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City Systems in South Asian Urbanization and Growth

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Abstract

While the urbanization process has undoubtedly contributed to the economic growth in South Asia, the cities are facing challenges of population pressures on infrastructure, housing, basic services and the environment. This paper examines the comparative growth of secondary and primary cities among major economies of south-Asia and subsequently examine whether the system of city growth bear any implication for the divergences in regional economic growth. We carry out the analysis using data from four major economies from South Asia, viz., Bangladesh, India, Pakistan and Sri Lanka during the period from 1970 to 2015. The majority of the urban agglomerations in Bangladesh, India and Pakistan are in fact medium or small sized cities with less than 5 million or even lesser number of inhabitants. Correspondingly, the highest share of urban populations in Bangladesh, India, Pakistan and Sri Lanka are located in small sized agglomerations with less than 300, 000 inhabitants. Our results indicate that small and medium cities yielded positive impacts on economic growth, while the impacts of primary or large cities remain statistically insignificant across countries. There is also an indication that the impacts of medium and small cities impacted significantly on the economic growth for India. (197 words)

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1. Introduction and Objective:

A well-managed urbanization process is crucial for sustainable economic growth and economic prosperity of countries. According to Ellis and Roberts (2016), urbanization in South Asia has remained messy, hidden and underleveraged. It is messy due to poor livability and widespread prevalence of slums, hidden because the dimensions are not picked up due to limitations in official statistical definitions, and underleveraged due to its slow relative rates of growth in comparison to other regions. The pattern of South Asian urbanization has remained uneven both in terms of its degree and pace in comparison to other economic regions, such as the south-east Asia or Latin America (UN 2014). Interestingly, this region is identified as the least urbanized region of the world in terms of the share of people living in urban areas. But, the magnitude and rate of urban population growth remains so high that a major portion of the increase in global urban population is projected to occur in this region. A major element of the South Asian urbanization growth has also been the disproportionate rise of urban population and the wide disparities in the growth of primary and secondary cities across economies in the region. According to some analysts, these aspects remain pertinent for realizing the region's potential benefits from urbanization to economic growth.

In the present day, rapid urbanization is identified as one defining feature of the growth strategies. The positive relationship between urbanization and economic growth can be traced in several well-known lines of economic research, viz., cities as engines of economic growth (Lucas, 1988, World Bank 1991, Duranton 2008, Spence et al 2009), spatial economy or new economic geography that emphasizes the benefits of agglomeration (Fujita 1988, Krugman 1991, Venables 1996, Martin and Ottaviano 2001) or the literature on productivity of larger cities (Duranton and Puga 2004, Combes 2012). The large increase in urban population of this region is often linked to the rising prosperity of the urban segments due to productivity gains and higher per capita gross domestic product (GDP). But, studies have found that the urban population growth in South Asian countries has primarily been driven by natural increase in population and the reclassification of rural settlements rather than any large-scale rural-urban migration. It may also be noticed that the character of city systems, viz., the relative growth of primary and secondary cities and its interactions with the economic growth process has rarely been attempted in the south-Asian region. In this backdrop, the main objective of this paper is to examine the

comparative growth of secondary and primary cities among major economies of South-Asia and subsequently examine whether the system of city growth bear any implication for the growth level of countries.

With the main objective set to survey the evolution of secondary and primary cities and subsequently examining their growth implications in Bangladesh, India, Pakistan and Sri Lanka, the remaining part of this paper is structured as follows. Section 2 deliberate on how the system of cities impact on the urbanization and economic growth process. In section 3, we examine the pattern of urbanization in each of the major South-Asian economies. Section 4 provides a comparative picture of growth in primary and secondary cities of these four countries in the region. Section 5 provides the empirical analysis that contains the structure of the econometric model, data description, and comments on the estimation results. The empirical analysis is performed using country-specific cross-sectional data on 10 points of time at 5-years of interval during the time period 1970-2015 from these 4 countries. Section 6 summarizes and concludes on the main findings.

2. Role of City Systems:

Most countries have system of cities starting at the primary city and going down to the secondary city and then small urban towns. The primary cities are usually characterized by large metropolitan areas, and defined as the leading city in its country or region that is larger than any other urban cities. Since, there are multiple primary cities in countries like USA, Australia, China and India; it is difficult to apply the concept of primacy in these places (Roberts 2014). On the other hand, primary cities can range from a few hundred thousand populations in countries with low population base. According to the definitions of UN-Habitat, megacities are agglomerations exceeding 10 million inhabitants and secondary cities are urban area having a population of between 100,000 and 500,000. However, a secondary city today can have a population of several million people and in some countries like India; secondary cities have been found to include populations of over five million. As a matter of fact, the secondary cities describe the second-tier level of the city system, which are determined by their population, size, function, and economic status. In its original definition by Rondinelli [1970], secondary cities refer to urban settlements with a population of 0.1 Million or more but not including the largest city in the country. These cities largely become known due to their potential to lead the urbanization process in the coming

years as well as the urban growth constraints of the existing primary cities. It is also argued that the secondary cities are capable of generating greater impacts upon economic growth by facilitating the localized production or transfer of goods and services. However, there are many factors that could influence the expansion of secondary cities in a country. There have been studies to assess the economic competitiveness or livability of secondary cities in the recent literature. Generally, the results indicate that secondary cities remain less competitive than primary cities, and it is often argued that secondary cities face the challenges of urbanization with respect to housing, health and sanitation, environment and transport infrastructures.

The megacities were once exceptional in South-Asia, but are now beginning to grow in the region. While the megacities (exceeding 10 million inhabitants) or large cities (with 5 to 10 million inhabitants) are frequently distinguished for their size and concentration of economic activities, an insignificant proportion of the urban population are found to live in them. At the same time, many secondary cities are continuing to fulfill the primary city functions within the context of the countries in which they are located. These secondary cities are performing vital production, governance and logistical functions at the sub-national or regional level in South Asia. Usually, these cities have inhabitants between 0.5-3 million and remain relatively unknown outside the national or regional context. The medium sized cities (with 1 to 5 million inhabitants) are found to have been growing in South Asia, both in terms of numbers and in terms of proportion of urban populations. UN [2014] has indicates that medium-sized cities or cities with less than 1 million inhabitants would be the fastest growing urban agglomeration located in Asia.

