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Pakistan's Changing Demography: Urbanization and Peri-Urban Transformation Over Time

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1. INTRODUCTION

Local population densities and access to urban areas play a significant role in defining the economic landscape of Pakistan. These conditions not only vary over space, but continue to change over time. Rural areas are now better connected to urban agglomerations, and a significant share of rural households are engaged in peri-urban activities. Linkages via improved transportation infrastructure and greater urbanization have facilitated rural access to labor markets, as well as improved access to product markets allowing rural households to more easily buy and sell goods.

Compared to other countries in the region, Pakistan has one of the largest shares of population living in an urban area. Recent urbanization estimates by the United Nations report that nearly 40 percent of Pakistan's population is urban, compared to Bangladesh (34 percent) and India (33 percent). However, Pakistan urbanization estimates do not distinguish between urban (within tehsil boundaries) and peri-urban growth occurring outside of major urban areas and along transportation corridors.

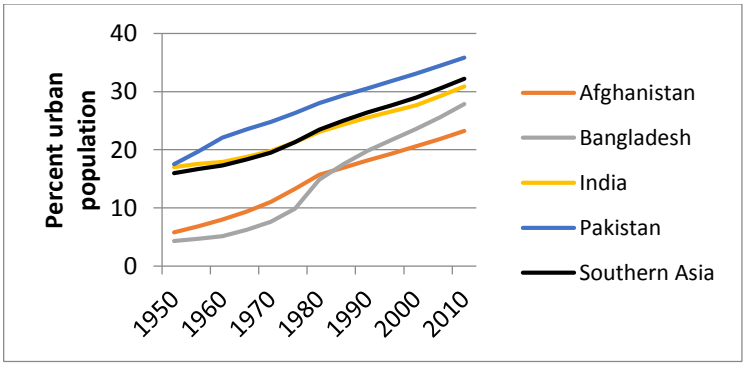
This study uses Geographic Information Systems (GIS) to evaluate improvements in transportation infrastructure and related urbanization over the last 40 years in Pakistan. In addition, we suggest a definition to measure peri-urban population using the agglomeration index methodology developed by Uchida and Nelson (2008). In doing so, we incorporate a series of GIS data including: travel time rasters, population density rasters and other nationally collected biophysical and infrastructure variables (i.e. roads, railroads, waterbodies) in order to construct measurements of urban agglomeration within Pakistan. We use road and population data from corresponding census years (and government growth rates for more recent population estimates) to model reductions in remoteness to urban areas over time.

The results indicate substantial improvements in travel time between urban centers over the past five decades. In addition, model results suggest a large growth in peri-urban areas around large cities and between important economic hubs. Whereas previous estimates suggest that 2/3 of the population are rural in Pakistan, analysis taking into account peri-urban areas suggest that 70 percent of the population lives in peri-urban or urban areas. The remainder of the paper is organized as follows: section 2 provides a brief background of urbanization in Pakistan; section 3 describes the data and methodology used to calculate urban and peri-urban population from 1965 to 2010; section 4 describes the results and we conclude in section 5.

2. URBANIZATION IN PAKISTAN

Compared to other countries in the region, Pakistan has one of the highest percentages of population living in urban areas (Figure 1). The Planning Commission of Pakistan estimated that 37 percent of the population lived in urban areas in 2010, however these estimates are calculated using definitions of urban within administrative boundaries. In many cases cities exhibit non-uniform spatial expansion due to a variety of factors including biophysical characteristics, topographical constraints and / or transportation infrastructure that promotes city growth in a specific direction. Thus, areas that are not within the administrative boundaries of a city may still benefit from the economic density of a nearby urban area and vice versa.

Figure 1: Percent urban population over time (1950-2010)



Source: Authors' calculations (United Nations, World Urbanization Prospects).

Pakistan's Framework for Economic Growth (GoP, 2011) underlines the importance to improving connectivity for more vibrant commercial activity. Currently, the transport sector makes up 10 percent of gross domestic product (GDP) and provides approximately 6 percent of employment in Pakistan (GoP, 2011a). Road transportation is the primary mode of travel for moving goods within Pakistan, handling 96 percent of total freight traffic (GoP, 2010). According to the Government of Pakistan (2010), total road length increased by 13 percent between 1996 and 2011. A large focus of the investment (almost 70 percent) was on primary, 'high-type' paved roads. In addition, unpaved roads were converted to paved roads in order to improve degraded transport systems in key areas.

