overall, the rates of utility connections in the Asian cities, although lower than similar rates in the U.S., are generally high. The highest connection rates appear in Bishkek, where 100 percent of households are connected to the electrical grid and 99 percent have water service. In Mandaluyong, only 83 percent have water service, but 95 percent enjoy electricity and 100 percent receive solid waste service. However, none of the households in Mandaluyong is connected to sewers; neither are any households in Cebu, while fewer than half of Cebu's households have solid waste service. It is interesting to note that, while electric service is nearly universal, provision of sewers has a long way to go.

Moreover, having a *service connection* and having *service* are not necessarily the same. In Bishkek, for example, 160 hours of electrical outages and one full day of water outages per month are the norm. This discrepancy between connection and service provided many a joke for residents of the former Soviet Union. Electricity is a bit more reliable elsewhere: Mandaluyong reports only an hour per month of outage, a rate that might exceed the performance of the U.S. electrical grid, and similarly low outages are reported for Cebu and Kathmandu. However, water outages of a day and a half to two days appear to be common. Among the U.S. MSAs, utility connections are nearly universal, and outages of both water and electricity are rare (typically the result of storms rather than malfunctions), the summer of 2003 being a notable exception.<sup>8</sup>

### *Connectivity*

Connectivity indicates the capacity of cities to communicate within their boundaries and with other cities for economic purposes. Several connectivity indicators were examined: Telephone access and use (regular and cellular), the presence of large corporations, the number of departing commercial flights (national and international, per month), and the daily cost of stay for executives. It is not surprising that more than 90 percent of all households in the U.S. regions are connected to land-based telephone service – although this statistic will become less and less relevant as cellular range and reliability continue to improve and households give up their land lines. The situation in the Asian regions is quite different: In Cebu, only 15 percent of households have phone service, while even in progressive Mandaluyong not quite ninety percent are connected.<sup>9</sup> Interestingly, data on the number of mobile phone calls made in the U.S. is not readily available, although information regarding the number of subscribers and the average length of mobile calls is. Among the Asian cities, residents of Cebu place the most mobile phone calls, more than twice as many as residents of Mandaluyong. Mobile-phone use is

negligible in Kathmandu and especially in Bishkek.

Information about large corporations was unavailable for three of the Asian cities. Mandaluyong, however, is home to two, which is two more than can be found in any of the American MSAs.

With almost 3,000 departing commercial flights per month (19 international), Cebu has the highest level of in-country connectivity of the Asian cities. On the other hand, although Mandaluyong ranks third among these cities in the total number of commercial flights per month, it ranks first in the number of international flights at 1,117 per month. The high number of international flights indicates that Mandaluyong has the highest connectivity to other nations, thereby increasing its chances to grow socially and economically. This fact also correlates strongly with the concentration of producer services in its economy. Among the American MSAs, the number of monthly commercial flights falls in the 1,500-to-2,000 range (McAllen has half that number), and international links are extremely limited, to a few between Lansing and cities in Canada and a few between McAllen and Mexico.

### *Energy and Transportation*

The indicator included here measures the total energy used annually per person, in metric tons of coal equivalency. Total energy is aggregated across all forms of energy usage and then divided by the population. Energy usage is “synonymous with industrial activity and resource usage” (Westfall & de Villa, 2001, p. 91). Energy use also has significant environmental implications: Carbon dioxide release, which contributes to the greenhouse effect and global warming, correlates directly with energy use. Residents of all the Asian cities use relatively small amounts of energy, ranging from a high of one mt (equiv.) in Cebu to a low of only 0.38 mt in Bishkek. The same cannot be said of residents of the American MSAs, where the lowest per capita energy consumption, in Bakersfield, was nearly sixteen times that in Cebu, while the highest (McAllen) was more than 38 times as high.

Not surprisingly, the low energy consumption in Bishkek may be explained, in part, by the heavy use of public transit (train/tram/light rail) by residents, whereas the high American consumption may be explained by heavy use of private automobiles. The use of other modes provides some interesting insights as well: In three Asian urban areas, large proportions of the population – nearly two-thirds in Kathmandu – use what might be termed the “other” mode category, a category that includes boats, taxis, rickshaws, animals, and whatever other conveyances might come to mind.

However, automobile ownership seems to be increasing in Asian cities: Already, in Kathmandu and Mandaluyong, automobile ownership per 1000 is more than half that in the U.S. Even so, although these vehicles are used for some commuting in Mandaluyong (22 percent of the population reports using automobiles to travel to work), the vast majority seem to be reserved for other activities, such as errands and leisure pursuits. This may explain the relatively low rates of transport fatalities in the Asian regions, rates that are no more than one-fourth those in the U.S. MSAs. Among the MSAs, Jackson is notable for having a fatality rate twice that of three of its counterparts and more than 50 percent higher than its nearest company, McAllen. In comparing the Asian and American places, it becomes clear that congestion and lower speeds help to keep travelers safe.<sup>10</sup>

### *Urban Environment*

Three measures of environmental health are particularly relevant to cities: sewage disposal, solid-waste disposal, and air quality. Sewage disposal can directly affect human health by transmitting diseases; in addition, improper disposal can degrade quality of life. The amount of solid waste generated signals how much pressure is placed on the environment, both as an input in resource use and as an output in terms of space and storage. Air pollution from lead and suspended particulates are considered particularly harmful to human health, while ozone, carbon monoxide, and nitrous oxides all contribute to smog and other health and visibility hazards (UNCHS, 2001a).

