

Policy Options for Financing Urban Transportation in Resource Constrained Environments: The Case of Lahore, Pakistan

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In all prosperous and modern economies, cities are the engines of growth and melting pots of diversely talented individuals. They offer inclusive environments with openness and access to opportunities, enabled by efficient and affordable transport systems leading to economically productive interaction between citizens. On the other hand, many cities in rapidly urbanising developing countries have not been able to develop efficient spatial structures, which results in traffic congestion and poor transport services. Their resource-constrained governments often struggle to fill gaps in transport infrastructure demand, which in the case of megacities requires mass transit projects. In the case of Lahore, Pakistan, however, the Provincial and Federal governments appear deeply committed to undertaking mass transit services despite chronic fiscal and financial constraints. The paper first explores Lahore's urban form and function from the transportation and land-use perspectives, presenting an in-depth sub-city level analysis of spatial variations in key characteristics. Second, by undertaking a review of transport infrastructure financing literature it evaluates the viability of three main policy options in Lahore, including public private partnerships, municipal finance options and reforming urban land-use zoning. It concludes that governments in such environments could benefit from land-financing by utilising centrally located State-owned lands through market oriented land-use regulation reforms.

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1. INTRODUCTION

In line with trends in developing countries experienced worldwide, Pakistan is undergoing a dramatic transition towards higher levels of urbanisation. According to the United Nations Population Fund (2007) the share of the urban population in the country went up from 17.4 percent in 1951 to 32.5 percent in 1998 and currently stands at over 40 percent. This trend is projected to accelerate in the years ahead, with estimates for 2025 going as high as 60 percent urbanisation. In addition, Karachi and Lahore have emerged as megacities with populations officially estimated at 11 million and 8 million respectively [Planning Commission of Pakistan (2011)]. With the exception of high-end suburban residential establishments, this growth has been largely spontaneous, resulting in severe disparities in housing provision, with the 68 percent lowest income segment affording only 1 percent of total housing units

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in the country [Siddiqui (2014)]. Many newly arriving migrants reside in informal settlements usually located at the peripheries of the city with no land tenure security and poor urban services. The urban form and function is being dictated by seemingly random forces, hence the expansion patterns of cities like Karachi and Lahore have become largely haphazard.

As a result, Pakistan's largest cities are plagued with severe public service delivery shortages ranging from sanitation to healthcare to solid waste disposal to street lighting. The rapidly sprawling urban spatial structures, spurred by mushrooming residential complexes and peripheral slums, have also worsened the performance of transport systems [Haider (2014)]. Not only are Pakistan's cities largely car-dependent, but the existence of urban poverty means that the status quo becomes unfair towards those who cannot afford private vehicle ownership [Alam (2011); Imran (2010)]. Moreover, the status quo discriminates against women, whose utilisation of public transportation remains low [Oriental Consultants (2011)]. While it is sometimes argued that access to affordable and safe mobility is a basic human right, there is little doubt that it has great implications for economic and social outputs within urban environments [Venter, *et al.* (2003)]. The government of Pakistan estimates that in 2005 inadequate road infrastructure costs \$2 billion to the economy, or around 0.7 percent of GDP [Saleem (2008)]. Yet even in the Federal Budget 2011-2012, only \$500 million were allocated for transportation investments, mainly due to spending constraints [*Economic Survey of Pakistan* (2012)]. Given these fiscal realities, the gap between capital investment requirements for urban transport infrastructure and economic growth generating levels continues to rise. Given that the new PML-N led federal and provincial governments prioritise urban transportation projects [Planning Commission of Pakistan (2011)] the challenge of filling this gap has exacerbated substantially.