Expanding infrastructure is affecting city formation as well. Shilpi (2010) noted that availability of infrastructure and services in peri-urban areas neighboring large urban centers provides a favorable environment for a manufacturing sector to flourish. Arif and Hamid (2009) highlighted the importance of peri-urban areas in Pakistan along transportation corridors as important economic links between rural and urban areas. According to Abbasi (1987), during the 1960's, major industries that developed along national highways attracted migrant labor which lead to ribbon-type development of peri-urban areas, facilitating the back-and-forth journey of commuters. These peripheral urban development areas continue to characterize the urban sector in Pakistan and make up a large share of the urban population in the country.

3. DATA AND METHODS

In order to understand urbanization in Pakistan over time, it is important to define a consistent measurement to compare urban growth. This presents a challenge because the criteria for classifying a locality as urban has varied across census years within Pakistan. Census data were collected for Pakistan in 1951, 1961, 1972, 1981, and 1998, however, depending on the census year, an urban locality was defined as an area inhabited by 5,000 people; or a location that has less than 5,000 people but other urban characteristics; or a place that has a Town Committee (Abbasi, 1987). Due to the various definitions of urban during different censuses, areas that were categorized as urban in previous censuses could be defined as rural areas in later census years. In addition, changes in administrative boundary definitions obfuscate comparable urbanization rates over time.

We use an agglomeration index measurement proposed by Uchida and Nelson (2008) in order to standardize and compare urban growth over time. The agglomeration index identifies urban areas by taking into account three indicators: population size of a major city, population density, and travel time to a major city. We define urban, peri-urban and rural areas by creating thresholds following a set of criteria. An area is classified as urban if the population density is greater than 150 people per km2 and the area is located within 1 hour travel time from a city of at least 500,000 people.[1] Peri-urban areas are assigned as a location that has a population density greater than 150 people per km2 and is located within 1 to 3 hours travel time from a city of at least 500,000 people. Finally, rural is designated as areas more than 3 hours travel time from a city of at least 500,000 people regardless of population density.

Population density is calculated using data reported by the Global Rural and Urban Mapping Project (GRUMP) and LandScan (Dobson et al., 2000). Both datasets represent the population density of the same year (2000), but are derived through different methods and scales. The GRUMP dataset allocates population density based on lowest available administrative unit from the 1998 census which includes 102 Districts, whereas LandScan uses 1998 census data and calculates location of settlements using probability coefficients based on road proximity, nighttime lights, differing terrain classification, and slope. Given the advantage and weakness of the two population density datasets, we average both datasets in order to identify population density over geographic space. We estimate a 2010 population density data using growth rates published by the GoP for 1994 and 1965 (growth rates of 2.563 and 2.129 respectively).

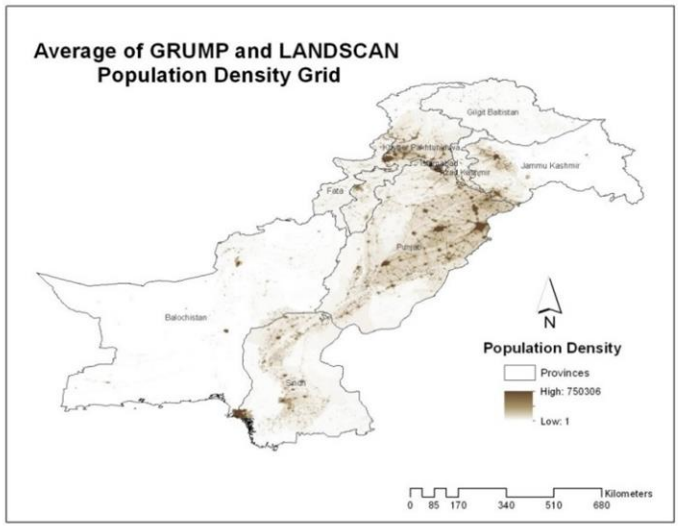
Travel time is defined as the time required to access the nearest city of 500,000 population or more within Pakistan. To model this, we construct a one square kilometer resolution friction grid derived from GIS datasets (i.e. roads, railroads, rivers, land use etc.) of Pakistan. Each gridcell in the friction grid represents the time required to cross each 1x1 km pixel. Three travel time grids are prepared to represent the analysis time periods: 1965, 1994 and 2010. To calculate road travel times, road maps of Pakistan were collected from the Survey of Pakistan (SoP) for 1965 and 1994. The GIS layer of the roads for 2010 was updated using the Open Street Maps. Travel times for each of the four different types of road based on

[1] Chamberlain and Schmidt (2012) also use the agglomeration methodology to assess urbanization over time in Ethiopia

quality (primary roads, secondary roads, local/urban roads, and tertiary roads) are calculated based on the maximum speed limit assigned to each type of road. Railroad maps for 1965 and 1994 were also derived from the SoP, the latter of which was adopted for 2010 as, according to the Ministry of Railways Report, there is no significant difference between the 1994 and 2010 network length. Speed limits were calculated for each of the major rail corridors by averaging the origin-destination travel times for all train routes. The World Wildlife Fund for Nature (WWF) provides GIS data of rivers, water channels and wetlands of Pakistan. We assigned 1 kilometer per hour (Km/hour) speed limit to the river/water channels to reflect the restrictive travel on waterways characteristic of Pakistan.