A variety of means of sewage disposal is used in the Asian cities. Only two are common in the U.S.: sewage pipe connected to a community treatment facility, and septic tanks (which must be cleaned periodically) or septic fields that percolate raw sewage through the soil. The proportions of any region that use one or the other method vary, with roughly 75 percent of households connected to sewer pipes and the rest to some form of septic treatment. The picture in the Asian cities is quite different: Municipal sewer connections vary from 84 percent in Bishkek to none in Mandaluyong, which relies primarily on septic treatment (87 percent). Other means of sewage disposal are not common but do appear: Ten percent of households in Mandaluyong use untreated underground disposal, while four percent of households in Kathmandu rely on an undefined “other.”

In terms of solid waste, Kathmandu generates the smallest amount, about 0.28 tons per person annually. The largest amount is generated not by an American MSA but by Bishkek at 0.90 tons per person annually. However, the average American generates about 0.75 tons per annum, a larger amount than is generated by residents of the other Asian cities (0.61, 0.28, and 0.53 tons in Cebu, Kathmandu, and Mandaluyong, respectively). Yet, despite all the rhetoric about wasteful Americans, the amount of solid waste generated in the U.S. is not as utterly incomparable to the amounts generated elsewhere as is energy consumption – a small comfort.

Sanitary landfills have become the nearly universal means of solid-waste disposal: The lowest percentage of regional waste deposited in landfills is 72 percent, in Bakersfield, where the majority component of the waste burden consists of agricultural vegetation that is composted in bulk (and appears in the category “recycling”). Reading relies on landfill space for only 83 percent of its total tonnage. Incineration is still rarely used anywhere. Dumping or open burning is somewhat common in certain regions in Asia – for twenty percent of the waste in Kathmandu, thirteen percent in Cebu, and ten percent in Mandaluyong – and to a lesser extent in the U.S.

Air pollution is a matter of concern worldwide. The World Health Organization (WHO) has set standards for acceptable daily levels of sulfur dioxide, nitrous oxide, carbon monoxide, ozone, lead, and suspended particulates, standards that are now followed by most countries. Air-quality problems are reported in numbers of days per annum that amounts exceed WHO standards. Data for these pollutants are unavailable for the Asian cities, except for Bishkek, where pollutants in all categories exceed WHO standards the equivalent of roughly five months every year. Of particular concern is the number of days that the most harmful pollutants exceed standards: 161 days for lead and 150 days for suspended particulates. The high number of days with dangerous pollutants places residents at risk for respiratory and other health problems.

Air quality data for the U.S. MSAs was originally collected from the U.S. Environmental Protection Agency’s website in March, 2004. Unfortunately, instead of recording the number of days of air-quality non-attainment in each region, the authors recorded the peak pollution

readings. By the time the error was discovered, in early May, the EPA had altered its website, and non-attainment data expressed in number of days are no longer available. However, among the five MSAs, only Bakersfield appears on the EPA's non-attainment watch list, and for several pollutants, including particulates.

### *Local Government*

Due to the difficulties inherent in assembling coherent regional data from a plethora of local jurisdictions in the U.S. regions, little information about any of the governments is presented here. However, two indicators do appear: public investment by community sector, and local government functions. With respect to the latter, there is little to say, except that local governments in the four Asian regions are more comprehensive in scope than those in the U.S. MSAs. This is due largely to the privatization or semi-privatization of some services in the U.S., notably telephone, electricity, and health care. Local governments in the U.S. are also not responsible for providing public housing; although they may manage such housing, provision is a responsibility of the federal government with local input.

The investment data for the Asian cities are far more interesting, particularly – yet again – with respect to Mandaluyong. Although two other urban regions – Bishkek and Kathmandu – are investing in physical infrastructure, housing, and services, and Kathmandu is also making other kinds of public investments, the amounts being invested in infrastructure, services, and other areas are paltry beside those being made by Mandaluyong (data for Cebu were unavailable). The levels of these investments – thirty times the amount per capita for services vis-à-vis Bishkek, and an even larger factor relative to Kathmandu – indicate that the government and residents of Mandaluyong understand the imperatives of competitiveness in the newly global marketplace and are taking steps to meet those imperatives. This is a further indication of Mandaluyong's exceptionalism among the cities examined in this paper.

## **Discussion**

It is difficult to draw more than a handful of firm conclusions from the foregoing analysis. Many of the findings reinforce previous understandings – for example, that Americans in general occupy more space, own more automobiles, and consume more energy than do residents of Asia. American individualism also shines through the data, not only in the high levels of automobile use but in the percentage of people living alone. The American economy is stable and highly productive, enabling Americans to afford virtually universal education and utility service. And, contrary to expectations, per capita solid waste generation, on average, is not substantially higher than it is in the urban areas of Asia (Kathmandu being the exception).

However, not all of the data support a view of the U.S. as a kind of heaven on earth: Not only is child mortality higher in the U.S. MSAs than in most of the Asian urban areas studied here, but nearly a third of all households headed by women live below the poverty line, a record not substantially better than those of much poorer places. The nation's long history of personal firearms, coupled with the individualism invoked above, nurtures a culture of violence reflected in comparative crime rates. This contrast is made all the more glaring by the attention paid to harmony and non-violence in many Asian societies.

Among the Asian cities, it is important to note, for the last time, how different Mandaluyong is from the other urban regions, even those in the U.S.. This region is investing heavily in its

future, in both financial and educational terms. Even though the formal economy is not keeping pace with the population in producing jobs, per capita incomes are far higher than in Mandaluyong than in its Asian counterparts, and income is the most relevant measure of economic well-being. Moreover, it has a sizable producer-service sector, which is where global innovation and productivity are at their highest and have the most growth potential. And it is producing these results without skyrocketing energy consumption or crime rates.

