

ESTIMATING URBANIZATIONⁱⁱ

In our article, '*How Urban is Pakistan*' published in 1999ⁱⁱⁱ, we analyzed the preliminary results of the 1998 census, particularly regarding urban population. We noted that city populations were higher than what official data was prepared to reflect, pointing to the issue of definition, specially the change introduced in the 1981 census and the use of administrative boundaries that contributed to the 'under-estimation' of the urban population in the census (Box 1). In a later version published as '*Underestimating Urbanization*'^{iv}, after the final results of the census had been released, we noted that leading Pakistani demographers and social scientists had commented and raised questions on the apparently low urban population reported in the 1998 census, considering it inconsistent with trends and evidence-based research. They argued that the urban population as a percentage of total population could not be less than 40 percent and could be up to 50 per cent. (See Box 2 on the implications of the changed census definition of 'urban'). Here, we take-up the subject again.

Why is it important to look at the urbanization process? As we had argued earlier, in transitional societies, urbanization and its key characteristics are major determinants of the political process. Urbanization has an impact on the realization of political rights and participation in political processes, on the relationship of and responsibilities between the citizen and the state and the related institutional structures, on the nature of the breakdown of existing societal structures and the forging of new and complex ones, and on the composition of revenue base and the criteria for resource allocations. There is a critical need to recognize and understand the urbanization process: here, we look at the process to present estimates of urbanization and rural population.

In preparing estimates of urbanization and rurality, we draw from our earlier work^v, and, use the latest available census pertaining to 1998. However, before we proceed with the estimates, we need to discuss the matter of definition. This is important because the use of varying definitions may not capture the degree of population agglomeration, and, changes in definition complicate comparisons over time^{vi}. Similarly, global population and urbanization databases, such as that maintained by

the United Nations since 1950 (and other agencies) are derived from national data based on country-specific definitions used by various countries (Box 3 and 4), international comparisons are made more difficult. This should not be interpreted to mean that the national definitions are flawed, but that they distort cross-country comparisons and, in many places, the implied urban/rural dichotomy is inadequate to reflect the degree of agglomeration.

What then is urban and what is rural? Census offices usually define what is 'urban' or metropolitan for census purposes and assume the 'residual' to be rural (See Box 1 for Pakistan definitions). Governments use different definitions for policy - such as 'urban and 'rural' in Sindh for job quotas to bring equity in government employment; and, in the United Kingdom, 30 different definitions of 'rural' are used by government departments. On the one hand, 'rural' and 'urban' seem clear terms with contrasting images: isolated farms, tiny hamlets, cultivated fields and villages, versus, the thriving city, skyscrapers and slums. This may have been a simple but adequate way of defining 'urban'^{vii} and 'rural'^{viii} some centuries or even decades ago, and while this dichotomy may be comfortable, it is imprecise and over-simplified. Life changes in a variety of dimensions along this route: from fields and intensive cultivation, villages and small market towns, to larger towns, small cities and the cosmopolitan city and is not a single homogenous activity – it is multi-functional and diverse. Categorizations are largely becoming irrelevant as people live their lives in different ways rendering conventional definitions obsolete and many social, cultural, economic and environmental issues are inadequately addressed by current approaches separating 'rural' and 'urban' agendas.

The key features of the urban context have been defined as proximity, density, diversity, dynamics and complexity. Population density, an urban core and proximity to city can be considered the key indicators that define the conceptual framework of agglomeration economies and rent. These critical factors have been used to create an agglomeration index as an alternative measure to adequately capture human settlement concentration rather than rely on ad-hoc and non-comparable definitions that, because of their implied urban/rural dichotomy, may not adequately reflect the degree of urbanization (Box 5).

(a) Population density

Population density is an important criterion for economic behaviour – to have a thick market, there must be a certain mass of people. Density is a proxy for market thickness. Dense proximity of a diverse pool of skills provides agglomeration benefits: drives agglomeration economies that are a defining feature of cities - transport, infrastructure, amenities - also bear on these economies. Density also affects unit cost of investment - fixed facility costs or higher mean travel cost to facility. Low-density areas may be too small to support competition in product and service markets, leading to capture by local monopolies

(b) Urban Core and Proximity – distance to city

The existence of an urban core and its proximity (or distance) captures important determinants of economic opportunities and constraints – a proxy for market access and lower transport costs. Areas with ease of access or within commuting radius of a city may not be considered rural even if they are agricultural farms, and, towns outside the radius may be considered rural. Economic activities change systematically with distance to city: proximity and remoteness. Lack of an urban core and low overall population density impacts ability to diversify economic base compared to cities. The most extensively researched source of evidence for the claim that proximity is good for productivity is from studies of areas of dense economic activity: doubling of size increases productivity from 3-8 per cent - from a town of 50,000 to one of 5 million means a 50 per cent productivity increase. Further, this effect is larger in higher technology sectors^{ix}.

What does Pakistan look like in terms of the critical factors that determine the urban and rural:

- population density, and
- urban core and proximity.