3. Urbanization in South Asia:

According to UN [2014], the levels of urbanization varied significantly across different world regions in the year 2014. Thus, a high urbanization level of around 80 per cent was observed in Latin America and the Caribbean or in the Northern America, whereas 73 per cent of urban population was located in Europe. In contrast, Africa and Asia recorded 40 and 48 per cent of their respective populations living in urban areas in the same year. The rates of urbanization have currently become slower in Europe, Northern America and Oceania, whereas it declined regularly in the Latin America and Caribbean during the past two decades. The level of urbanization is expected to increase in all the regions, with a leading role from Africa and Asia, which are projected to be the fastest urbanizing region during 2020-50. The levels of

urbanization in the South Asian region increased from about 17 percent in 1950 to 24 percent in 1980 and finally to 35 per cent in 2015 (Figure 1). The proportion of urban population among the countries in the region ranged from a low of 18 per cent in Sri Lanka to 73 per cent in Iran in 2015. Iran remains as the most urbanized country in South Asia with around 73 per cent of the population residing in urban areas in 2015. This is followed by Maldives and Pakistan with around 45 and 38 per cent of the urban population, respectively in the same year. The urbanization proportion in India and Bangladesh constituted above 30 per cent of the total country population. In contrast, Sri Lanka and Nepal are the least urbanized countries, with about 18 per cent of the population living in urban areas.

(Insert Figure 1)

The average annual rates of change in the percentage of urban population for the major South Asian countries are provided in Figure 2, during 1980-2015 at five-year intervals. It can be seen that the rate of urbanization in Bangladesh has remained higher than other countries of the region. Both India and Pakistan indicates moderate rates of urban growth, whereas Sri Lanka revealed a pattern low urban growth rates. The future projections on the growth of global urban population has indicated that China, India and Nigeria are going to account for 37 per cent of the increase of nearly 2.5 billion urban population growth during 2014-2050. The urbanization trends in South Asia have remained very irregular, where India dominates the regional urbanization trends. The share of urban population in India as percentage of total South Asian urban population declined from about 81 percent in 1950 to 70 percent in 1990 and subsequently to 67 per cent in 2015 (Figure 3). Some significant variations can be observed between Bangladesh or Pakistan and Sri Lanka as regards the country-wise share of urban population in the total South Asian urban population. Despite the lower level of urbanization, South Asia in the present day contained about 16 percent and Asia about 53 percent of the global urban population, respectively in 2015. Although, the scale and rate of urbanization remains relatively low in India, the number of people living in urban areas has increased due to the large base of urban population. Thus, with about 33 per cent of the country's total population residing in urban areas, India still accounts for 67 per cent of the South Asia's urban population.

(Insert Figure 2 and Figure 3)

The recent population projections have claimed that highly urbanized regions are expected to grow at a slower pace, whereas the rate of urbanization in Africa and Asia could grow faster and reach around 56 and 64 per cent urban, respectively by mid-2050. However, even after contributing nearly 90 per cent of the increase in world's urban population in the coming years, Asia and Africa would still remain as comparatively less urbanized. The future growth of the global urban population between 2014 and 2050 is expected to be concentrated in 11 countries of the world, and three South Asian countries, viz., India, Bangladesh and Pakistan figure in the list. On the contrary, Nepal and Sri Lanka are projected to remain Asia's least urbanized countries and are expected to urbanize to above 30 per cent in the year 2050.

4. Mega and Secondary Cities:

There were 7 agglomerations with more than 10 million inhabitants in the world during 1985, which represented less than 6 per cent of the global urban population. But, the number of megacities has gone up to 29 accounting for approximately 12 per cent of the world's urban population in 2015. At the same time, there was just 1 agglomeration with more than 10 million populations in South Asia that constituted less than 4 per cent of the regional population in the same year. However, the number of megacities has gone up to 6 accounting for 17 per cent of the south Asian urban population in the corresponding years. In the year 2015, the number of agglomeration with 10 million or more and 5 million or more inhabitants constituted just 3 percent each of the total 239 urban agglomerations of different sizes (Figure 4). On the other hand, agglomerations between 1 to 5 million and between 500, 000 to 1 million represented about 28 and 29 percent, respectively of the total urban agglomerations in South Asia. The highest share of the total number of agglomeration in South Asia is however signified by agglomerations comprising 300, 000 to 500, 000 inhabitants. In terms of the percentage of urban population, agglomeration with 10 million or more, 5 million or more and 1-5 million inhabitants contained 17, 9 and 20 percent, respectively of the total urban population in South Asia during the year 2015 (Figure 5). On the other hand, agglomerations between 500, 000 to 1 million and between 300, 000 to 500, 000 inhabitants included around 7 and 5 per cent of the total urban population. The largest proportion of the urban population in South Asia can however be located in agglomerations with less than 300, 000 inhabitants.

(Insert Figure 4 and Figure 5)

The percentage distribution of urban agglomerations classified by different sizes are analyzed in Figure 4 for the four major countries of South Asia, viz., Bangladesh, India, Pakistan and Sri Lanka. It can be clearly observed that the majority of the urban agglomerations in Bangladesh, India and Pakistan are in fact medium or small sized cities of less than 5 million or even lesser number of inhabitants. The majority of the urban agglomerations in Sri Lanka can be distinguished as small sized agglomerations of less than 1 million inhabitants. In actual fact, it is only in Bangladesh that the highest proportion of megacities (cities exceeding 10 million inhabitants) is found to exist in this region. The percentage of urban population classified as living in different agglomeration sizes are provided in Figure 5. We find that that highest share of urban populations in Bangladesh, India, Pakistan and Sri Lanka are located in small sized agglomerations with less than 300, 000 inhabitants. The megacities (cities exceeding 10 million inhabitants) constituted about 32 per cent of the total urban population in Bangladesh, which incidentally is the highest estimate for the megacity agglomeration in the region. On the contrary, small agglomerations (cities with less than 300, 000 inhabitants) formed 82 per cent of the total urban population in Sri Lanka that incidentally is the highest estimate for the small city agglomeration in the region. Figure 6 illustrates how the percentage of population living in agglomerations with more than 300, 000 inhabitants are rising for Bangladesh, India and Pakistan, but not for Sri Lanka.