Finally, slope is used as a multiplier factor over the entire friction grid. Slope values are derived from the Digital Elevation Model (DEM) obtained from Shuttle Radar Topographic Mission (SRTM). The effect of slope on travel speeds is computed as discussed in Appendix 1, and is based on Van Wagtendonk and Benedict (1980). The velocities over the slope grid were computed and then converted into a friction factor by dividing the base speed by the slope speed. This slope grid is then multiplied with other components of the friction grid (i.e. roads, railroads and land cover).The model is then calibrated using collected travel time data in country from specific origins and respective destination. After the population, population density and travel times to cities of over 500,000 people have been obtained for each location, the agglomeration index is then composed, with urban, peri-urban and rural areas being defined as above.

Figure 2: Average of GRUMP and LandScan Population Density Grid for Pakistan



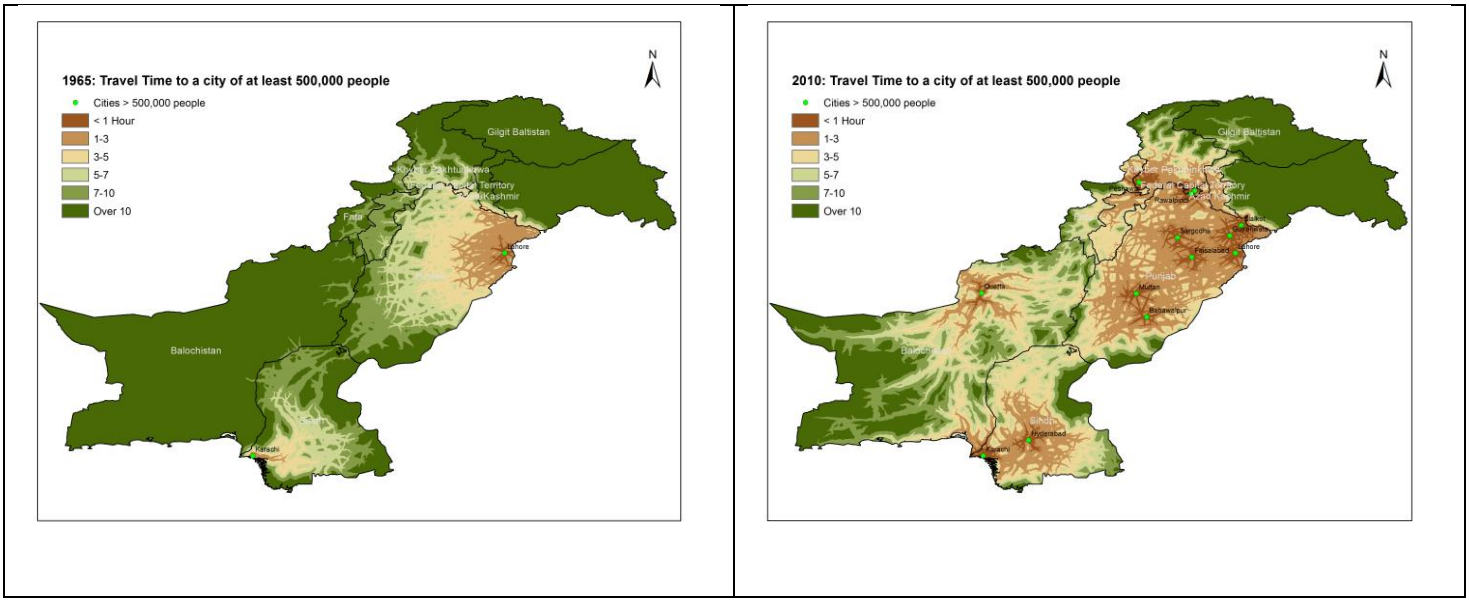
4. RESULTS

4.1 Improvement in transportation infrastructure

The impact of a variety of infrastructure projects implemented between 1980 and 1990 significantly improved market access for rural populations. In addition, linkages between commercial centers have improved, and city growth and urban density have increased over time. Only two cities had populations greater than 500,000 in 1965, compared to 13 cities in 2010. Between 1965 and 1994, the share of the population living more than 10 hours from a city of at least 500,000 (considered a major city for economic agglomeration analysis in Pakistan[2]) decreased from 13.5 percent to 1.2 percent (see dark area in Figure below). Similarly, only 24 percent of the population was within 3 hours travel time to a major city in 1965, while in 1994 more than 70 percent of the population was within 3 hours travel time. Accessibility within one hour of a major city increased from 20.3 percent in 1994 to 31.4 percent in 2010 (Figure 3).