Yet, even in Mandaluyong, one can find worrisome signs. Perhaps the most worrisome is the high level of poverty (32.1 percent) in an economy that is generating high incomes for many of its workers. Particularly worrisome is the high level of poverty among households headed by women (31.8 percent), which endangers the future of their dependent children and may signal reduced long-term economic sustainability. Also problematic, although not discussed previously, is the city's congestion index, 72.5, which exceeds the indexes of its three Asian counterparts. This suggests that air quality may have become a problem in Mandaluyong, something for which we have no data.

In fact, even within the U.S., hard data about specific places can be difficult to locate – when it exists. Beyond the information routinely collected as part of the various Censuses (of Population, Manufactures, Retail Trade, Governments, and Construction) and by the Bureau of Labor Statistics, the data world becomes a murky space. Information that might be expected to exist, such as the number of cell-phone users and the number of calls they make, is often not readily available – not from government agencies, not from trade or user associations, not from university research centers. On the other hand, information regarding local government functions is widely available, but the forms in which it is collected also vary widely, and much of it requires the aggregation of data on multiple individual jurisdictions to the metropolitan level. Again, once research strays from the parameters of the Census of Governments, consistency disappears and data collection increasingly relies on chain referrals by telephone contacts until the right bureaucrat is located (assuming the researcher does not end up in a circular chain). When the needed information requires the initiation of multiple referral chains in numerous separate jurisdictions, as does collection of data on infrastructure, the chances of being confounded by missing data and/or incompatible measurements multiply exponentially.

In part, difficulties in locating data within the U.S. are a function of decentralization. Whereas in countries like Kyrgyzstan and The Philippines the national government takes primary responsibility for public data collection at all levels, in the U.S. this function is diffused among federal, state, metropolitan, county, and municipal agencies. Furthermore, at each level multiple actors are involved. The Census Bureau within the Department of Commerce collects only a limited portion of the information available from the federal government; other data sources include other divisions within Commerce itself, other Cabinet-level departments, non-Cabinet agencies, the regional offices of those agencies, the Congress, the federal court system, and a vast array of quasi-public agencies (e.g., the National Trust for Historic Preservation) and commissions.

Another problem stems from the extensive privatization that characterizes the U.S. economy. In many developing and transitional countries, communications, utilities and other infrastructure are public responsibilities. As a result, information about them is collected in a fairly centralized fashion. By contrast, in the U.S. most of these services are private or quasi-private, meaning that the data relevant to even a single metropolitan area are scattered in a wide variety of databases. In addition, many of those data are proprietary, making them inaccessible to outside researchers.

Trawling websites for whatever scraps are available is a tedious, labor-intensive, and usually frustrating undertaking that often does little more but convince the researcher that she must regress to use of the telephone and an even more time-consuming search. For all the mythic openness of the Internet, it remains an ad hoc enterprise fraught with gaps and unevenness.

This brings out another significant data issue: reliability. As mentioned earlier, the United Nations has noted wide discrepancies between official data and real conditions, for example with respect to urban sanitation. The mere fact that a central government controls the data set does not mean that the information in it represents the truth. Particularly in transitional and developing nations, there is a great temptation to present oneself as being more advanced, more democratic, and more attractive than conditions merit. Declaring sanitation to be “adequate” because everyone has “access” to it is far more appealing than noting that 90% of the population lives in squalor or that access requires the payment of fees that the poor cannot afford. Some data may represent nothing more than guesstimates – for example, of how many households have electrical service, given the ease with which illegal connections can be made. Here again, the word “access” allows for broad interpretation.

Within the U.S., even the most reliable and consistent sources of information – the various Censuses – suffer from various shortcomings, the most obvious of which is their self-reporting nature. Whereas in developing countries the source of misreporting may be a single government agency, in the U.S. the sources of misreporting number in the millions – of households, businesses, and state and local governments. In some ways the large numbers of respondents help to foster a general sense of reliability, in that the numbers over- and under-reporting certain information may be presumed to act randomly, canceling one another out. Where the numbers are small, though – for example, with respect to businesses in certain sectors enumerated at the metropolitan, county or city level – the data lose this statistical protection and become somewhat suspect. Moreover, certain data are lost at the finer levels of disaggregation, although the present study was not affected by this concern.

A third concern exemplified by this study is that of internal validity: Different countries define different kinds of places as “urban” or as “urban areas.” Moreover, not only do the definitions vary but they are sometimes assigned by fiat. Most countries define a threshold population as “urban,” usually 1000, 2000, 2500 or 5000 inhabitants but sometimes as small as 200 inhabitants (Iceland, Norway) or as large as 10,000 (Jordan, Portugal, Senegal). Often whatever that is regarded as urban is named – for example, in the Turks and Caicos Islands, “urban” equates with Grand Turk (Island) (*Ibid.*, p. 125), while Greece names eighteen urban areas (*Ibid.*, p. 118). Many countries do not define the term at all, while in others the definition is so vague as to be meaningless – for example, in South Africa, where the definition is “all population agglomerations of an urban nature” (*Ibid.*, p. 124). Occasionally, the definition is an outright tautology: “All urban centres.”