As part of a wide-ranging reform agenda report titled "Framework for Economic Growth" the Planning Commission of Pakistan¹ had identified poor urban connectivity as a major reason for persistently low economic growth in the country [Planning Commission of Pakistan (2011)]. Instead of smart growth and mixed land-use (leading to greater population density) which are conducive to human creativity led innovation, Pakistan's cities are rapidly sprawling through gated suburban communities such as Bahria Towns, DHAs etc. This pattern of urban development is increasing demand for affordable urban mobility, meeting which is essential for sustainable economic growth [Lucas and Rossi-Hansberg (2002)]. The lack of world-class urban connectivity in cities is directly hampering economic growth in Pakistan; hence connectivity has rightfully become a central pillar of the new government's economic growth strategy.

Given the policy oriented nature of this topic, this paper addresses the following research questions. What is the extent of spatial disparities in key measures of societal well-being within the Lahore metropolitan region? How does it impact the city's urban form and access to economic opportunity for its

¹The Planning Commission of Pakistan holds the status of a federal ministry and is considered the foremost economic planning and analysis arm of the government responsible for long-term strategic planning to provide basis for policy-making at the federal level.

citizenry? In addition, what are the underlying reasons responsible for poor physical connectivity in the Lahore metropolitan region? How can low-income countries finance expensive but necessary investments in urban transport infrastructure through financial and policy instruments? In developing responses to these questions, the paper utilises theoretical insights on the relationship between urban transportation and economic performance while extensively documenting spatial disparities within the metropolitan region.

Moreover, this paper is the first known attempt to situate data on Lahore's urban form and function within the context of urban economic theory. Specifically, it documents the spatial heterogeneity in socioeconomic and transport related indicators before finding that the inability to reverse sprawl and manage traffic congestion emanates from the lack of financial resources for providing the necessary transport infrastructure. It further argues that the existence of disparities in indicators of human well-being is partly explained by urban land-use regulations. Moreover, in line with several other cities around the world, the underperforming governance system has stifled urban development and cast disproportionate effects on the socioeconomic indicators of the region's 15 constituent towns and *tehsils*.

Following this introduction, Section 2 presents a detailed overview of Lahore's urban form and function, which elaborates on the path dependencies of its growth pattern, spatial heterogeneity in spatial structures and its transportation system. Section 3 presents both explanations of theoretical frameworks and their practical evaluation on Lahore of three primary policy options for financing urban transportation. Finally, Section 4 offers concluding thoughts that summarise the paper's key findings and outline a future research agenda as the government continues moving forward on additional mass transit projects in the city and elsewhere.

2. THE LAHORE METROPOLITAN REGION

Lahore is a fast-growing metropolis with tremendous heterogeneity across its 15 towns and *tehsils*, and over 200 Union Councils in key urban development parameters including population density, public service delivery, income distribution, vehicle ownership, and educational attainment etc. The major challenges facing Lahore—income-based segregation, housing shortages and service delivery—mirror typical issues accompanying rapid urbanisation throughout Pakistan [Qadeer (2006)]. Hence this in-depth case study of Lahore provides insights (albeit non-representative) into the overall policy challenges and economic opportunities emanating from urbanisation in Pakistan. The long-term economic performance of the country heavily depends on the efficiency of cities [Haque (2014)] which is in turn relies on efficient and affordable urban mobility services. Before evaluating policy options, however, highlighting key socio-economic dimensions of the Lahore metropolitan region² situates theoretical perspectives into appropriate policy lenses. The remainder

²Lahore Metropolitan Region is defined as representing the Districts of Lahore, Kasur, and Sheikhupura due to functional integration, as acknowledged by the Lahore Urban Transport Master Plan of 2011.

of Section 2 examines the spatial urban structure of the metropolitan region by focusing on spatial disparities, their impact on the movement of people and their economic productivity.