(Insert Figure 6)

The megacities in South-Asia were uncommon in the past, but are now beginning to grow in the region. Today, the four major countries of South Asia are home to at least 7 megacities; while 5 of them are in India, Bangladesh, Pakistan contains one each. The only mega city of Bangladesh, Dhaka, with its current population of 15 million bears the distinction of being the fastest growing agglomeration in the world. According to projections, the city by the year 2025 will be home to more than 20 million people, which is bigger than the Mexico City, Beijing or Shanghai. In India, New Delhi is the capital city having a population of 26.5 million people; Mumbai is the financial hub having a population of 21.4 million people, Kolkata is an important trading hub with 15 million people, Bengaluru is the information technology hub with 10.5 million people and Chennai with its motor industry contains 10.2 million people. Other urban

areas in India are growing rapidly and it is projected that India would have two more megacities by the year 2030, viz., Hyderabad with 12.8 million and Ahmedabad with 10.5 million population. As one of the populous countries in the world, Pakistan is also home to some of the world's cities. Its most populous city, Karachi is not only the largest in Pakistan but is also the 7th most populous city in the world, comprising about 11 Million people. Pakistan also contains Lahore as the second most populous city with about 6.3 million people, and six other cities that have crossed the one million population mark. Sri Lanka at present has zero cities with more than a million people but 10 cities with between 100,000 and 1 million people. Colombo happens to be the largest city in Sri Lanka with a population of 648,034 people and is possibly the only megacity in the making. The description of urban agglomerations with 300, 000 or more inhabitants during the year 2015 is provided in Table 1 for Bangladesh, India, Pakistan and Sri Lanka.

(Insert Table 1)

5. Empirical Analysis:

The urban transition and economic growth are often linked with each other because of the fact that economic development has been found to promote urbanization, while at the same time rapid urbanization also led to higher economic growth. It is argued in the literature that individuals are drawn to cities that provide better education as well as employment in the secondary and tertiary sectors. The model by Eaton and Eckstein [1994] predicted that larger cities could have higher levels of human capital and wages per worker. Subsequently, Becker [2008] claimed that urbanization has led to the higher per capita GDP through higher productivity levels. Quigley [2013] suggests that the urbanization can positively impact upon productivity through the localization of industries. On the other hand Turok and McGranahan [2013] clarified that it is not urbanization or the city size per se that induces economic growth, but the infrastructure base and institutional arrangements that matters for the success of the urbanization story. Castells-Quintana [2011] elaborated that the urbanization outcome on growth could depend on several factors such as the stage of urbanization and nature of economic activities. Thus, there could be many factors that ultimately determine the size and growth of urban agglomerations in a country. Similarly, there could be many aspects other than urbanization that could impact on the economic growth levels. Consequently, the examination of

the relative impacts of primary and secondary cities became an important subject in the applied literature.

However, the empirical evidence on the relationship between urbanization and economic growth has not remained uniform. While Friedberg and Hunt [1995] claimed that economic development is closely related with urbanization, Bloom, Canning and Fink [2008] argued that there is no evidence that urbanization level affects economic growth rate. Further, while urbanization had been found to bear a positive impact on economic growth in the case of developed countries, some studies have found a weak or negative relationship between urbanization and economic growth in developing countries (Shabu 2010, Frick and Rodriguez-Pose 2016, 2017). Recent attempts on the relationship between urban population growth and economic growth in have found no relationship between the variables, and therefore inferred that urban population growth did not impact upon the economic growth in developing countries (Fay and Opal 2000, Polese 2005, Sarker et al 2016). The World Development Report by World Bank [2013] indicated that not all countries that experienced higher levels of GDP are the ones with a large share of urban population. According to United Nations [2013], the positive relationship between urbanization growth and per capita GDP levels remained apparent among the developed countries. However, the relationship has been found to be lesser evidenced for the countries of Latin America and the Caribbean and almost missing for the countries in sub-Saharan Africa (United Nations, 2013). While countries in the Eastern and South-eastern Asia such as China, Indonesia, Malaysia, Thailand and Vietnam experienced a steady increase in GDP per capita as people moved to cities, a similar increase in GDP per capita with urbanization was not observed in individual nations of sub-Saharan Africa. Thus, the connection between per capita GDP and the process of urbanization has been argued to be complex and the requirement of corresponding planning and coordinating policies are highlighted for the urbanization process to aid economic growth.

The relationship between urbanization and economic growth in developing countries is complex and may run in both directions. The strong positive relationship between economic growth measured by per capita gross domestic product (USD) and urbanization is confirmed for Bangladesh, India and Pakistan through the correlation coefficients referring to the period 1970-2015 (Table 2). Sri Lanka however indicated a negative correlation during the same time period. While examining the link between average city size and aggregate economic growth, Frick and

Rodriguez-Pose [2016] found no universal positive relationship between average city size and economic growth for a sample of 114 countries during the period 1960-2010. Further, their results varied between the high-income and developing countries. Thus, while there is consistent evidence of a positive link between city size and economic growth in high-income countries, the relationship did not hold for developing countries. Figure 7 indicates how the percentage of urban population in the South Asia is comparatively declining in small agglomerations and rising toward large agglomerations during the time period 1950-2015.