Definitions of “urban area” is more nebulous” sometimes continuously built-up urban land, sometimes that plus a further stipulation regarding political boundaries, sometimes including language about a “predominance of non-agricultural workers and their families” (former Soviet Bloc; *Ibid.*, p. 126).<sup>11</sup> For metropolitan areas in the U.S., we have precise definitions developed by the General Accounting Office and applied uniformly across the nation (except within the six New England states, where townships replace counties and data aggregation and disaggregation pose exceptional challenges). The principal criterion for these definitions relates to the labor force – specifically, commuting patterns into the central county or counties and thresholds for the

number of workers following them. However, the Census of Population also aggregates data at the level of the “urbanized area,” a more nebulous term that encompasses most but not all residents of each metropolitan area and that relies heavily upon input from individual states and counties. Even within this narrow realm, discrepancies can easily occur.

Given the general paucity of readily available detailed data for urban areas, finding similarly precise definitions in other countries inserts yet another difficulty into the research process. As a result, we have no idea how directly comparable our study areas actually are. We may be trying to compare individual cities and vaguely defined urbanized areas to the relatively hard-edged U.S. metropolitan areas. But identifying the challenges is a critical component of exploratory research. The only comfort we can derive is in knowing that the five U.S. metropolitan areas are directly comparable.

Peter Taylor (2004) remarks that “the world cities literature is vulnerable to criticism for the dearth of evidence backing up its propositions,” particularly with respect to inter-city relations (p. 32). However, as we have to some degree shown, a much larger problem precedes this one. Certainly, understanding the emerging world city network requires information about the flows of capital, information, culture, and people among them. But for planners and economic development specialists, understanding why those flows take the forms that they do and how individual urban agglomerations might develop additional or stronger flows is also crucial.

Cities, rather than nation-states, have emerged as the primary economic units of the 21<sup>st</sup> Century. Their increasing importance – more than half the world’s population is now considered urban – demands change in the ways we collect data globally. The United Nations and the Asian Development Bank have already recognized this and have initiated ambitious projects to develop a uniform set of urban indicators that is applicable in developing, transitional, and developed circumstances alike. Given that the United States is a global economic archetype and benchmark, the U.S. government should also move in this direction so that U.S. conditions can be compared directly with those in other countries, particularly in emerging powerhouses like India and China. Without comprehensive, consistent, and comparable data about conditions in the urban places where the various flows originate and are transformed, not to mention conditions in the places that the flows bypass, we cannot provide useful advice to their leaders and residents as to how to improve their lot. In turn, as Taylor points out, we cannot hope to understand fully the network itself, particularly once we leave the rarified atmosphere of the small number of world cities. Considering the vast numbers of people who live outside that atmosphere, and the enormous stakes involved in the process of globalization, we must strive to do better.

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**Table 2. Urban Indicators for Four Asian and Five U.S. City-Regions**

<i>City Country</i>	<b>Bishkek Kyrgyzstan</b>	<b>Cebu Philippines</b>	<b>Kathmandu Nepal</b>	<b>Mandaluyong Philippines</b>	<b>Bakersfield U.S.</b>	<b>Jackson U.S.</b>	<b>Lansing U.S.</b>	<b>McAllen U.S.</b>	<b>Reading U.S.</b>
City Development Index <sup>A</sup>	79	68	61	80	99	99	99	99	99
Connectivity Index	16	37	30	34					
Congestion Index	51.6	52.5	57.4	72.5					
<b><i>Population and Urbanization</i></b>									
Population (000s)	614.0	655.0	575.7	314.5	661.6	440.8	447.7	569.5	373.6
Population growth rate (per annum)	1.0	1.6	6.0	3.1	1.9	1.1	0.4	4.0	1.0
Population density (persons per hectare) <sup>B</sup>	41.6	92.6	15.7	670.0	0.3	0.7	1.0	1.4	1.7
Urbanization (percent) <sup>C</sup>	34.0	68.0	14.0	61.7	88.2	75.2	74.0	93.4	72.9
<b><i>Demographics</i></b>									
Population age distribution (percent)									
<b>Male:</b> 0-14	10.0	16.9	15.5	15.7	13.7	11.6	10.5	14.2	10.6
15-59	31.0	29.9	32.2	30.8	32.0	30.5	32.4	28.7	30.3
60 +	5.0	2.2	2.3	1.9	5.6	5.5	5.7	5.7	8.2
Totals	46.0	49.1	50.0	48.4	51.3	47.6	48.6	48.6	49.1
<b>Female:</b> 0-14	12.0	16.1	16.1	15.0	13.0	11.2	10.0	14.7	9.9
15-59	35.0	32.1	31.0	34.1	28.7	32.9	33.8	29.8	30.2
60 +	7.0	2.7	2.9	2.5	6.9	8.3	7.7	6.9	10.9
	54.0	50.9	50.0	51.6	48.6	52.4	51.5	51.4	51.0
Male/female ratio	0.85	0.96	1.00	0.94	1.05	0.91	0.94	0.94	0.96
Net migration (000s per annum)	1.2	34.0	NAV <sup>D</sup>	3.9	NAV	NAV	NAV	NAV	NAV
Average household size	2.4	4.9	5.2	4.6	3.1	2.7	2.6	3.6	2.6
Single-person households (percent)	9.0	NAV	6.3	4.5	20.3	25.1	27.4	13.1	24.6
Households headed by women (percent)	21.6	16.2	14.4	17.4	26.7	34.8	30.2	23.9	25.9