Figure 1 presents the population density recorded in the censuses 1951 to 1998 with estimates for 2013. Overall population density in Pakistan has increased from 42.4 persons/skm in 1951 to an estimated 231.6 persons/skm in 2013 with the highest density in the Punjab (488 persons/skm, 2013 estimate) and the lowest in Balochistan (27.4 persons/skm, 2013 estimate). The largest increase is in

Balochistan (from 3 to 27 persons/skm), there are also significant increases are in K-Pakhtunkwa 61 to 313 persons/skm) and Sindh (43 to 313 persons/skm). The 1998 census population living in the various density bands in the four provinces is shown in Figure 2. Balochistan, Pakistan's largest province in terms of area (43.6%), stands in sharp contrast to the other provinces: 70% of Balochistan's population lives at densities below 50 persons/skm compared to 1% in the Punjab and 3% in Sindh and K-Pakhtunkwa; there is no population living at densities above 500 persons/skm compared to 51% in Punjab, 41% in Sindh and 38% in K-Pakhtunkwa. Figure 3 shows population in relation to proximity (expressed as travel time, primarily a function of distance) to city (i.e. urban core, assuming the core to be a single Pakistan census defined urban place of 100,000 or more). Other than Balochistan, the majority of the population live within one-hour from a city (83%, 80% and 68% in Punjab, Sindh and K-Pakhtunkwa) and a small proportion living more than two-hours away (the respective figures being 1%, 7%, and 9%); Balochistan presents a different picture with only 20% of the population living less than one-hour and 20% living more than 6 hours-away from a city.

In the framework of the critical factors and using criteria and thresholds that we establish, we can proceed to estimate the urban and rural in Pakistan^x (Box 6). As mentioned earlier, the census defines only the urban and assumes the rest to be rural; we however establish criteria for both the rural and the urban. The base case criteria were adopted after considering and preparing estimates on several criteria. In the base case criteria, we consider (a) all areas with scattered populations (i.e. low population density), all areas that do not contain a town (i.e. urban core), and all other areas beyond a given travel time (i.e. proximity to city) to be rural: the base case criteria are: 250 persons/skm; absence of a town of 50,000 within the area; *and* a travel distance of more than 75-minutes to a city; (b) a city core (100,000 or more in a single Pakistan census urban place) and its linked built-up and surrounding areas as '*urban*' area provided they have a minimum density of 500 persons/skm (overall). Of course, this leaves a gap between what we are considering rural areas and urban areas. As mentioned earlier, the categorization of rural and urban appears inadequate and imprecise and there does not appear to be a natural dividing line or break point between the two: *the urban/rural divide appears as a gradient, rather than a dichotomy*. Behaviour and conditions change drastically along the gradient, and there seems no compelling reason to segment them into just *these two* categories. We therefore introduce the concept of an '*urbanizing*^{xi}' area to classify areas which clearly are not rural since they have both an urban core and an overall

density higher than the criteria we are using to classify the rural although they have not achieved our criteria for urban areas but could be considered in *transition*. We categorize all areas that have (i) a population density more than 250 persons/skm (overall) and 400 persons/skm in the urban core, (ii) a town (i.e. urban core) of 50,000 or more, and (iii) lie within a 75-minute distance of a city (100,000 or more) as ‘*urbanizing*’ areas. The base case criteria we use for an *urban* area is significantly higher than what is considered ‘urban’ in most of Europe, Oceania, the Americas, Africa and Asia. The base case criteria for *urbanizing* area is considered ‘urban’ in most countries, with few notable exceptions. Similarly the criteria are much higher than that used to calculate the agglomeration index (a comparison is given in Table B, Box 6).

The estimates of the population in the rural, urban and ‘urbanizing’ areas for the four provinces, based on base case criteria, are given in Figure 4, and Table 1 provides a comparison of these estimates with the 1998 census.

Table 1 – Census 1998 and Our Estimates 1998

	URBAN		URBANIZING AREA <i>Our Estimate</i>	RURAL	
	Our Estimate Urban Area	Census 1998 Urban		Our Estimate Rural Area	Census 1998 Rural
Punjab	39.65	31.3	33.20	27.14	68.7
Sindh	39.86	48.8	19.40	40.74	51.2
Khyber-Pakhtunkwa	17.35	16.9	27.71	54.94	83.1
Balochistan	00.00	23.9	11.57	88.43	76.1

In looking at the comparisons, it should be borne in mind that while the census has only two categories - that defined as ‘urban’ - with all the ‘residual’ non-urban areas treated as rural - we classify *all* areas in one of our three categories using defined criteria for each. It will be seen that our ‘urban area’ estimates in the case of Punjab and K-Pakhtunkwa are higher than the census urban population by 27% and 3% respectively; our higher estimates are partly due to the use of administrative boundaries of the city by the census resulting in the exclusion of suburban development (see Box 2) that forms an integral part of the city is excluded from consideration in the census but gets included in our estimates. On the other hand, our estimates for the urban area in Sindh are lower by 18% compared to the census due to the exclusion of small rural towns from our estimates for their lack of urban core (i.e. below our threshold size: town of 50,000 population) and lower density but are included in the census due to their administrative status, while in Balochistan we do not find any area which meets our criteria for urban (primarily due to the density criterion). The main differences are in the case of our rural estimates: since (i) our

'rural area' estimates are derived from defined criteria for the 'rural' while the census assumes all the population outside the city boundaries to be "rural"; and (ii) we introduce the concept of an 'urbanizing area' for the areas that clearly are not rural (they have both an urban core and an overall density higher than the criteria we are using to classify the rural) while they have not achieved the base case criteria for 'urban area'. The introduction of '*urbanizing area*' brings into play the various elements of our criteria: in Punjab and K-Pakhtunkwa, due to higher densities, presence of urban core (town of 50,000 population) and proximity to city (within 75-minute of a city of 100,000), a very significant population classified as rural by the census falls in our urbanizing area (the census classifies all areas outside city boundary as rural - the 'residual' approach); in Sindh, certain areas classified as urban by the census do not meet our criteria for an urban area but qualify as urbanizing areas; and in Balochistan, the Quetta area containing the only city of the province, is considered as an urbanizing area due to lower overall population density. There is a significant part of the population living in areas that are no longer rural but at different stages of urbanization.