5.1. Methodology:

Our objective is to examine as to how the pattern of primary and secondary city growth along with control variables such as levels of urbanization impacted upon the economic growth captured by the per capita GDP in the three major economies of South Asia, viz., Bangladesh, India and Pakistan. We could not include Sri Lanka in this part of analysis due to data limitations. We begin by specifying a single-equation econometric model to explain the level of per capita real GDP at 2005 prices (PCGDP) in USD in terms of the growth in cities of different sizes. We use variables for three city sizes, i.e., number of cities with a population size above 5 million (CITY1), between 1 and 5 million (CITY2) and less than 1 million (CITY3) in these three countries. For our analysis, we consider CITY1 and CITY2 as primary cities and CITY3 and CITY4 as secondary cities. We also include the percentage of urban population (URBAN) as a control variable to the cross-sectional data-set. The regression equation is as follows:

$$PCGDP = f(CITY1, CITY2, CITY3, URBAN)$$

$$\text{with: } f'_{CITY_i} > 0, \quad f'_{URBAN} > 0,$$

We subsequently add country dummies (D1 and D2) to combine the ten observations from each of the three country samples with data ranging from 1970 to 2015, available at five-year intervals. The coefficients of the intercept dummies (D1 and D2) provide the difference in intercepts of the country regression lines for the variable relationships. We estimate the regression equation as given in Equation (1) that focuses on whether the country characteristics influenced the strength of the relationships.

$$PCGDP = \alpha + \beta_1CITY1 + \beta_2CITY2 + \beta_3CITY3 + \beta_4URBAN + \beta_5D1 + \beta_6D2 \quad (1)$$

The inclusion of intercept dummy assumes parallel regressions across the three nations to capture the influence of the explanatory variables in the model. But if the intercept dummies capturing country characteristics interact with one or more of the quantitative explanatory variables, then the regression lines would not be parallel. To examine this aspect we subsequently include the possibility of changes in the slope of the variable relationship by including the interaction variables in Equation (2). This regression equation contains slope dummies which are the product of intercept dummy variables and each of the continuous explanatory variables in the model.

$$PCGDP = \alpha + \beta_1CITY1 + \beta_2CITY2 + \beta_3CITY3 + \beta_4URBAN + \beta_5D1 + \beta_6D2 + \beta_7D1 \times CITY1 + \beta_8D1 \times CITY2 + \beta_9D1 \times CITY3 + \beta_{10}D1 \times URBAN + \beta_{11}D2 \times CITY1 + \beta_{12}D2 \times CITY2 + \beta_{13}D2 \times CITY3 + \beta_{14}D2 \times URBAN \quad (2)$$

Thus, Equation (3) that includes the slope dummy variables in the regression model would analyze whether the impacts of growth in urban agglomeration of different sizes on economic growth differed across the three major economies in South Asia.

5.2. Data Base:

The basic data on urban population and distribution of cities grouped by year-end population in urban agglomerates at the country level are derived from the ‘World Urbanization Prospects’, 2014 Revision’, Population Division, Department of Economic and Social Affairs, United Nations. On the other hand, the information on per capita GDP (in USD) for the countries are accessed from the ‘National Accounts Statistics, Version 2016’, Statistical Division, Economic and Social Development Division, Department of Economic and Social Affairs, United Nations).

5.3 Results:

The results obtained from estimating the regression equations are provided in Table 2. Since the OLS estimation generated autocorrelation problem as evident from the low Durbin-Watson test statistic, we have provided the results from Cochrane-Orcutt estimation after correcting the serial-correlation problem. The explanatory variables that turn out to be statistically significant

bear correct signs in all the equations. In Equation (1a) and (1b), the levels of urbanization turned out to be statistically significant and positive determinant of per capita GDP across the three countries. This is indicative of the fact that higher is the percentage of urban population, the higher is the level of per capita GDP among the three major South Asian countries of Bangladesh, India and Pakistan. Our results indicate that cities with dissimilar population sizes impacted differently on the levels of economic growth captured by per capita GDP in these three countries. Our results from Equation (1a) and (1b) suggest that the growth in secondary cities - small and medium sized cities with population size less than 1 million and between 1-5 million, respectively - bear statistically significant impacts on the per capita GDP growth. On the contrary, the impact of growth in primary or large cities with population size of more than 5 million did not turn out to be statistically significant across the economies. The two intercept dummies for India and Pakistan did not turn out to be significantly different from the benchmark country Bangladesh. The estimation of Equation (2a) and (2b), which includes the interaction dummies for individual countries, indicate that the coefficients remain mostly statistically insignificant, although bearing correct signs on the variable relationships. Since the degrees of freedom are really poor due to large number of explanatory variables, we mainly focus on the serial correlation corrected estimation of Equation 2(b). As before, the impacts of the urbanization level turned out to be statistically significant and positive determinant of per capita GDP across the three countries. The individual impacts of the disparate pattern of growth in cities with different population size bear the correct positive signs for all the countries, but turned out to be statistically significant only in the case of India at 10% significance level for the secondary cities of medium and small sizes. Thus, there is a clear indication that the individual impacts of the growth in medium and small cities with population size between 1 to 5 million and less than 1 million impacted positively on the economic growth for India. As far as the individual impact of the growth in primary cities with population size above 5 million on the economic growth is concerned, the evidence remains statistically insignificant in all the three major countries from South Asia. It may be noted that Frick and Rodriguez-Pose [2017] have recently observed that small cities of up to 3 million inhabitants are more conducive to economic growth for a majority of countries in the panel of 113 countries during the time period 1980 and 2010.

6. Summary and Implications:

It has been projected that the global urbanization process would remain a developing-country phenomenon, centered largely in Africa and Asia. In the recent decades, the urbanization process has produced significant economic and social changes by creating jobs and reducing poverty levels in many South Asian countries. It is therefore argued that urbanization provides an opportunity to for these countries to deliver employment, livelihood and economic prosperity (Ellis and Roberts 2016). However, the story of South Asian urbanization remains distinctive due to the scarcity of physical infrastructure, high population density of megacities and adverse environmental conditions. The urbanization process of the region also remains hidden for the discrepancies in the country's official definition or due to the existence of settlements that are administered as rural entities. In this background, the main task of this paper was to focus on the urbanization pattern of primary and secondary cities among the major South Asian countries and subsequently examine their growth potentials. Our analysis was carried out on the basis of using cross-sectional data from Bangladesh, India, Pakistan and Sri Lanka during 1970-2015.