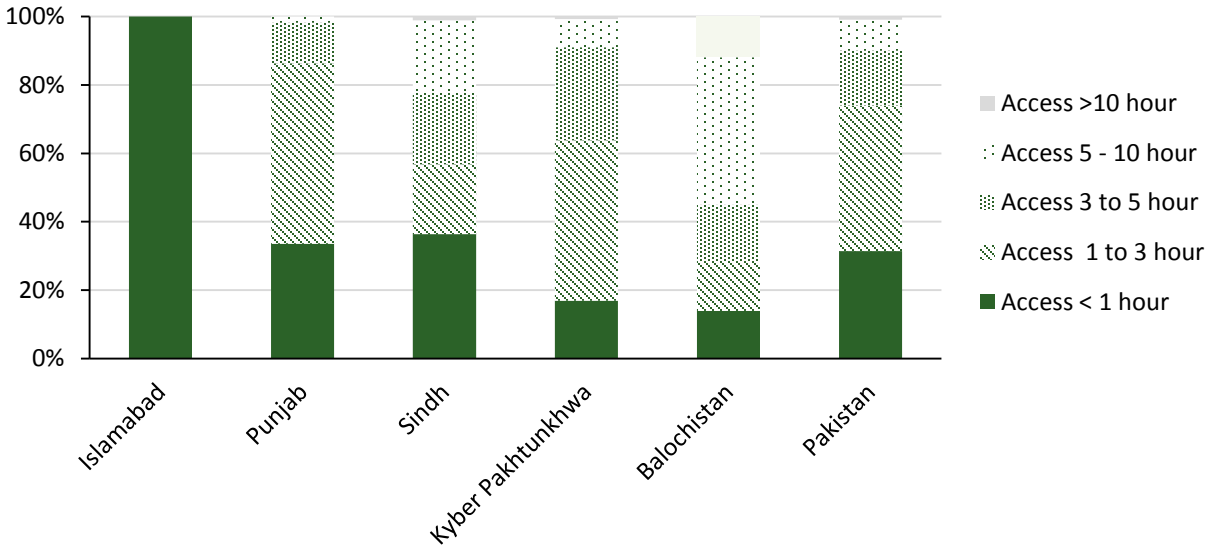
[2] For more details on methodology, see Schmidt and Kedir (2009).

Figure 3: Travel Time 1965 and 1994



Source: Authors

Figure 4: Percent of population connected to a city with a population of at least 500,000 in 2010



Source: Authors

Efficient transportation networks within and between major cities of Pakistan help to link rural goods to peri-urban activities and manufacturing services, and facilitate national and international trade in urban areas. According to the Government of Pakistan (2010), total road length increased by 13 percent between 1996 and 2011. A large focus of the investment (almost 70 percent) was on primary, 'high-type' paved roads. In addition, unpaved roads were converted to paved roads in order to improve degraded transport systems in key areas.

In 2011, the transport sector made up 10 percent of gross domestic product (GDP) and provided approximately 6 percent of employment in Pakistan (GoP 2011b). Road transportation is the primary mode of travel for moving goods within Pakistan, handling 96 percent of total freight traffic (GoP 2010b). Not only does the transportation sector contribute to overall GDP, but an analysis completed by Burki et al. (2011) suggests that improved connectivity may be associated with greater gains in poverty reduction as well. Results suggest that a one standard deviation (0.125) increase in road density of a district is correlated to approximately 4.4 percent reduction in poverty.

Although the government has focused on expanding and improving road infrastructure, capacity constraints due to poor maintenance and overloading of vehicles continue to obstruct efficient movement of goods to their destination (Sanchez-Triana et al. 2013). In addition, investments in road construction and maintenance have primarily focused on the four major provinces. The majority of road infrastructure lies within the Punjab province (41 percent of total road length), followed by Sindh, with 31 percent of total road infrastructure, 16 percent in Khyber Pakhtunkhwa and 11 percent in Balochistan (Pakistan Economic Survey 2014-15). The last 1 percent of road infrastructure is found in Azad Jammu and Kashmir, which leaves these areas relatively remote from urban infrastructure and transportation linkages in the four major provinces.