To sum up in the Pakistan context: the urban-rural definition of the census measures attributes of administrative areas and does not adequately reflect the process of urbanization and agglomeration. We use density, urban core and distance to city to measure the urbanization process and show that the census definition 'underestimates' the magnitude of the population in areas undergoing urbanization ('urbanizing areas'). The definition, and the consequent flawed understanding of the urbanization process, has led to serious policy distortions. It is both the nature and the magnitude of the urbanization process that is significant with important implications for the understanding of politics, poverty, empowerment, gender, governance, culture, inequality, informality and marginality. Based on an understanding of this process, many concepts have to change and policy interventions repositioned.

Box 1

Definition matters

As the 1961 census noted, “The distinction between an Urban and Rural population is based on the definition of what is an urban population” and “The essential difference between a rural and urban population was that the former was mainly engaged in agriculture and the latter in commerce, manufactures and other occupations. Thus a place having a population of 5,000 or more would be considered a village if it did not possess urban characteristics” (Census 1931). Since census taking began in British India in 1861, “urban population meant the *de facto* population of cities and towns”. Cities and towns included: “(1) every municipality; (2) all Civil Lines not included in municipal limits; (3) every Cantonment; (4) every other continuous collection of houses inhabited by not less than 5,000 persons, which the Provincial Superintendent may decide to treat as town for census purposes;”. The 1981 census changed this definition of ‘urban’ to an administrative criterion - that of the administrative status of municipal governance - thus only the population living within the boundaries of municipalities and cantonments was designated as ‘urban’.

Table A – Census definitions of ‘Urban’

<i>Census 1901-41</i>	<i>1951 Census</i>	<i>1961 census</i>	<i>Census 1981 and 1998</i>
Urban Area is a “Town includes (a) every municipality of whatever size; (b) all civil lines not included within municipal limits; (c) every other continuous collection of houses, permanently inhabited by not less than 5,000 persons, which the Provincial Superintendent may decide to treat as a town for census purposes.” <i>Census of India 1901, Vol. I, p.21.</i>	“Urban Areas include (a) Municipalities, cantonments and notified areas irrespective of population size; (b) any other continuous collection of houses inhabited by not less than 5,000 persons and having urban characteristics.”	“Urban Areas include: (a) Municipalities as well as civil lines and cantonments not included within municipal limits; (b) any other continuous collection of houses inhabited by not less than 5,000 persons and having urban characteristics which the Provincial Director of Census decided to treat as urban for census purposes;” and in certain cases (c) “areas which had urban characteristics but less than 5,000 population.” <i>Census of Pakistan 1961.</i>	“Urban areas – All localities which are either metropolitan corporation, municipal corporation, municipal committee or cantonment at the time of the census were treated as urban.” <i>Census of Pakistan 1981 and 1998.</i>

Box 2

Definition matters – Pakistan

The definition adopted in the 1981 census, and subsequently for the 1998 census, was based on an administrative criterion. This implied that places which would earlier have qualified as urban, would be ignored: in 1951 census, of a total of 235 urban places, 121 or 51.5 per cent did not have administrative status; in 1961 census, of 336 urban places, 219 or 65.2 per cent did not have administrative status – and according to the 1981 definition would not have been classified urban. By using administrative status as the criterion for the 1981 census, 72 *urban* places in the 1972 census with a population of 1.356 million was declared *rural* in 1981, thus shifting 5.7 per cent of the urban population to the rural; similarly 1,462 places with a population of 5,000 or more were classified as rural some of which would have been classified as 'urban' had the definition not been changed. In the 1998 census, 3,691 places of 5,000 and above, with a population of 31 million were classified as rural; once again, many of these would have been classified as 'urban' had the changed definition not been applied. An estimate shows that that 361 places with a population of 5,000 or more that were considered rural in the 1998 census *actually had urban characteristics better than many places considered urban in the census*; if their population is considered urban, this would add another 6.5 per cent to the 1998 urban population of Pakistan (Arif, 2003).

Leading from the use of an administration criterion is the use of administrative boundaries under the changed definition introduced in the 1981 census: this meant that people living outside the administrative boundaries were not counted as urban. City populations have extended outside these administrative boundaries through suburban and peri-urban development, a phenomenon that has gained in significance. For instance, in Lahore, public sector suburban development (Johar Town, Sabazaar, others) most private sector suburbs, and the Defense Housing Authority area, are not included in the count for urban Lahore. Similarly, settlements peripheral to the city, capitalizing upon their proximity, transport links employment opportunities and access to services have grown substantially and even acquired "urban characteristics". Not surprisingly, the census results show that municipality population grew at 3.14% p.a. while the surrounding "rural" areas at 4.14% p.a. Re-estimating the urban agglomeration would result in an increase of well over 20% to the 1998 census urban population of Lahore.

References:

Arif, G.M. 2003. "Urbanization in Pakistan: trends, growth and evaluation of the 1998 census" in Kemal, Irfan and Mahmud (eds), *Population of Pakistan, an analysis of the 1998 population and housing census*. Islamabad, PIDE, 2003.