<i>City Country</i>	<b>Bishkek Kyrgyzstan</b>	<b>Cebu Philippines</b>	<b>Kathmandu Nepal</b>	<b>Mandaluyong Philippines</b>	<b>Bakersfield U.S.</b>	<b>Jackson U.S.</b>	<b>Lansing U.S.</b>	<b>McAllen U.S.</b>	<b>Reading U.S.</b>
<b><i>Income and Poverty</i></b>									
<b>Mean per capita income (\$US)</b>	<b>1,584</b>	<b>1,948</b>	<b>1,572</b>	<b>6,516</b>	<b>15,760</b>	<b>19,434</b>	<b>21,675</b>	<b>9,899</b>	<b>21,232</b>
Income inequality ratio <sup>E</sup>	16.7	20.6	3.2	5.2					
Households below poverty line (percent)	7.2	34.2	35.6	32.1	17.7	15.0	11.1	31.9	8.8
Women-headed hhs in poverty (percent)	28.7	NAV	97	31.8	31.3	27.7	21.9	44.0	19.6
Household expenditures (percent of income) <sup>F</sup>									
Food	56.2	44.5	51.5	42.8	14.0	11.7	11.6	15.3	11.2
Shelter	4.8	20.2	15.1	19.4	14.3	11.6	13.7	15.1	13.3
Travel	15.3	6.9	4.2	5.8	20.2	16.5	17.3	23.8	17.2
Other	23.7	28.4	29.1	32.0	51.5	61.2	57.4	45.8	58.3
<b><i>Employment</i></b>									
City (metro) product per capita (\$US) <sup>G</sup>	1,750	2,021	750	2,434	24,474	44,236	48,452	16,745	5,894
Per capita income as percent of product	0.91	0.96	0.48	0.37	0.64	0.44	0.45	0.59	0.46
Employment by industrial sector (percent) <sup>H</sup>									
Secondary & infrastructure	33.4	NAP <sup>I</sup>	15.3	28.2	13.8	16.4	19.4	17.6	31.5
Consumer services	21.7	NAP	20.8	39.1	31.4	33.4	29.5	35.8	30.3
Producer services	2.3	NAP	2.3	20.9	13.9	19.8	16.3	11.5	15.6
Social services	37.3	NAP	28.5	10.9	27.3	29.2	33.7	30.8	20.8
Others	5.2	NAP	33.0	1.0	13.6	1.2	1.2	4.2	1.9
Estimated available labor force (000) <sup>J</sup>									
Formal unemployment rate (percent)	6.0	11.2	7.8	15.8	12.0	6.3	5.0	12.0	5.1
Informal employment rate (percent) <sup>K</sup>	34.4	NAV	33.0	40.0	< 5.0	< 1.0	< 1.0	< 5.0	< 1.0
<b><i>Social Concerns</i></b>									
Education:									
Primary enrollment rate (5-14) <sup>L</sup>	76.5	93.7	86.4	94.0	97.1	97.5	98.3	97.6	97.3
Secondary enrollment rate (15-17) <sup>L</sup>	75.9	86.7	86.8	94.0	95.4	94.6	95.8	92.2	95.2
Tertiary graduates (percent)	1.5	14.5	6.2	24.5	7.8	17.3	17.2	6.9	12.3
Median years of education	11.0	14.0	10.0	14-15					
Children per classroom, elementary	32	58	40	45.1					
Children per classroom, secondary	32	50	23	56.1					
Adult literacy rate (percent)	98	93	78.2	99.4					

<i>City Country</i>	<b>Bishkek Kyrgyzstan</b>	<b>Cebu Philippines</b>	<b>Kathmandu Nepal</b>	<b>Mandaluyong Philippines</b>	<b>Bakersfield U.S.</b>	<b>Jackson U.S.</b>	<b>Lansing U.S.</b>	<b>McAllen U.S.</b>	<b>Reading U.S.</b>
<b><i>Social Concerns (cont d.)</i></b>									
Health:									
Persons per hospital bed	53.2	306.0	197.0	63.0	441.1	132.4	375.9	523.9	422.2
Child mortality <sup>M</sup>	4.8	4.1	9.0	2.5	5.4	10.4	8.1	5.9	7.2
Life expectancy at birth <sup>N</sup>	67.9	66.0	67.0	69.0	76.4	76.4	76.4	76.4	76.4
Infectious diseases mortality	0.33	10.50	0.40	0.20	NAV	NAV	NAV	NAV	NAV
Crime (rate per 1000): <sup>O</sup>									
Total	15.5	3.0	0.32	2.48	52.86	69.60	47.54	63.96	32.83
Murders	.17	.10	.02	.02	.11	.22	.04	.08	.04
Drug-related crimes	1.88	.30	1.52	1.52	NAV	NAV	NAV	NAV	NAV
Thefts	7.34	.20	.94	.94	37.76	48.28	39.03	46.04	25.18
<b><i>Housing</i></b>									
Dwelling type (percent) <sup>P</sup>									
Houses	19.4	82.0	31.8	56.2	81.2	78.8	76.0	76.6	87.4
Medium density	2.2	6.0	51.2	35.2	4.5	8.1	12.2	4.0	5.5
Apartment	70.2	11.0	18.0	7.6	5.3	4.7	7.0	2.9	3.4
Temporary	NAV	NAV	0.0	0.6	8.8	8.4	4.8	15.5	3.7
Others (e.g., institutions)	8.2	1.0	0.0	0.5	0.2	0.0	0.0	1.0	0.0
Tenure type (percent) <sup>Q</sup>									
Owned/purchased	85.0	41.0	65.8	52.2	62.1	68.5	67.3	3.1	74.0
Private rental	5.0	26.0	28.7	27.0	37.9	31.5	32.8	26.9	26.0
Social housing	10.0	0.0	0.0	2.0					
Sub-tenant	NAV	NAV	NAV	2.5					
Rent-free	NAV	NAV	3.4	3.5					
Squatter, no rent	NAV	33.0	NAV	8.0					
Squatter, paying rent	NAV	NAV	NAV	4.0					
House price-to-income ratio <sup>R</sup>									
House price-to-income ratio <sup>R</sup>	13.0	2.2	10.6	12.0	2.6	2.0	2.4	2.1	2.4
House rent-to-income ratio <sup>R</sup>									
House rent-to-income ratio <sup>R</sup>	0.41	0.18	0.064	0.19	0.18	0.15	0.15	0.19	0.15
Floor area per person <sup>S</sup>									
Floor area per person <sup>S</sup>	17.5	8.0	10.7	10.9	NAV	NAV	NAV	NAV	NAV
Housing in compliance (percent) <sup>T</sup>									
Housing in compliance (percent) <sup>T</sup>	62	70	NAV	85	> 90	> 90	> 90	> 90	> 90
Homelessness (number per 1000) <sup>U</sup>									
Homelessness (number per 1000) <sup>U</sup>	0.17	0.30	0.60	0.14	0.2	0.1	0.1	0.2	0.1