4.2 Urbanization

Expansion and upgrading of the road sector and improved village electrification has created important linkages between rural and urban areas. The share of urban population in Pakistan increased significantly due to the establishment of new cities and improvement in road infrastructure between cities. Lahore, Faisalabad and Gujranwala grew into more networked cities and agglomerated corridors within Punjab. According to our agglomeration index analysis[3], only 6 percent of the total population of Pakistan was urban in 1965, compared to 32 percent in 2010 (Table 1).[4] In Punjab, approximately 10 percent of the population was urban in 1965, compared to 39 percent in 2010. In Sindh, 6 percent of the population was urban in 1965, whereas the region is now 39 percent urban.

Table 1: Agglomeration Index: percent urban population (1965-2010)

	1965		1994		2010	
Province	Total Population (thousands)	Percent Urban	Total Population (thousands)	Percent Urban	Total Population (thousands)	Percent Urban
Islamabad	554.8	-	1,241.3	96.9	1,734.9	97.9
Punjab	34,120.6	10.4	76,465.5	30.7	107,007.5	39.1
Sindh	13,847.6	5.9	31,066.7	35.1	43,528.0	38.6
Khyber Pakhtunkhwa	8,332.5	-	18,688.7	16.7	26,172.0	25.8
Balochistan	2,825.7	-	6,618.4	10.9	9,556.8	12.7
FATA	1,470.2	-	3,307.5	6.7	4,647.4	7.4
AJK	991.4	-	2,226.6	-	3,120.8	0.3
Disputed area	4,344.0	-	9,753.5	0.0	13,679.0	0.6
Gilgit Baltistan	1,147.1	-	2,610.9	-	3,697.9	-
Pakistan	**67,633.9**	**6.4**	**151,979.0**	**26.1**	**213,144.3**	**32.3**

Source: GoP 2010b.

Major cities of Pakistan not only experienced population growth within the city, but also expanded their urban boundaries. For example, Lahore city in Punjab and Karachi city in Sindh had more than 1 million urbanized people within their periphery in 1965, but by the 1990s their expansion engulfed other neighboring towns and rural areas. Lahore linked to Gujranwala and other smaller towns to the northwest (Figure 3 and 4), and Karachi city expanded in the north, west and east directions, including smaller towns and villages that were previously poorly connected to the port.

By 2010, urban linkages existed between all large cities of Punjab; Lahore city linked to Faisalabad in the west and Kasur in south. Better transportation infrastructure between major cities, along with economic pull factors, attracted people to migrate to more economically agglomerated areas and their respective contiguous transportation corridors.

[3] Urban populations are defined as those living within 1 hour of a city of at least 500,000 people (major city) with a population density of 150 people / km2; Peri-urban are those living within 1 - 3 hours of a major city with a population density of 150 people / km2; Rural are those that are greater than 3 hours from a major city.

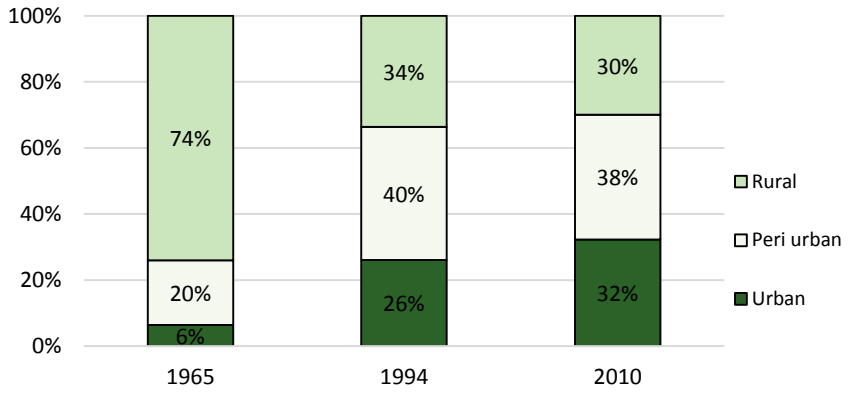
[4] In this case 1961 census data is paired with 1965 road and rail infrastructure data; 1998 census data is paired with 1994 infrastructure data; and population projections are paired with 2010 infrastructure data

4.3 Peri-urban development

According to the Pakistan Economic Survey (2010-11) which calculates rural and urban populations based on administrative boundaries,[5] almost 37 percent of the population was urban in 2010. The agglomeration index calculations suggest a lower share of urban population (32.3 percent), and it distinguishes between urban and peri-urban populations. Peri-urban areas are growing outside of urban centers along key transport corridors; this is partly driven by the spatial proximity and economic density which attract firms, in turn concentrating manufacturing and related services and attracting a large labor force of both skilled and unskilled laborers.