Box 3

Definition matters – how countries define urban

(a) Administrative status and boundary of the administrative area

- Poland = *miasta* = status of town
- Bangladesh = administrative status
- Sri Lanka = administrative status
- Nepal = administrative status
- Pakistan = administrative status

(b) Administrative status, and, other criteria

- India - all places with administrative status, *and* all other places with (i) minimum population, (ii) male working population non-agricultural, and (iii) minimum overall density
- Russia - cities, towns *and* urban-type settlements
Work-settlements with minimum population of 3,000 – 85% being workers, professionals and families
Resort settlements with minimum population of 2,000 – 50% being non-permanent residents
Sub-urban settlements ('dacha') with no more than 25% employed in agriculture
- China - urban district, city or town with density higher than 1500p/sq km; in urban districts with lesser density, only streets, town sites and adjacent villages considered urban

(c) Independent of administrative status or boundary

- Sweden = *tatorter* = statistically defined
- Australia = *urban centres* = population cluster and density
- Canada = population and density
- France = *unite urbanie* = statistically defined
- Japan = continuity and density
- New Zealand = population size
- United States = population size and density
- United Kingdom = extent of irreversible urban development.

Box 4

Definitions matter – internationally

The definitions used by various countries vary widely (Box 2) and in making comparisons across countries and regions, reliance is placed on the data compiled by the United Nations but there is "general under-appreciation of the fact that the UN is forced to rely on member countries' definitions of what constitutes urban and rural. Not only do these definitions vary widely by country, in many places the traditional urban/rural dichotomy is becoming increasingly inadequate" (Cohen, 2004). This leads to distortions, "misunderstandings and misreporting". For example, the share of India's population that resided in urban areas in 1991 would be 39% instead of the official figure of 26% if 113 million inhabitants of 13,376 villages with population of 5,000 or more were classified as urban. The share would be even higher if the Swedish definition of urban (settlements with more than 200 inhabitants) were applied. The notion that South Asia is densely populated but that a relatively small proportion of the population lives in urban areas may not be as paradoxical as it sounds. In Mexico, the urban population in 2000 was 74.4% when settlements of 2,500 or more were defined as urban. If that threshold were changed to 15,000 or more (Nigeria and Syria, for example, have cut-offs of 20,000), the urban share of the population would drop to 67%. A country's definition also can change over time, adding yet another layer of confusion. In China, for example, the urban share in 1999 could have 24%, 31%, or 73% depending on the official definition of urban population used (Satterthwaite, 2007).

References:

Cohen, B. 2004. "Urban growth in developing countries: a review of current trends and a caution regarding forecasts", *World Development*, 32(1), 24-25.
Satterthwaite D. 2007. *The transition to a predominantly urban world and its underpinnings*. London, International Institute for Environment and Development.

Box 5

Agglomeration Index

In order to adequately capture human settlement concentration rather than rely on ad-hoc and non-comparable definitions that, because of their implied urban/rural dichotomy, may not adequately reflect the degree of urbanization, an alternative measure of urban concentration was proposed by Uchida and Nelson (2008) based on earlier work by Chomitz, Buys and Thomas (2005). The agglomeration index is based on a uniform definition of what constitutes an “urban” or agglomerated area that can be used in cross-country analyses. “It is based on three factors: population density, the size of the population in a “large” urban center, and travel time to that urban center.” “The index does not define what is urban *per se* – it does not incorporate urban characteristics such as political status and the presence of particular services or activities.”

The *World Development Report 2009* adopted and used the index. The set of thresholds used were the same as in Chomitz *et.al* (2005): population density of 150 persons/skm; 50,000 for minimum population size, and 60 minutes for travel time to nearest large city. The density threshold is the one used is by the Organization of Economic Cooperation and Development and the threshold of 50,000 for a sizeable settlement was “considered reasonable for developed and developing countries” (WDR 2009).

Based on country-specific definitions of the ‘urban’, the worldwide share of urban population was 47%; using the criteria this ratio is 52%. A comparison of the country-specific and uniformly defined shares of the urban population is given in Table A below.

Table A – Comparison of urban population: UN data with agglomeration index

<u>Region</u> Country	<u>Country-Specific Definition</u> Urban as %age of total population (UN Data)	<u>Uniform Definition</u> Agglomeration Index (WDR 2009)
<u>Europe</u>		
Albania	41.8	52.7
Austria	65.8	67.9
Bulgaria	68.9	64.9
Denmark	85.1	48.8
France	75.8	72.5
United Kingdom	89.4	84.4
<u>North America</u>		
United States	79.1	71.9
Canada	79.4	70.5
<u>Latin America and Caribbean</u>		
Argentina	89.2	72.1
Barbados	49.9	91.3
Brazil	81.2	63.6
Chile	86.0	74.8
Ecuador	60.3	49.2
<u>Africa</u>		
Angola	50.0	26.8
Botswana	53.3	27.9
Djibouti	83.4	40.6
<u>Oceania</u>		
Australia	87.2	75.9
<u>South Asia</u>		
Bangladesh	23.2	48.0
India	28.7	52.4
Pakistan	33.2	53.6
Sri Lanka	15.7	38.2
<u>East Asia</u>		
Japan	65.2	90.9
Cambodia	16.9	23.8
Indonesia	42.0	55.2
Malaysia	61.8	68.0

References:

Chomitz, K., P. Buys and T.S. Thomas. 2005. *Quantifying the rural-urban gradient in Latin America and the Caribbean*, World Bank Policy Research Working Paper 3634, Washington D.C. World Bank.
 Uchida, H. and A. Nelson. 2008. *Agglomeration Index: Towards a new measure of urban concentration*, Draft as of February 15, 2008.
 World Bank. 2009. *World Development Report 2009*, Washington D.C. World Bank.