Secondary cities in South Asia have undergone massive expansions in the previous decade. Our results indicate that the formation of city system according to population size has remained uneven across the countries in the region. The levels of South Asian urbanization increased from about 24 percent in 1980 to 35 per cent in 2015. The proportion of urban population constituted about 38 per cent in Pakistan, above 30 per cent in India and Bangladesh, and about 18 per cent in Sri Lanka. Despite the lower urbanization levels, South Asia comprised about 53 percent of the global urban population in the same year. One can observe that Bangladesh recorded a high urbanization rate and India is found to dominate the regional urbanization trends due to its large population base. The number of megacities (with 10 million or more population) has gone up in South Asia comprising about 17 per cent of the urban population, whereas agglomeration between 5-10 million and 1-5 million inhabitants contained about 9 and 20 percent of the total urban population, respectively in the year 2015. The largest proportion of the urban population in South Asia can however be located in the agglomerations with less than 300, 000 inhabitants. The majority of the urban agglomerations in Bangladesh, India and Pakistan are in fact medium or small sized cities of less than 5 million or even lesser number of inhabitants, whereas Sri Lanka can be distinguished for small sized cities of less than

1 million inhabitants as leading agglomerations. The highest share of urban populations in Bangladesh, India, Pakistan and Sri Lanka are located in small sized agglomerations with less than 300, 000 inhabitants. The megacities constituted about 32 per cent of the total urban population in Bangladesh, whereas small agglomerations (cities with less than 300, 000 inhabitants) formed 82 per cent of the total urban population in Sri Lanka. Our regression results suggest that small (less than 1 million population) and medium (between 1-5 million populations) cities yielded statistically significant impacts on per capita GDP growth, whereas the impacts of primary or large cities (more than 5 million population) remain statistically insignificant across countries. There is also an indication that the impacts of medium and small cities impacted positively on the economic growth for India. Thus, in contrast to the prevailing view that mega or large cities are growth-inducing, our results suggest that small and medium cities are more responsive to economic growth for the major economies in South Asia.

The urbanization process provides the opportunity to realize the growth potential and improve economic prosperity in the South Asian region. UN [2016] in the review of world cities has indicated that big cities can create wealth, generate employment and drive human progress, but are also responsible for driving climate change, inequality and exclusion. Since the evidence for positive city size effect on economic growth is weak in our major South Asian country sample, the policy focus on agglomeration and the benefit of large cities in this region would appear inappropriate. The majority of urban populations in South Asian countries are found to residing in cities of less than one million. Today, the city growth in many South Asian countries remains disorganized, where urban population pressures on infrastructure, basic services and environment are already severe. The region therefore faces real challenge with its urbanization process and there is a need for developing specific policies for each of these countries for removing the megacity constraints as well as developing the secondary cities. It appears that a balanced progress in primary and secondary cities can generate a more stable urban agglomeration system in the region.

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Table 1: Urban Agglomerations (with 300, 000 or more Inhabitants) in South Asian Countries, 2015

Bangladesh	Barisal, Bogra, Chittagong, Comilla, Dhaka, Khulna, Mymensingh, Rajshahi, Rangpur and Sylhet. (10)
India	Agartala, Agra, Ahmadabad, Ahmadnagar, Aizawl, Ajmer, Akola, Aligarh, Allahabad, Alwar, Amravati, Amritsar, Anand, Anantapur, Asansol, Aurangabad, Baharampur, Bangalore, Bardhaman, Bareilly, Bathinda, Begusarai, Belgaum, Bellary, Bhagalpur, Bhavnagar, Bhilwara, Bhiwandi, Bhopal, Bhubaneswar, Bihar Sharif, Bijapur, Bikaner, Bilaspur, Bokaro Steel City, Brahmapur, Chandigarh, Chandrapur, Chennai (Madras), Cherthala, Coimbatore, Cuttack, Darbhanga, Davangere, Dehradun, Delhi, Dewas, Dhanbad, Dhule, Dindigul, Durgapur, Durg-Bhilainagar, English Bazar, Erode, Farrukhabad, Firozabad, Gaya, Gorakhpur, Gulbarga, Guntur, Guwahati (Gauhati), Gwalior, Habra, Hardwar, Hisar, Hosur, Hubli-Dharwad, Hyderabad, Ichalakaranji, Imphal, Indore, Jabalpur, Jaipur, Jalandhar, Jalgaon, Jalna, Jammu, Jamnagar, Jamshedpur, Jhansi, Jodhpur, Junagadh, Kadapa, Kakinada, Kannur, Kanpur, Karimnagar, Kayamkulam, Kochi (Cochin), Kolhapur, Kolkata (Calcutta), Kollam, Korba, Kota, Kottayam, Kozhikode (Calicut), Kurnool, Latur, Lucknow, Ludhiana, Madurai, Malappuram, Malegaon, Mangalore, Mathura, Maunath Bhanjan, Meerut, Moradabad, Mumbai (Bombay), Muzaffarnagar, Muzaffarpur, Mysore, Nagpur, Nanded Waghala, Nashik, Navsari, Nellore, Nizamabad, Palakkad, Panipat, Parbhani, Patiala, Patna, Puducherry, Pune (Poona), Purnia, Raipur, Rajahmundry, Rajkot, Rampur, Ranchi, Ranipet, Raurkela, Rohtak, Roorkee, Sagar, Saharanpur, Salem, Sangali, Santipur, Satna, Shahjahanpur, Shillong, Shimoga, Siliguri, Solapur, Srinagar, Surat, Thanjavur, Thiruvananthapuram, Thoothukkudi (Tuticorin), Thrissur, Tiruchirappalli, Tirunelveli, Tirupati, Tiruppur, Tumkur, Udaipur, Ujjain, Vadodara, Varanasi (Benares), Vellore, Vijayawada, Visakhapatnam, Warangal and Yamunanagar. (166)
Pakistan	Bahawalpur, Dera Ghazikhan, Faisalabad, Gujranwala, Gujrat, Hyderabad, Islamabad, Jhang, Karachi, Kasur, Lahore, Larkana, Mardan, Multan, Nawabshah, Okara, Peshawar, Quetta, Rahim, Yar Khan, Rawalpindi, Sargodha, Sheikhpura, Sialkot, Sukkur and Wah. (27)
Sri Lanka	Colombo. (1)

Note: The number in parentheses indicate the number of such agglomerations in 2015.