2.1. Path-Dependent Growth Patterns

Situated on the east bank of river Ravi, the city was the seat of power for the Mughal Empire that ruled the Indian subcontinent between the 15th and 17th centuries. Until the middle of the 17th century, the vast majority of Lahore's residents resided inside the walled city, as were major commercial activities. During the British colonial period however, between the mid-18th century and the creation of Pakistan in 1947, the city saw rapid expansion outside the walled city. The British constructed a town centre, a cantonment and several arterial roads along the way, thus establishing the foundations for modern urban development. At the time of the partition of the Indian subcontinent in 1947, Lahore became a major destination for tens of thousands of families migrating from current-day India [Mazhar and Jamal (2009)]. Almost overnight, the city's entire Hindu population was replaced by migrants with few or no belongings. Given that the fleeing population controlled most of the economy via trading and wholesaling operations, the economic structure of the city was changed completely [Hill, *et al.* (2004)].

Today, the city and its peripheries host the largest trading and industrial base of the Punjab province and serves as its capital. The population growth since the late 1940s has been phenomenal, growing from just 0.8 million in 1951 to over 8 million today. If the historical annual population growth rate of 3.3 percent continues, the city is projected to cross the 12 million mark before 2025, making it one of the largest megacities of the world [Mazhar and Jamal (2009)]. Understandably, this remarkable growth has brought several problems such as severe traffic congestion, poor public service delivery, urban slums and environmental degradation. The key dimensions of Lahore's spatial structure, both from a socio-economic and transportation perspective, are now discussed to better inform the policy options discussed in Section 3.

2.2. Spatial Heterogeneities in Socio-economic Indicators

Like most other dynamic and fast growing cities, Lahore region's spatial transformation has resulted in spatial heterogeneity across its 15 towns and *tehsils*³ on indicators such as population density, public service delivery outcomes, access to transportation, and income levels. All statistics are based on the author's calculations using the Lahore Urban Transport Master Plan (LUTMP) 2011 data set, produced through extensive field work by the Tokyo-based Oriental Consultants (2011).⁴

³As shown in Table 1, the Master Plan defines the Lahore Metropolitan Region as constituting the Districts of Lahore (10 Towns), Kasur (2 Tehsils) and Sheikhpura (3 Tehsils), mainly due to their functional integration with Lahore proper.

⁴Lahore's 10 constituent administrative areas are termed Towns, which are equivalent to Tehsils within the Districts of Sheikhpura and Kasur. Hence the terms Towns and Tehsils are used interchangeably in the context of the Lahore Metropolitan Region.

Table 1

Socio-economic Profile, by Towns/Tehsils (Oriental Consultants 2011)⁵

Town/Tehsil	Population Est. 2011 ('000s)	Average Income (Rs/mo)	Unemployment	Low Income ⁶	High Income	Graduate Education
Lahore	7,119	23,684	15.6%	21.1%	23.6%	4.6%
Ravi	1,007	20,827	13.8%	20.0%	18.0%	2.5%
Data Gunj Bakhsh	970	24,083	16.0%	14.0%	25.0%	3.8%
Samanabad	984	26,724	16.7%	11.0%	34.0%	5.1%
Shalamar	854	22,330	13.9%	18.0%	22.0%	2.5%
Gulberg	778	29,484	13.3%	25.0%	19.0%	6.1%
Aziz Bhatti	609	20,697	14.6%	25.0%	19.0%	4.0%
Wagah	263	17,216	18.2%	33.0%	12.0%	1.8%
Nishter	399	17,820	17.5%	31.0%	13.0%	2.1%
Iqbal	424	23,964	17.8%	22.0%	30.0%	5.3%
Cantonment	831	33,690	14.1%	12.0%	44.0%	12.7%
Sheikhupura	331	17,870	19.7%	36.3%	13.3%	2.0%
Ferozwala	152	16,297	21.6%	40.0%	10.0%	1.6%
Muridke	143	16,401	20.7%	41.0%	10.0%	1.0%
Sharaqpur	36	20,913	16.7%	28.0%	20.0%	3.4%
Kasur	121	18,990	20.1%	42.5%	18.5%	3.7%
Kasur	50	22,523	19.0%	38.0%	27.0%	6.7%
Pattoki	71	15,457	21.1%	47.0%	10.0%	0.8%
Region	7,571	20,181	18.5%	27.0%	20.9%	3.4%