Box 6

Estimating Urbanization - Definition and Criteria

Rural Area: All areas with scattered populations (i.e. low density), and, all other areas, regardless of density, which do not contain a sizeable town (i.e. urban core), and, within a specified travel distance from a city.

Urban Area: A city core, its suburbs, linked built-up and surrounding areas are urban areas provided they meet the overall density criteria.

Urbanizing Area: Areas with an urban core, an overall density higher than that for the rural, and within 75-minutes of a city, but below the criteria for urban areas.

On this basis, several criteria were used to prepare a series of estimates and base case criteria were adopted. The criteria are given in Table A below.

Table A – Estimation Criteria

<i>Factor</i>	RURAL AREA	URBAN AREA	URBANIZING AREA
Density	All areas with a density of up to 250 persons/skm	500 persons/ skm or more overall	250 persons/skm or higher overall and 400 persons/skm in urban core
Urban Core and Proximity	All areas without a town of at least 50,000 population in a single Pakistan census defined urban place; <i>and</i> All areas beyond 75 minutes to city (100,000 or more)	100,000 or more in a single Pakistan census defined urban place	50,000 or more in single Pakistan census defined urban place within 75 minutes of a city (100,000 or more)

The base case criteria used for an *urban* area is significantly higher than what is considered 'urban' in most of Europe, Oceania, the Americas, Africa and Asia. The criteria used for *urbanizing* area is considered 'urban' in most countries, with few notable exceptions. Similarly the criteria is much higher than that used to calculate the agglomeration index (discussed in Box 5). A comparison of the criteria used with the country criteria for the United States used by the US Bureau of Census and that used for the agglomeration index in the WDR 2009 is given in Table B below.

Table B – Comparison of Estimation Criteria with US Census and Agglomeration Index

<i>Factor</i>	CRITERIA FOR ESTIMATES	US CENSUS	AGGLOMERATION INDEX (WDR 2009)
Density	<i>Urban Area</i> 500 persons/skm or more overall	<i>Urban Area</i> 386 persons/skm in city (core census blocks) and 193 persons/skm in surrounding areas	150 persons/skm
Population	<i>Urban Area</i> 100,000 or more in <u>one</u> Pakistan census defined urban place	<i>Urban Area</i> Urban core of 50,000 in <u>one or more</u> cities	50,000 or more
Proximity			Within a 60 minute travel time to city
Density	<i>Urbanizing Area</i> 400 persons/skm in urban place and 250 persons/skm or more overall	<i>Urban Cluster</i> 386 persons/skm in city (core census blocks) and 193 persons/skm in surrounding area	
Population	<i>Urbanizing Area</i> 50,000 or more in <u>one</u> Pakistan census defined urban place	<i>Urban Cluster</i> Urban nucleus of at least 2,500 but less than 50,000 in <u>one or more</u> cities	
Proximity	<i>Urbanizing Area</i> Within 75 minutes to a city (100,000 or more)		