According to the agglomeration index, the peri-urban population (areas with a population density of at least 150 people/km2 and within 1 to 3 hours of a city of 500,000) in 2010 represented 38 percent of the total population of Pakistan (Figure 5). Urban growth has not limited itself to large urban agglomerations, but has also developed medium- and small-sized cities that encompass transportation linkages to larger trade and commerce hubs. These areas are often the first places that offer economic linkages between rural and urban sectors and are a landing ground of migrants moving from the rural to the urban area. According to Arif and Hamid (2009), 39 percent of internal migration in Pakistan is from rural to urban areas (rural to rural migration represents 36 percent of migration). Results from the Pakistan Socio-economic Survey (PSES) 2001 and Pakistan Rural Household Survey (PRHS) 2001 both suggest that more than 70 percent of male migrants that move from rural to urban areas relocated for work opportunities (Arif and Bilquees, 2006; World Bank, 2002). Recent research on migration trends in Pakistan separates temporary and permanent migration determinants. Results suggest skill and social networks are important for permanent migrants, while temporary migration opportunities (often via spot markets) do not require skilled workers, resulting in relatively lower returns (Chen et al., 2015).

Figure 5: Rural, peri-urban, and urban percent population over time

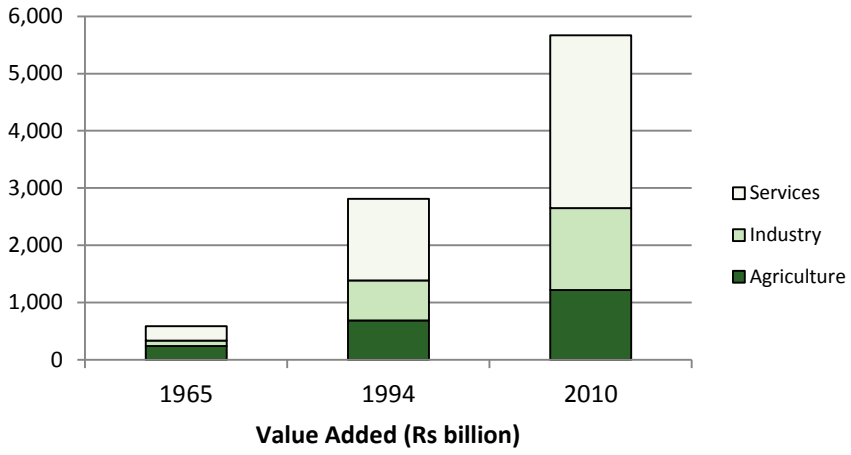


4.4 Rural economy

Although urbanization and peri-urban development has grown significantly over the last several decades, the rural economy remains an important sector of the economy. Agriculture is the largest source of household income for 38 million Pakistanis, including 13 million of the poorest 40 percent of rural households (World Bank, 2007). As expected in a changing economy, the share of agriculture in total GDP has fallen steadily from 41 percent in 1965 to 21 percent in 2010 (Figure 6).

[5] For a description of urban classification criteria over time, see Haider and Haider (2006).

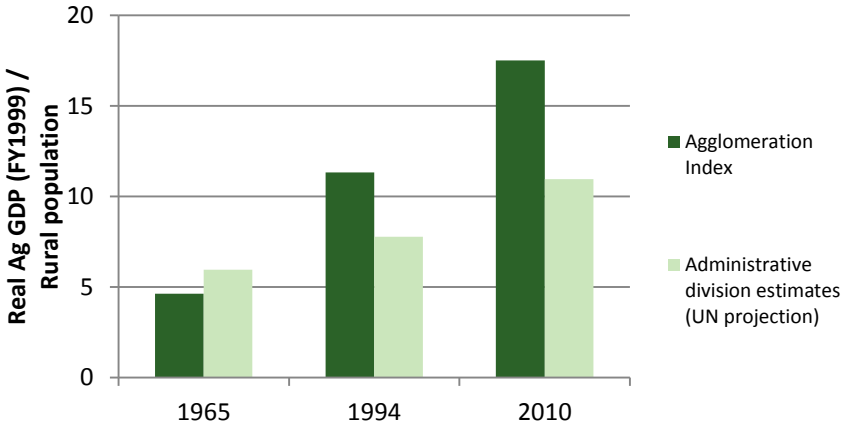
Figure 6: Pakistan Real GDP (1999) billion rupees



Source: GOP 2010b.