The wide range of monthly household incomes,⁷ from the lowest Rs 17,216 in Wagah to Rs 33,690 in the Cantonment, is indicative of substantial income disparity and spatial segregation by economic class. The most prosperous towns, the likes of Cantonment and Gulberg, are primarily residential (albeit some commercial centres such as Liberty or Cavalry) and were developed relatively recently. This clearly demonstrates that the primarily car-dependent and restrictively zoned parts of the city host the highest income households. On the other hand, the historical central towns of Ravi, Data Gunj Bakhsh and Shalamar have disproportionately large middle-income populations and relatively low average income levels.

In addition, *tehsils* outside of Lahore, i.e. Ferozwala, Muridke and Pattoki, report over 40 percent of their households earning more than Rs 40,000 per month (classified as high income) as compared to the regional average of 27 percent. Paradoxically, despite boasting income levels 67 percent higher than the regional average, only 12.1 percent of households in Lahore's Cantonment town are high income earners. This indicates high levels of spatial heterogeneity in income distribution, with the region's top 1-2 percent earners confined in the primarily residential enclaves of Defence Housing Authority, Cavalry Ground, Sarwar Road etc. In each of these localities however, low-income

⁵Note that all reported statistics, including average income levels, are reported by place of residence as opposed to place of work.

⁶Low income households are defined as those earning less than a total of Rs 10,000 per month, with high income earning more than Rs 40,000 per month.

⁷Lahore's overall average income of Rs 20,181 is not weighted, and treats each Town/Tehsil equally.

households remain embedded (overall 12 percent in Cantonment are low-income) as homemakers and residential service providers.

Likewise, the highest unemployment levels unsurprisingly are reported outside of Lahore District, prominently including Ferozwala, Muridke and Pattoki. Within Lahore District, unemployment in the towns of Gulberg, Shalamar and Ravi are on average five percentage points better than the regional average. Similarly, Lahore District's average unemployment rate of 15.6 percent, albeit high in absolute terms, is significantly lower than 19.7 percent and 20.1 percent in neighbouring Sheikhupura and Kasur Districts respectively. Both of these facts confirm the existence of agglomeration effects despite poor inter-District connectivity. In other words, *citrus paribus*, households located in Lahore District have better access to economic opportunities and therefore enjoy higher income levels [Krugman (1991)]. The urban economic theory posits that strengthening inter-city connectivity helps establish an efficient system of satellite cities around large agglomeration, which results in spatial sorting of economic sectors [Henderson, *et al.* (2012)]. From a policy standpoint therefore, public investment in improving regional connectivity would likely boost productivity throughout the Lahore region.

Education has been found to be a crucial driver of economic growth in cities [Glaeser (2011)], yet only 3.4 percent of Lahore's sampled population reported having graduate degrees (Masters or above). In line with trends of spatial variation, the towns have a broad range on this indicator, from as low as 0.8 percent in Pattoki to 12.7 percent in Cantonment. Not surprisingly, the data shows a strong correlation between educational attainment and household income levels, with the notable exception of Iqbal Town and Kasur Tehsil which have average income levels despite high educational attainment. This likely implies the lack of job opportunities in both areas, accompanied by the existence of several major educational institutions in Iqbal Town. Overall, the town and *tehsil* level analysis presented in this subsection reveals the existence of major spatial variations in key socio-economic and developmental indicators. Since Lahore's form and function is highly intertwined with its transport system, Section 2.3 therefore discusses key patterns of population density, car ownership and flow of workers within the region.