Figure 1 – Pakistan: Population Density 1951-2013

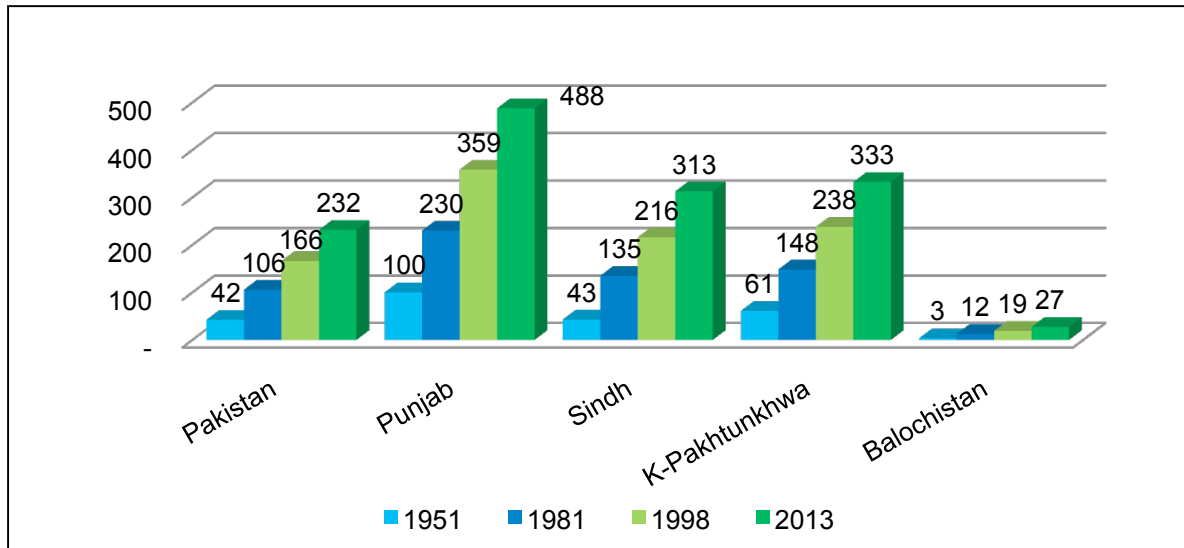


Figure 2 – Population Density 1998

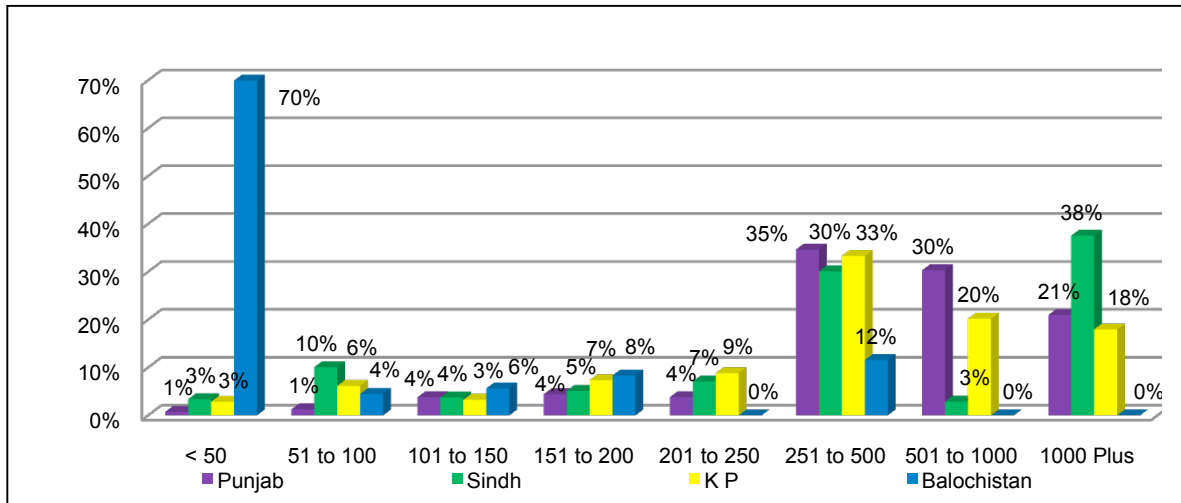