<b>City Country</b>	<b>Bishkek Kyrgyzstan</b>	<b>Cebu Philippines</b>	<b>Kathmandu Nepal</b>	<b>Mandaluyong Philippines</b>	<b>Bakersfield U.S.</b>	<b>Jackson U.S.</b>	<b>Lansing U.S.</b>	<b>McAllen U.S.</b>	<b>Reading U.S.</b>
<b>Utilities</b>									
Household connections (percent)									
Water <sup>V</sup>	99	68	81	83	99	99	99	99	99
Electricity <sup>T</sup>	100	86	99	95	99	99	99	99	99
Sewerage <sup>T</sup>	82	0	42	0	98	98	98	98	99
Solid waste service <sup>T</sup>	98	47	75	100	97	98	99	97	99
Service interruptions (hours/month) <sup>T</sup>									
Water	24	36	40	41	1	1	1	2	1
Electricity	160	5	10	1	4	2	2	5	3
<b>Connectivity</b>									
Households connected to phone (percent) <sup>W</sup>	73	15	68	87	97.4	96.6	98.2	92.6	98.7
Mobile phone calls per person	0.04	10.4	0.6	4.4	NAV	NAV	NAV	NAV	NAV
Large corporations <sup>W</sup>	NAV	NAV	NAV	2	1	0	0	0	0
Total commercial flights per month <sup>X</sup>	655	2,919	2,300	1,502	1,470	1,770	1,950	840	1,890
Cost of executive stay (per day, \$US) <sup>Y</sup>	117	80	100	125	165	180	180	140	185
<b>Energy</b>									
Per capita consumption (mt equiv.) <sup>Z</sup>	0.38	1.00	0.50	0.49	15.83	27.12	21.97	38.75	21.41
<b>Transportation</b>									
Mode of travel to work (percent) <sup>AA</sup>									
Private auto	10	4	NAV	22	92.2	95.0	90.4	92.8	91.1
Train, tram, light rail	60	0	NAV	1	0.0	0.0	0.0	0.1	0.1
Bus or mini bus	20	60	4	7	1.2	0.5	1.5	0.2	1.4
Motorcycle	2	0	33	17	0.3	0.0	0.0	0.1	0.1
Bicycle	1	0	0	3	0.5	0.0	0.5	0.1	0.3
Walking	7	0	0	13	1.9	1.4	4.0	1.9	3.6
Boat, taxi, animal, rickshaw	0	36	63	37	0.0	0.1	0.4	2.7	0.3
Auto ownership per 1000 <sup>BB</sup>	109	25	279	248	465	465	465	465	465
Transport fatalities per 1000 <sup>CC</sup>	0.08	NAV	0.04	0.04	0.23	0.55	0.27	0.35	0.25

<i>City Country</i>	<b>Bishkek Kyrgyzstan</b>	<b>Cebu Philippines</b>	<b>Kathmandu Nepal</b>	<b>Mandaluyong Philippines</b>	<b>Bakersfield U.S.</b>	<b>Jackson U.S.</b>	<b>Lansing U.S.</b>	<b>McAllen U.S.</b>	<b>Reading U.S.</b>
<b><i>Environment</i></b>									
Means of sewage disposal (percent) <sup>T</sup>									
Sewage pipe	82	NAV	67	0	70	75	75	70	80
Septic tank (treated)	15	NAV	28	87	30	25	75	30	20
Underground (untreated)	3	NAV	1	10					
Pan collection	0	0	0	2					
Open ground or trench	0	NAV	0	0					
Others	0	NAV	4	1					
Per capita solid waste (tons/year) <sup>DD</sup>	0.90	0.61	0.28	0.53	0.75	0.75	0.75	0.75	0.75
Means of solid waste disposal (percent) <sup>T</sup>									
Sanitary landfill	100	88	70	90	72	90	87	88	83
Incineration	0	0	0	0	2	0	0	0	2
Dumping or open burning	0	13	20	10	4	2	1	5	1
Recycling	0	0	10	0	22	8	12	7	14
Air-quality standard exceeded (days per annum) <sup>EE</sup>									
Sulfur dioxide	150	NAV	NAV	NAV					
Nitrous oxides	1.30	NAV	NAV	NAV					
Carbon monoxide	160	NAV	NAV	NAV					
Ozone	25	NAV	NAV	NAV					
Suspended particulates	150	NAV	NAV	NAV					
Lead	161	NAV	NAV	NAV					
<b><i>Local Government</i></b>									
Investment per capita (per annum, \$US)									
Physical infrastructure	17.80	NAV	4.06	971.84	NAV	NAV	NAV	NAV	NAV
Housing	7.94	NAV	4.00	4.55	NAV	NAV	NAV	NAV	NAV
Services	132.48	NAV	8.97	3,925.95	NAV	NAV	NAV	NAV	NAV
Other	NAV	NAV	27.12	2,743.09	NAV	NAV	NAV	NAV	NAV