In spite of urban growth, 30 percent of Pakistan's population resides in rural areas more than 3 hours travel time from urban agglomerations of 500,000 residents. Using the agglomeration index definition of rural and urban (and assuming peri-urban is an additive share of urban population), rural agricultural income per rural resident (in real terms) has increased nearly four-fold since 1965 (Figure 7). Using the administrative definition of rural and urban, agricultural income per person has doubled since 1965. A large share of agricultural income growth between 1965 to the early 1980s can be attributed to the Green Revolution and investments in irrigation. Further public investments in electricity, transport, and other infrastructure as well as effective policy to ease access to productive land will be crucial for rural and urban poverty reduction in the future.

Figure 7: Agricultural income per person



Source: Authors' calculations; GoP 2010a.

5. CONCLUSION

Geography and technology are major factors contributing to economic development and poverty reduction in rural Pakistan. For centuries, most of the country's agriculture has been located in the fertile, irrigated valley of the Indus River. As a result, population also concentrated within this area, primarily in Punjab and Sindh. While agriculture remains an important component to the country's economic foundation, ongoing urban growth is reshaping the economic landscape. Expanded road infrastructure and improved labor mobility has supported the development of urban agglomerations between economic

hubs and along major transportation corridors. Areas that used to be rural are now better connected to urban areas, and a significant share of rural area has become peri-urban. According to the agglomeration index, 38 percent of the population was considered peri-urban in 2010. The expansion in transportation infrastructure and greater urbanization, have facilitated rural access to labor and product markets. Urbanization in Pakistan has not only grown in large urban agglomerations, but has also developed medium- and small- sized cities that encompass important transportation linkages to larger trade and commercial hubs.

Although the demographic composition of the country continues to shift towards urban areas, it will be important to continue investing in the rural economy in order to accomplish poverty reduction goals in rural areas of Pakistan. Rural areas are now better connected to urban agglomerations, and a significant share of rural households have become peri-urban. Linkages via improved transportation infrastructure and greater urbanization have facilitated rural access to labor markets, as well as improved access to product markets allowing rural households to more easily buy and sell goods. Investments in rural electrification and overall energy expansion is expected to lead to higher economic growth (i.e. growth of businesses or farms using electricity, improved access to information, and flexibility in labor hours during the evening). Ongoing investments in connective infrastructure will continue to provide greater opportunities to an urbanizing country such as Pakistan, however the demand for such infrastructure is growing in tandem, and addressing shortages in public services will be a major challenge in upcoming years.

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APPENDICES

APPENDIX 1: METHODOLOGY FOR CALCULATING THE PAKISTAN AGGLOMERATION INDEX

AGGLOMERATION INDEX PREPARATION:

The Agglomeration Index of Pakistan is prepared using the following data:

- GRUMP and LandScan population density grids and locally adjusted population density grids for the years 1965,1994 and 2010 on the basis of growth rates provided by Population Census Organization (PCO), Pakistan
- Cities population data for the years 1965, 1994 and 2010 from population census organization (PCO), Pakistan
- Travel time to the cities of 500,000 people using roads and railroad data for years 1965, 1994 and 2010

TRAVEL TIME GRID PREPARATION:

Tables A and B display the speed limits used to calculate travel times for roads and railroads, as discussed in Section 3.

Table A: Maximum speed limits of different road types in Pakistan

Roads Types	Maximum Speed Limit (Kilometer Per Hour)
Primary Roads	80
Secondary Roads	60
Local/Urban Roads	30
Tertiary Roads	20

Table B: Average speed limits of different trains between major cities in Pakistan

Sr. No.	Origin-Destination	Average Speed Limit (Kilometer Per Hour)
1	Lahore – Rawalpindi	53.96
2	Peshawar – Rawalpindi	62.19
3	Multan – Faisalabad	47.99
4	Karachi – Lahore	45.36
5	Karachi – Quetta	40.91
Overall Average Speed Limit		50.08

Computation of the effect of slope on travel speeds is computed as follows, and is based on Van Wagtendonk and Benedict (1980):

$$V = Vo\ e^{-ks}$$

Where:

V = off road foot based velocity over the sloping terrain

Vo = the base speed of travel over flat terrain, 5km/hr in this case

s = slope in gradient (meters per meter)

k = a factor which defines the effect of slope on travel speed

For this case we assume a base speed of 4km/hour and k is 3.0 and constant for uphill and downhill travel.