Table 2: Correlation of Urbanization & Per Capita GDP in South Asian Countries (1970- 2015)

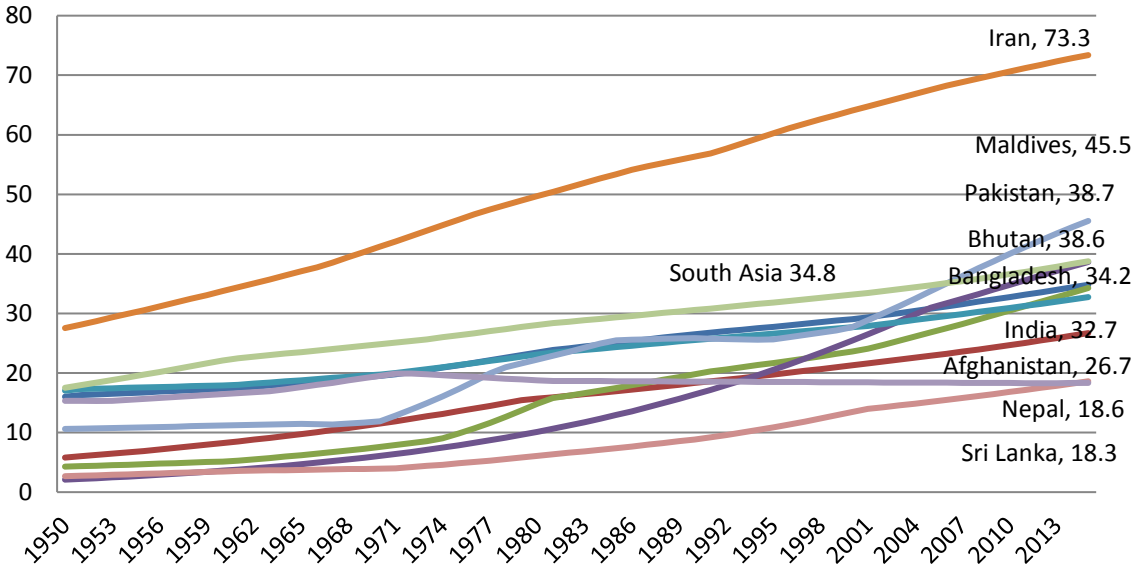
	Bangladesh	India	Pakistan	Sri Lanka
Correlation between PCGDP (USD) & Percentage of Total Urban Population:	+0.89	+0.88	+0.95	-0.56
Correlation between PCGDP (USD) & Percentage of Population Living in 300,000 plus Agglomeration:	+0.86	+0.89	+0.98	-0.66

Table 3: Regression Results: Dependent Variable: Per Capita GDP (USD) at Constant (= 2005 Prices) in Bangladesh, India & Pakistan (sample: 1970-2015 at 5-year intervals = 30 observations).

<i>Explanatory Variables ↓</i>	OLS (1a)	Cochrane-Orcutt (AR2) (1b)	OLS (2a)	Cochrane-Orcutt (AR2) (2b)
Constant	-4.59 (-0.55)	-44.02 (-1.11)	16.70 (1.76) *	11.90 (0.67)
Percentage of Urban Population (URBAN)	16.90 (4.39) *	23.99 (2.87) *	1.04 (0.10)	18.96 (1.95) *
Number of cities with Population above 5 Million (CITY1)	12.69 (0.30)	-7.62 (-0.66)	-6.82 (-0.07)	52.10 (-0.35)
Number of cities with Population between 1 to 5 Million (CITY2)	19.59 (2.79) *	10.13 (2.86) *	-0.22 (-0.03)	-24.20 (-0.70)
Number of cities with Population less than 1 Million (CITY3)	-2.43 (-0.73)	6.83 (2.73) *	53.08 (2.65) *	-21.64 (-0.77)
Dummy 1 (D1)	-173.86 (-1.26)	-23.70 (-1.39) **	36.39 (2.46) *	407.80 (0.42)
Dummy 2 (D2)	38.88 (0.76)	14.16 (0.57)	-502.70 (-0.71)	-590.60 (-1.03)
Dummy 1 × URBAN			-244.20 (-2.50) *	-73.13 (-1.24)
Dummy 1 × CITY1			-2.02 (-0.01)	36.50 (0.52)
Dummy 1 × CITY2			41.60 (0.61)	40.32 (1.36) **
Dummy 1 × CITY3			-22.01 (-0.92)	38.13 (1.35) **
Dummy 2 × URBAN			24.60 (0.74)	8.81 (0.33)
Dummy 2 × CITY1			15.24 (0.12)	65.53 (0.77)
Dummy 2 × CITY2			15.43 (0.21)	40.85 (0.96)
Dummy 2 × CITY3			-44.18 (-1.57)	33.53 (1.10)
R-Squared	0.91	0.98	0.97	0.98
R-Bar-Squared	0.89	0.98	0.95	0.97
DW Statistic	0.90	1.85	1.61	1.91
F-Statistic	41.82 *	138.11 *	40.50 *	62.50 *