<i>City</i> <i>Country</i>	<b>Bishkek</b> Kyrgyzstan	<b>Cebu</b> Philippines	<b>Kathmandu</b> Nepal	<b>Mandaluyong</b> Philippines	<b>Bakersfield</b> U.S.	<b>Jackson</b> U.S.	<b>Lansing</b> U.S.	<b>McAllen</b> U.S.	<b>Reading</b> U.S.
<b>Local Government (cont d.)</b>									
Functions of local government <sup>FF</sup>									
Water	Y	NAV	Y	Y		Y			
Sewer	Y	NAV	Y	Y		Y			
Electricity	Y	NAV	Y	Y		N			
Solid waste collection	Y	NAV	Y	Y		Y			
Telephone	Y	NAV	Y	Y		N			
Public transit	Y	NAV	Y	Y		Y			
Emergency response	Y	NAV	N	Y		Y			
Roads (maintenance)	Y	NAV	Y	Y		Y			
Education	Y	NAV	Y	Y		Y			
Health care	Y	NAV	Y	Y		N			
Public housing	Y	NAV	Y	Y		N			
Recreation/sports facilities	Y	NAV	Y	Y		Y			
Police	Y	NAV	Y	Y		Y			
Drainage/flood control	Y	NAV	Y	Y		Y			
Livelihood assistance	Y	NAV	Y	Y		Y			

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### Notes to Table 2

<sup>A</sup> Source of all Asian data: Westfall & de Villa, 2001.

<sup>B</sup> For U.S. MSAs: Density = total population / total land area. May not be directly comparable to densities provided for Asian city-regions. Source: U.S. Census.

<sup>C</sup> For U.S. MSAs: Urbanization = (urban population / total population)\*100. Source: U.S. Census.

<sup>D</sup> Data not available.

<sup>E</sup> Inequality ratio = mean of highest quintile / mean of lowest quintile. Quintiles not available for U.S. income data.

<sup>F</sup> U.S. source: Savageau, 2000.

<sup>G</sup> For U.S. MSAs: Metropolitan product = gross sales/shipments / total population. Note: Contribution from construction sector not included Source: U.S. Census.

<sup>H</sup> Sector definitions: *Secondary* = manufacturing + construction + utilities; *consumer services* = retail trade + wholesale trade + transport + personal services + arts/entertainment/recreation; *producer services* = FIRE + professional, scientific & management services + information management; *social services* = education + health care + government; *others* = agriculture + fisheries + mining + forestry + defense.

<sup>I</sup> Category(?) not applicable.

<sup>J</sup> U.S. source: *U.S. Census, as reported*. The Asian data were corroborated by applying the following formula to age-cohort data: Available labor force =  $0.7(\text{population ages 15-59}) + 0.4(\text{population 60 and over})$ .

<sup>K</sup> Informal employment rate =  $[(\text{available labor force} - \text{formal employment}) / \text{available labor force}] * 100$ . Estimates of informal employment derived in this way (following the equation in note J, above) were slightly higher than reported by Westfall and deVilla, suggesting that labor-force participation exceeds 70% in the Asian urban areas. The estimates shown for the U.S. MSAs were based on a general understanding of the nature of the U.S. economy and of the reporting requirements of the Internal Revenue Service. However, it is a poorly kept secret in the U.S. that a substantial amount of work is done on a cash or barter basis – that is, informally. Nonetheless, such transactions more commonly provide supplemental income rather than full-time employment; hence, they do not substantially alter formal employment and unemployment figures. In areas large numbers of Latino/a immigrants reside, the practice is more common and does provide some low-wage, essentially full-time employment – hence the higher estimates for Bakersfield and McAllen compared to the other MSAs.

<sup>L</sup> Ages in parentheses refer to U.S. population cohorts used to calculate enrollment (= (number enrolled in school / population in cohort)\*100). By age 18, some persons in the U.S. are still in high school, while others are joined the work force, moved into tertiary education, or entered the military. *Source: U.S. Census*.

<sup>M</sup> Child mortality rate = number of deaths among children under age 5 per annum per 1000 population in cohort. For U.S. MSAs: State rates are shown. Given circumstances in these MSAs vs. those in their respective states, we would expect that child mortality rates are higher than shown in Bakersfield and McAllen, lower than shown for Jackson, and very similar to what is shown for Lansing and Reading. *U.S. Source: Centers for Disease Control*.

<sup>N</sup> For U.S. MSAs: National average life expectancy is shown. Given their substantial minority populations, Bakersfield, Jackson, and McAllen are likely to have somewhat lower life expectancies, while Lansing and Reading may have the same or somewhat higher life expectancies.

<sup>O</sup> U.S. source: *Savageau, 2000*. Data adapted from Uniform Crime Reports (UCR) prepared by the Federal Bureau of Investigation, U.S. Department of Justice. Drug-related crimes are not reported separately in the UCR.