Figure 3 – Urban Core and Proximity 1998

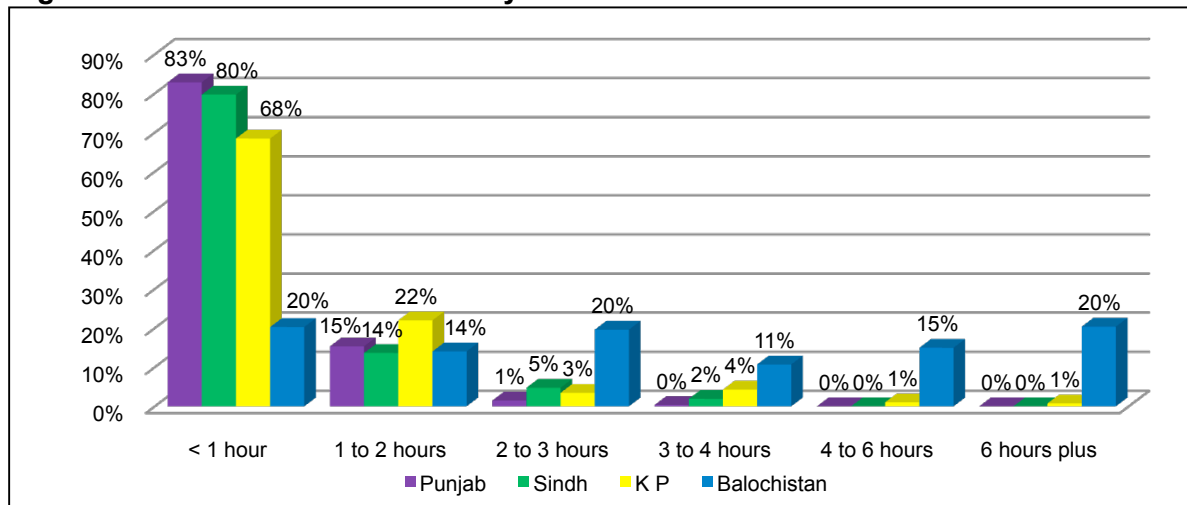
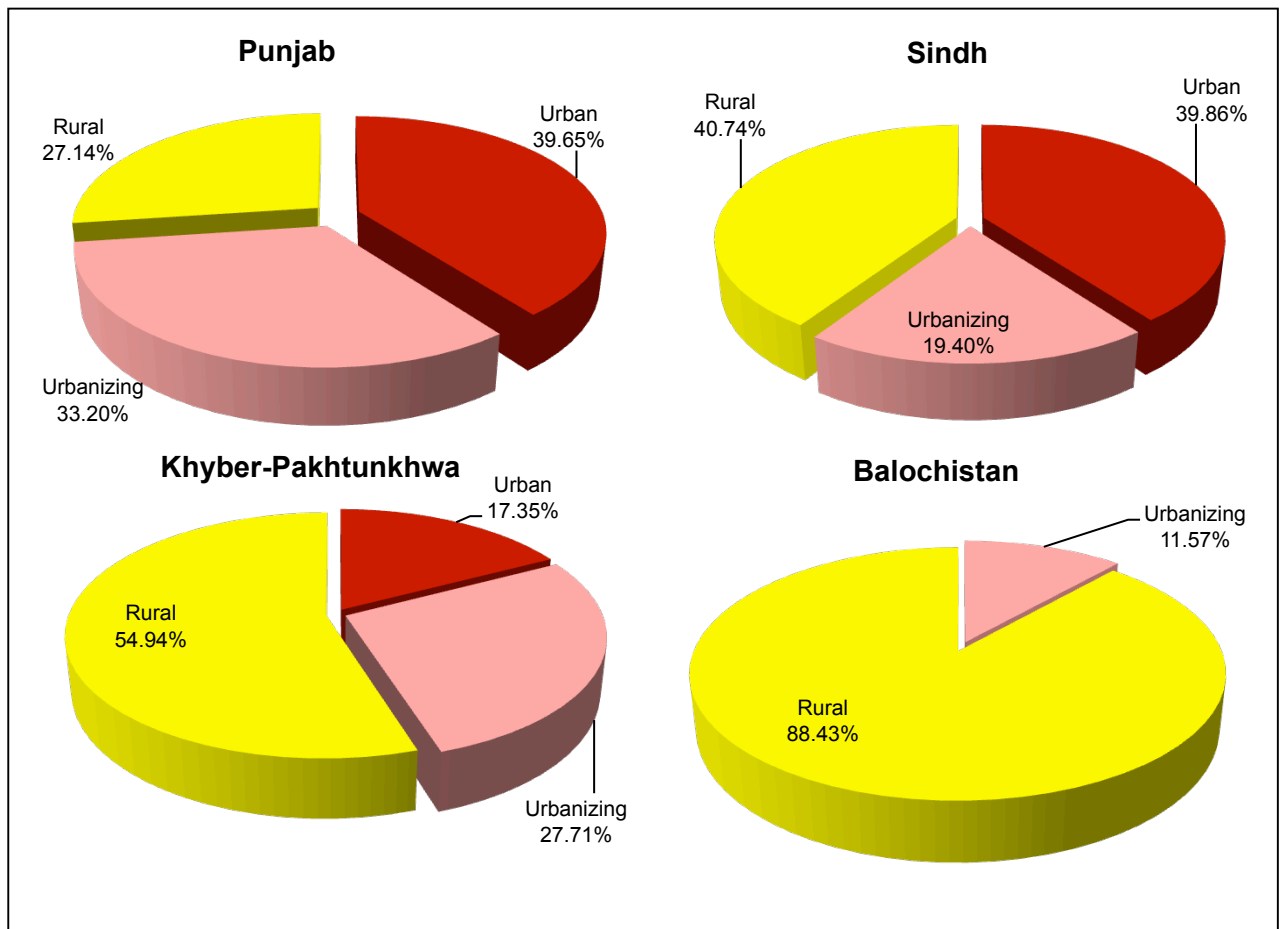
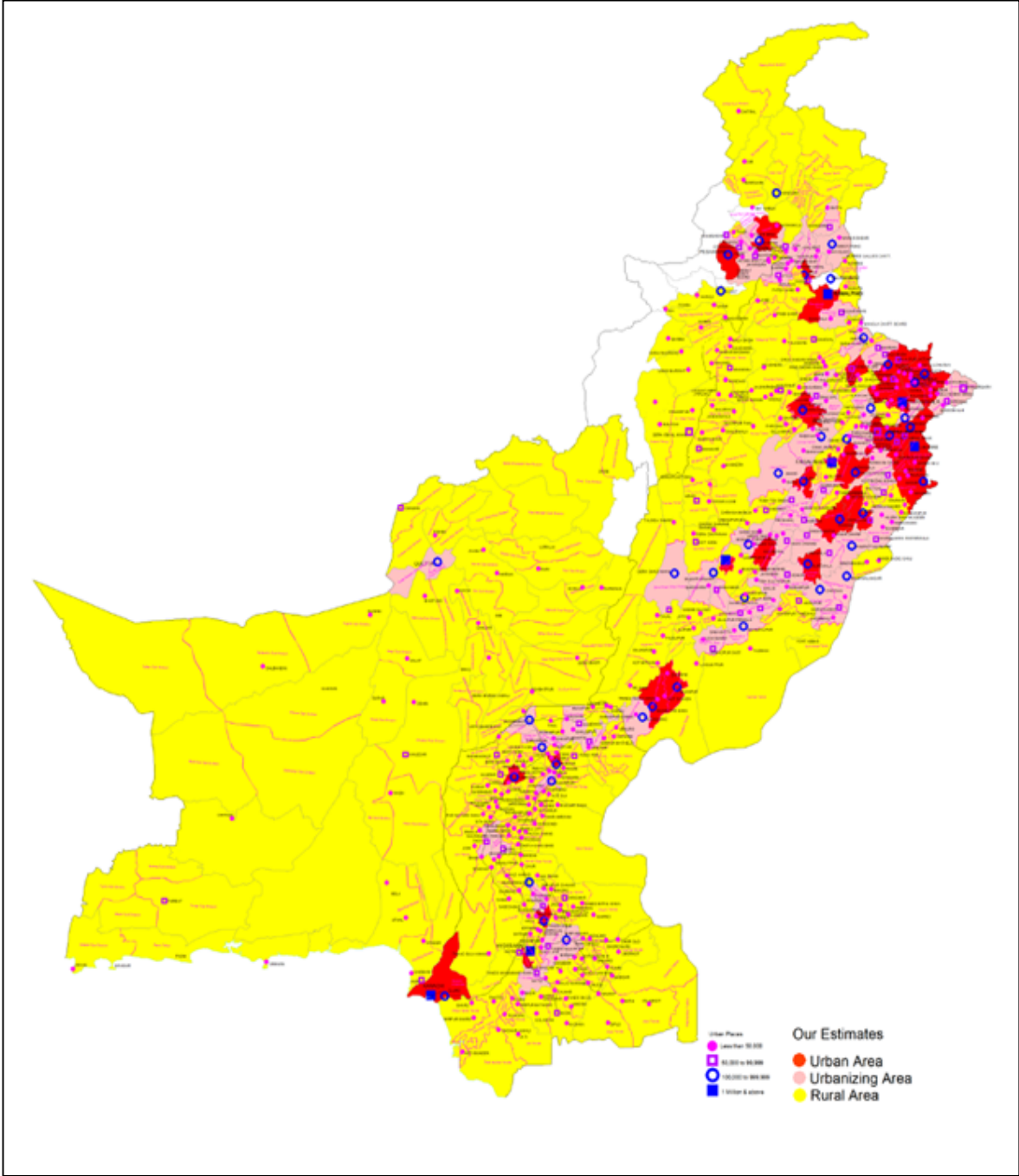