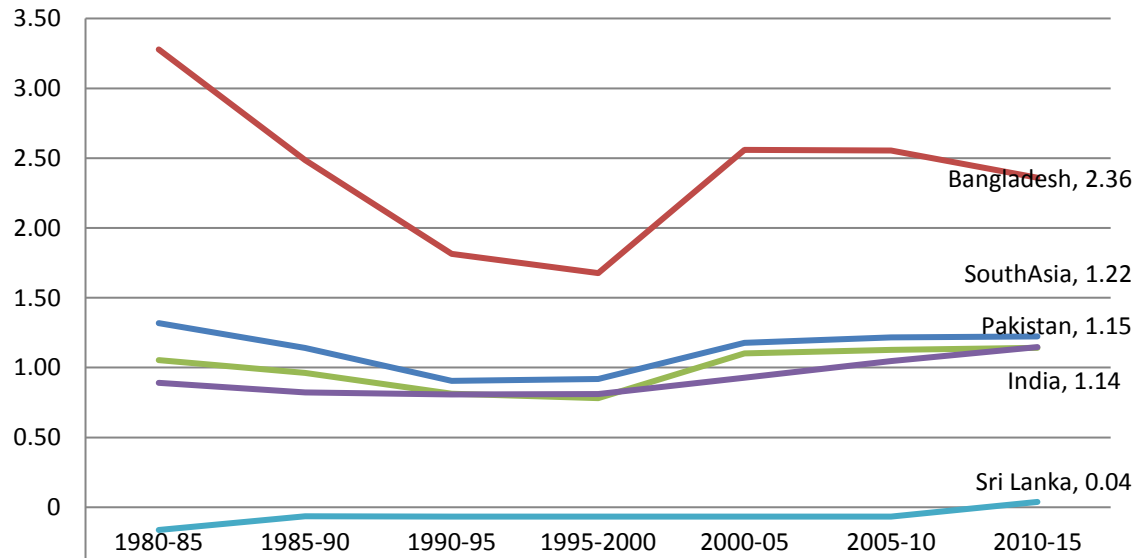
Note: * and ** indicate statistical significance at 5% and 10% level of significance, respectively.

Figure 1: Percentage of Urban Population in South Asia, 1950-2015.



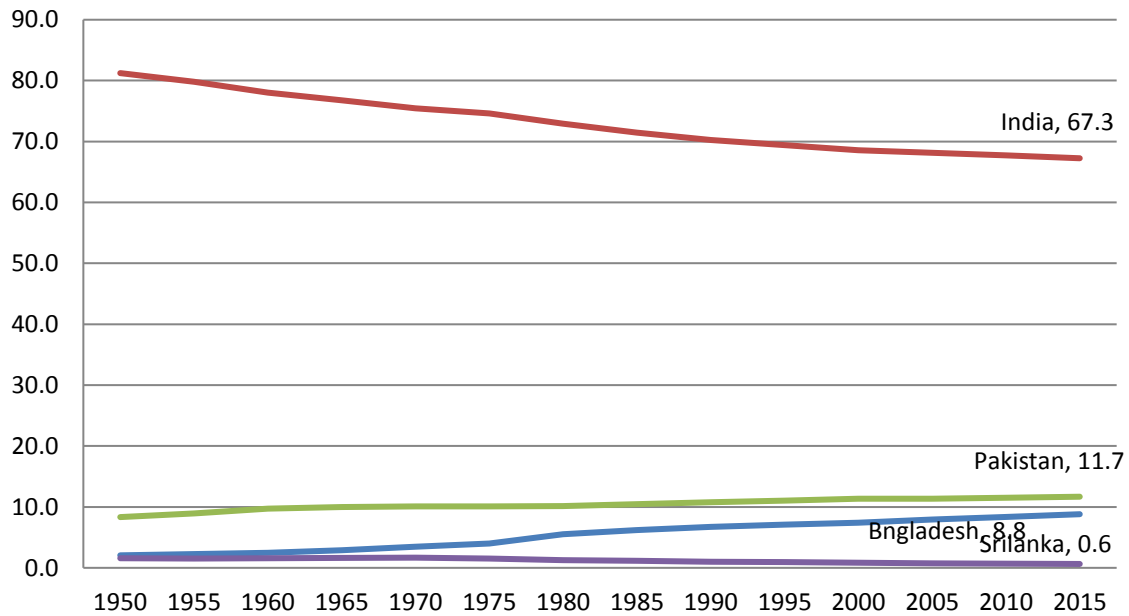
Source: UN [2014].

Figure 2: Average Annual Rate of Change in Percentage of Urban Population, 1980-2015.



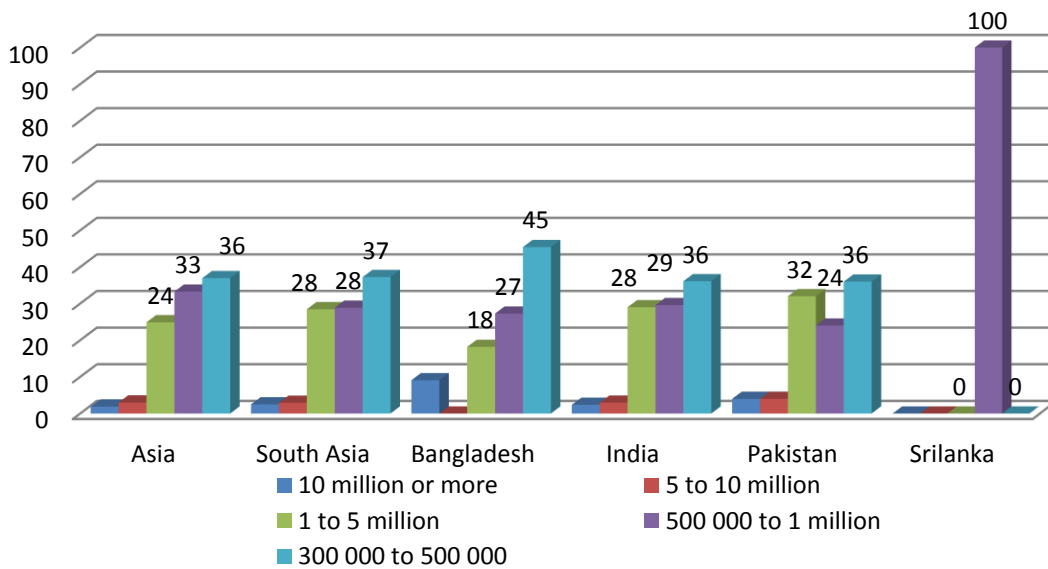
Source: UN [2014].

Figure 3: Country Share of Urban Population in South Asia.