The friction values of each friction component (i.e. Roads, Rivers, Land cover etc.) combine into a single layer in ArcGIS 10 as follows:

Friction = MERGE ((Roads*slope), Rivers, (Land cover*slope))

The Mosaic To A New Raster function is used to combine the roads and land cover friction layers with rivers and water bodies. The advantage of the Mosaic To A New Raster function is that we can prioritize different friction layer components. By using this function we can give priority to the primary roads over walking speeds over land cover or background values. After merging all friction layers into a single friction layer, we use it as an input into the COSTDISTANCE function in ArcGIS 10. This function also requires a designated place to compute the travel time in minutes.

We use the following technique in ArcGIS using the Map Algebra function in order to define urban areas:

CON ((Average_GRUMP_LS >= 150 & traveltime <=60), Average_GRUMP_LS) ……. (1)

In the similar manner, we use the following function (equation 2) by using map algebra to define peri-urban areas:

CON ((((Average_GRUMP_LS < 150) & (traveltime <= 60)) | ((traveltime > 60) & (traveltime <= 180))), Average_GRUMP_LS) …….. (2)

Rural areas are defined by assigning the following criteria (equation 3):

CON ((traveltime > 180), Average_GRU MP_LS) ……... (3)

The agglomeration index is therefore calculated as the ratio of the urban population calculated above and the total Pakistan population for a specific year.

APPENDIX 2: CITIES over 20,000 POPULATION during the three studied period

City Name	1965	1994	2010
ABBOTTABAD	34,158	108,197	148,587
AHMADPUREAST	36,876	85,192	131,598
BAHAWALNAGAR	42,212	101,288	137,537
BAHAWALPUR	69,067	336,907	543,929
BUREWALA	43,190	133,115	209,343
CHAKWAL	21,491	69,716	117,221
CHAMAN	-	48,794	113,115
CHARSADDA	40,824	70,526	105,414
CHINIOT	56,207	153,690	224,581
CHISHTIANMANDI	30,982	100,276	136,898
DADU	23,437	100,546	146,179
DASKA	25,766	102,878	146,579
DERAGHAZIKHAN	57,001	164,491	273,341
DERAISMAILKHAN	51,381	85,808	111,871
FAISALABAD	352,834	1,745,007	2,880,675
GOJRA	34,613	103,575	157,863
GUJRANWALA	245,127	1,036,408	2,533,096
GUJRAT	75,130	224,647	336,727
HAFIZABAD	44,693	119,654	169,702
HASILPUR	120,591	283,917	102,511
HYDERABAD	490,114	1,052,132	1,643,745
ISLAMABAD	-	583,177	1,534,960
JACOBABAD	43,865	121,681	200,815
JARANWALA	34,344	116,763	130,522
JHANGMAGHIANA	96,351	266,665	372,645
JHELUM	59,774	136,531	174,679
KAMALIA	41,513	87,229	124,154
KAMOKE	34,191	127,300	285,880
KARACHI	2,506,762	8,140,035	13,205,339
KASUR	85,430	220,374	321,954
KHAIRPUR	39,834	105,726	144,949
KHANDHKOT	-	56,649	109,759
KHANEWAL	56,648	121,719	168,358
KHANPUR	38,393	106,173	160,308
KHUSHAB	31,836	79,116	113,348
KHUZDAR	-	70,605	148,089
KOHAT	56,170	112,848	176,156
KOTADDU	-	67,388	125,352
LAHORE	1,644,270	4,513,806	7,129,609
LARKANA	57,446	224,960	456,544
MANDIBAHAUDDIN	27,645	82,463	157,352
MARDAN	92,714	218,221	352,135
MINGAORA	26,737	148,158	279,914
MIRPURKHAS	69,471	171,742	242,887

MULTAN	429,517	1,066,487	1,606,481
MURIDIKE	-	102,395	163,268
MUZAFFARGARH	-	101,236	162,696
NAWABSHAH	58,917	163,683	272,598
NOWSHERA	48,795	263,950	103,432
OKARA	75,010	181,130	235,354
PAKPATTAN	33,522	104,991	139,525
PESHAWAR	241,230	863,232	1,439,205
QUETTA	127,005	547,105	896,090
RAHIMYARKHAN	55,206	199,292	353,112
RAWALPINDI	442,529	1,231,940	3,499,028
SADIQABAD	23,263	119,205	231,467
SAHIWAL	87,820	193,440	251,592
SARGODHA	157,115	341,385	600,501
SHIKARPUR	60,899	122,033	177,682
SIALKOT	182,573	389,703	510,863
SUKKUR	124,992	293,721	493,438
SWABI	24,527	70,462	115,018
TANDOADAM	38,420	100,044	145,719
TANDOALLAHYAR	20,827	67,349	133,487
VIHARI	20,173	82,663	128,034
WAH	59,473	177,400	327,916
WAZIRABAD	33,734	82,808	110,378

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