<sup>P</sup> For U.S. MSAs: Houses = 1-4 unit structures; medium density = 5-19 units per structure; apartments = 20 or more units per structure; “temporary” = mobile homes. Numbers exclude group quarters, which house significant portions of the population in the Bakersfield (military base) and Lansing (major state university) MSAs. *Source: U.S. Census*.

<sup>Q</sup> For U.S. MSAs: Data do not distinguish among different rental types (private rental, social (public) housing, sub-tenant). Squatting is illegal and usually well-enforced, so the percent of households squatting is negligible. *Source: U.S. Census*.

<sup>R</sup> For U.S. MSAs: Price-to-income ratio = median house value / median household income. Rent-to-income ratio = median contract rent / median household income. *Source: U.S. Census*.

<sup>S</sup> In the U.S., occupants per room is calculated using only “living area,” which excludes bathrooms, kitchens, and non-room spaces. As a result, constructing even a rough estimate of floor area per person is extremely difficult. However, if the typical dwelling unit is assumed to contain 1200 square feet, or 111.5 square meters, and the average household consists of 3.0 persons, then a “typical” amount of living space in the U.S. would be 400 square feet per person, or 37.16 square meters.

<sup>T</sup> U.S. source: *Authors’ estimate based on professional experience in the U.S.*

<sup>U</sup> U.S. source: *Authors’ estimate, combining estimates provided by service providers to the homeless in Jackson and professional experience*.

<sup>V</sup> U.S. source: *U.S. Census*.

<sup>W</sup> U.S. source: *U.S. Census*. This measure of connectivity may soon be insufficient by itself, given the dramatic increase in cellular phone use and concomitant growth in the number of households giving up their land lines.

<sup>X</sup> U.S. source: *Sperling & Sander, 2004*. In this source, “large” means Fortune 1000 corporate headquarters or major facilities. However, the ADB report does not define the word large, so comparability is unknown. One “large corporation” is listed for Bakersfield, due to the presence not of a Fortune 1000 company but of a major U.S. Air Force base.

<sup>Y</sup> For U.S.: Includes one night at executive hotel, ground transportation from and to airport, and three meals. *Source: Authors.*

<sup>Z</sup> *U.S. source: World Almanac Education Group, Inc., 2001.* Data provided by the Energy Information Administration, U.S. Department of Energy. State averages used.

<sup>AA</sup> *U.S. source: U.S. Census.*

<sup>BB</sup> *U.S. source: World Almanac Education Group, Inc., 2001.* Data provided by the U.S. Department of Transportation. The national average is shown. Given local circumstances (e.g., the presence of Latino/a immigrants, who often carpool), auto ownership is likely to be lower in Bakersfield and McAllen than elsewhere.

<sup>CC</sup> *U.S. source: Sperling & Sander, 2004.* Data obtained from individual states. Traffic fatality rates were derived by doubling fatality rates for state highways only. Rates apply at the state level, not to particular MSAs.

<sup>DD</sup> *U.S. source: Rathje & Murphy, 2001.* Estimate provided by the U.S. Environmental Protection Agency and corroborated by data from the Mississippi Department of Environmental Quality.

<sup>EE</sup> *U.S. source: U.S. Environmental Protection Agency.*

<sup>FF</sup> *U.S. source: Authors.*

## Endnotes

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1. This is less true in the European Community, but comparative analyses of smaller metropolitan regions are still relatively rare.
2. In 2000, out of 331 Metropolitan Statistical Areas (MSAs) and Primary Metropolitan Statistical Areas (PMSAs, components of much larger Consolidated Metropolitan Statistical Areas, or CMSAs) in the United States, only four (New York, Los Angeles, Chicago, and Philadelphia) had populations above five million, while the number with populations above one million was 61. The four largest PMSAs represented only 1.2% of all designated P/MSAs but contained about 11.6% of the total U.S. population (32.6 million people). The 61 P/MSAs with more than one million residents represented 18.4% of all P/MSAs and contained 52.2% of the total population (147.1 million people). Nonetheless, more than 80% of all metropolitan areas in the U.S. remain unaccounted for.
3. In the United States, the percentage is smaller than the 53.2% average for the more developed nations. See Note 2, above.
4. During the 1990s, an estimated 90% of all job formation in Latin America occurred in the informal sector (UNCHS, 2001b).
5. This may soon begin to change, however, given that demand for oil and natural gas, the primary transportation fuels, continue to rise due to industrial development in places like China and India, while their production is expected to peak within the next five years and start to decline (Monbiot 2003, Gwyn 2004).
6. The only capital city included in this study is Kathmandu, the capital of Nepal.
7. The index is a composite measure consisting of the average of five sub-indices, which cover health, education, infrastructure, waste, and city (economic) product.
8. In August 2003, the electrical grid over much of the northeastern United States and southeastern Canada went off-line, causing outages that lasted several days in some locations.
9. It is quite possible that some residents bypassed land lines entirely and received their first phone service via cellular technology.
10. However, Ulaanbaatar, the capital of Mongolia, makes American transportation look harmless: The transport fatality rate is 1.37, two and a half times Jackson's, and most of the casualties are pedestrians (Westfall & de Villa, 2001). It would be very interesting to learn the circumstances of many of these deaths – trampled by horsemen? run down by oxcarts? victims of rogue motorcyclists?
11. It's worth noting that this last criterion would disallow much of Kern County, California, where 10% of the population is engaged in agriculture.