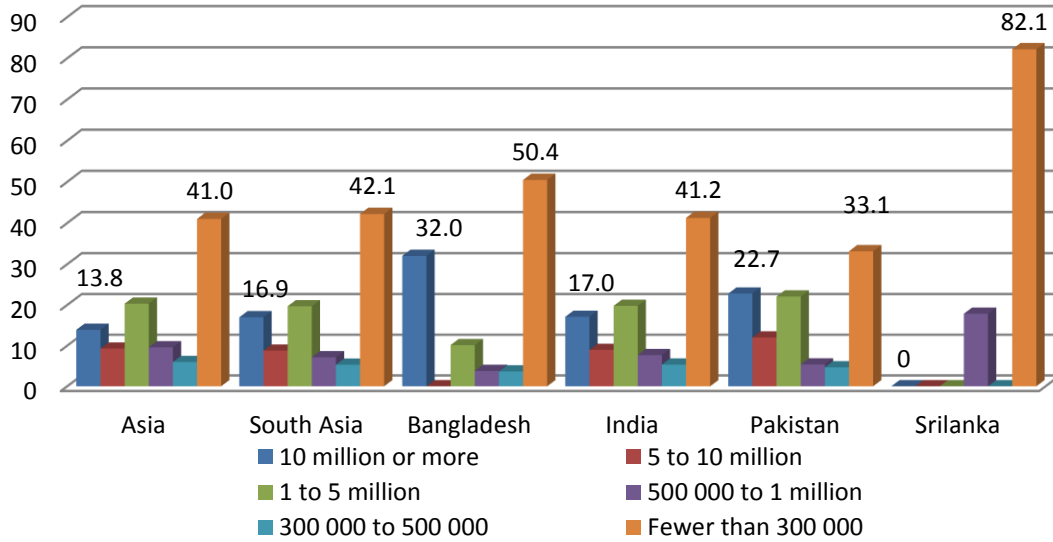
Source: Derived from UN [2014].

Figure 4: Percentage Distribution of Cities Classified by Size of Urban Agglomerations, 2015.



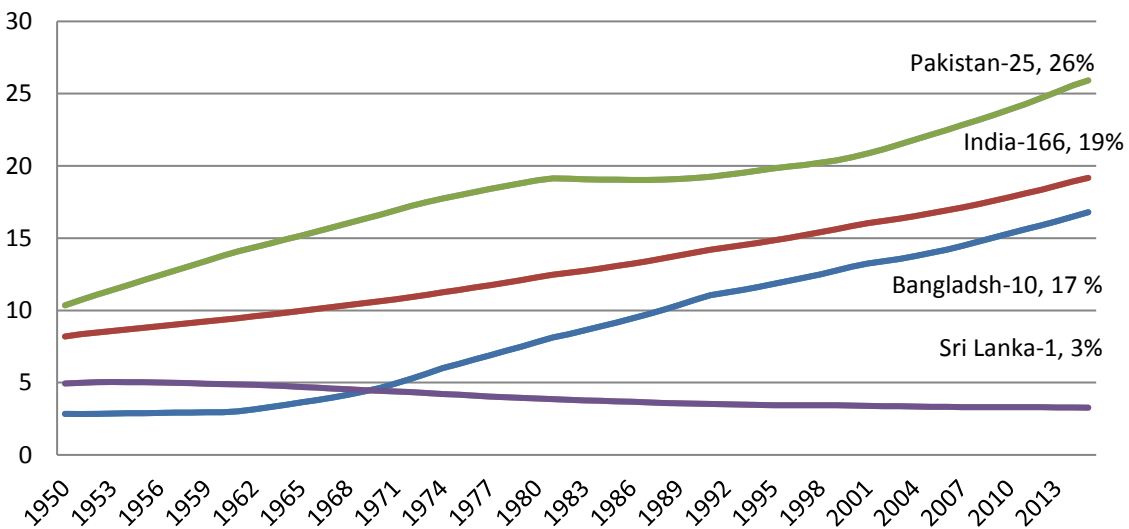
Source: Derived from UN [2014].

Figure 5: Percentage of Urban Population Classified by Agglomeration Size, 2015.



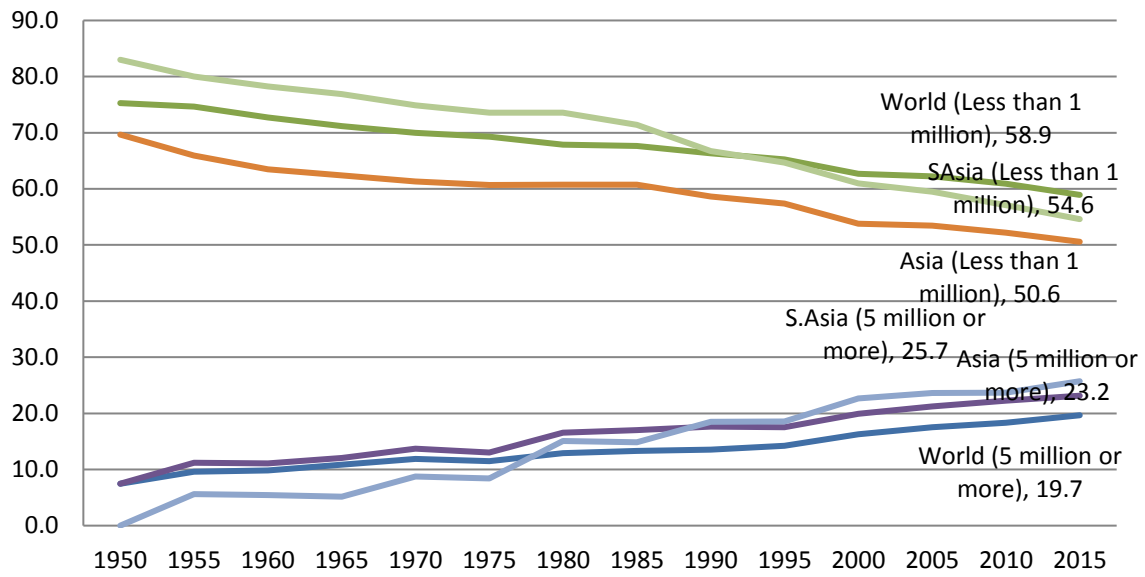
Source: Derived from UN [2014].

Figure 6: Percentage of Population Living in Urban Agglomerations with 300,000 or more Inhabitants as % of Total Population, 1950-2015.



Source: Derived from UN [2014].

Figure 7: Percentage of Urban Population in Small & Large Agglomerations, 1950-2015.



Source: Derived from UN [2014].