Figure 4 – Our Estimates 1998





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ⁱⁱ The presentation by the Urbanization Research Program (URP) and Assisting Local Institutions (ALI) "*Pakistan – the emerging spatial geography*" (May 2013) included the work here. An article based on the presentation reported on the work presented here - S. Akbar Zaidi, Dawn, August 5, 2013. We are grateful to comments on an earlier draft received from Messers Ali Cheema, Babar Mumtaz, S. Tanvir Hussain Naqvi, Pervez Tahir and S. Akbar Zaidi; the usual disclaimers apply.

ⁱⁱⁱ Published in Dawn, The News, Independent (Dhaka); translated and published in Urdu, Sindhi, Pushto and Balochi languages; and reproduced in Hasan, Arif, The Scale and Causes of Urban Change in Pakistan, Karachi, Ushba Publishing International, 2006.

^{iv} Ali, Reza, '*Underestimating Urbanisation*' in Economic and Political Weekly, Vol.XXXVII, Nos.44-45, Nov. 2-9, 2002; '*Underestimating Urbanisation*' in Zaidi, S Akbar (ed.), Continuity and Change: Socio-Political and Institutional Dynamics in Pakistan, City Press, Karachi, 2003; reproduced in Zaidi, S. Akbar, Issues in Pakistan's Economy, Second Edition (Karachi, Oxford University Press, 2006), and Bajwa, Khalid (ed.) Urban Pakistan - Imagining and Reading Urbanism, (Karachi, Oxford University Press, 2013).

^v This work includes: findings from study of urban census data over the last 100 years; an analysis of migration at Independence; '*Pakistan – Urban Places*' map and data sheet; study on rurality in Pakistan (2010), identifying and mapping rural areas, estimating the 1998 population of the rural areas, and the presentation '*Pakistan the Rural*' (2011); and presentation, '*Pakistan: the emerging spatial geography*' (2013).

^{vi} Henderson discusses several issues with regard to systematic and consistent definitions of a city or metropolitan area across countries and over time. Henderson, J.V. 2005. '*Urbanization and urban growth*', in Aghion, P and S. Durlauf (eds.), Handbook of Economic Growth, Vol. 1, Amsterdam, North Holland.

^{vii} *Urban*: adjective, (1) pertaining to, located in, or constituting a city (American Heritage); (2) of, pertaining to, or comprising a city or town (New Century); (3) characteristic of the city or city life (American Heritage); (4) relating to, belonging to, characteristic of, constituting, forming part of a town or city i.e. applied to any settlement in which most of the inhabitants are engaged in non-agricultural occupations (Penguin Dictionary of Geography); (5) pertaining to or characteristic of, situated or occurring in a city or town, constituting, forming or including a city, town or burgh, 1841 (Shorter Oxford). *References*: (a) The American Heritage Dictionary of the English Language, New York, 1970. (b) The New Century Dictionary, The Century Company, 1929. (c) The New Penguin Dictionary of Geography, London, Penguin Books, 1993; (d) Shorter Oxford English Dictionary on Historical Principles, London, OUP, 1993.

^{viii} *Rural*: 15th century, adjective, "that relating to the country"; "applies to sparsely settled or agricultural country"; (1) of or pertaining to the country as opposed to the city (American Heritage, op. cit.); (2) of or pertaining to farming, agricultural (American Heritage, op. cit.); (3) of, belonging to, relating to, characteristic of the country or country life, in contrast to the town or urban life, (Penguin Dictionary of Geography, op. cit.); (4) of, pertaining to, characteristic of the country or country life as opposed to town, 1590 (Shorter Oxford); (5) pertaining to villages (Kitabistan 21st Century Practical Dictionary, Lahore, 2003).

^{ix} For a survey of literature on the subject see Rosenthal, S.S. and W.C. Strange (2004), '*Evidence on the Nature and Sources of Agglomeration Economies*', in V. Henderson and J. Thisse, (eds.), Handbook of Urban and Regional Economics, Vol. 4, Amsterdam, North Holland.

^x We will proceed to estimate the population living in these areas using detailed data from the latest (1998) census. Within the rural areas, there are town populations; similarly, within the non-rural areas, there may be substantial village populations.

^{xi} *Urbanizing*: verb, (1) the continuous process of transformation from being of rural to being of urban character (Penguin Dictionary of Geography, op. cit.); (2) rendering urban – as urbanization of a district or its people (New Century, op. cit.); (3) making urban in nature or character (American Heritage, op. cit.); (4) change to urban character, changing the rural character (Kitabistan op. cit.).