2.3. Land-Use and Urban Mobility

In Lahore, 40 percent of all urban trips are non-motorised and only 16 percent of households are car owners [Haider (2014)]. However, during the decade of the 2000s, the majority of transport allocations were made for urban roads and bridges, including several underpasses along Canal Road and the Lahore Ring Road Project. In the 2013-14 budgetary allocation, the Government of Punjab has allocated over 58 percent of the infrastructure development spending programme on roads alone.⁸ Till the budget year 2010-11, no substantial investments were made in mass transit systems despite the overwhelming demand for public transport. In the fall of 2012 however, a Bus Rapid Transit system was introduced which today attracts over 140,000 daily trips and appears to have eased congestion along Ferozpur Road.⁹ The data presented in this paper was collected in the Spring of 2011 and therefore does not incorporate the impact of that project.

⁸Government of the Punjab's budgets are available at: <http://punjab.gop.pk>

⁹Statistic was reported by the Punjab Metro Bus Authority during a presentation at the 2nd South Asia Cities Conference, held in Karachi in January 2014.

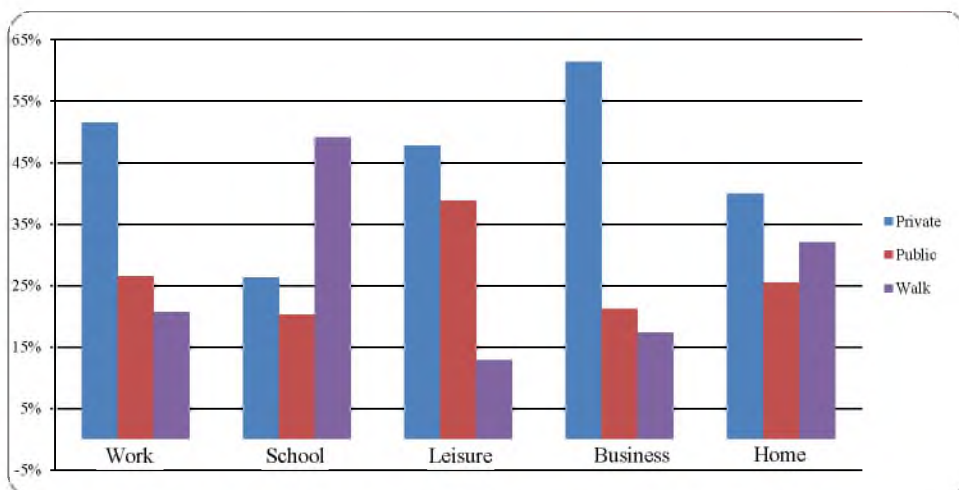


Fig. 1. Trip Distribution by Mode of Transport (2011).

The Lahore region’s overall trip distribution, presented in Figure 1, shows most work and business trips are undertaken on privately owned vehicles whereas almost half of all school-bound trips are on foot. This shows that both the city’s job creating and income generating classes, most of which are based outside of the inner-city towns mentioned earlier, are benefiting the most from recent investments in road infrastructure improvements. In four out of five categories, private vehicle trips (includes driving and riding) form the highest proportion of trips, closely followed by public transport and walking. The fact that only 12 percent of leisure trips are walking indicates a considerable lack of accessible public spaces, which disproportionately affects marginalised groups including women and the elderly.

Table 2

Population Density, Car Ownership and Worker Flow (by Town/Tehsil 2011)

Town/Tehsil	Density (Pop/ha)	Cars per 1,000 People	Day Time Worker Flow (%)
Lahore	48	56.0	163.6%
Ravi	328	14.1	15.6%
Data Gunj Bakhsh	317	36.3	76.3%
Samanabad	262	44.3	18.1%
Shalamar	350	22.5	-34.7%
Gulberg	178	70.5	100.8%
Aziz Bhatti	97	35.2	-39.3%
Wagah	15	28.1	-17.8%
Nishter	19	39.7	-22.5%
Iqbal	18	143.8	52.7%
Cantonment	85	125.9	14.4%
Sheikhupura	10	67.1	-49.8%
Ferozwala	9	58.9	-21.9%
Muridke	12	24.2	-9.7%
Sharaqpur	7	118.3	-18.1%
Kasur	12	153.4	-38.6%
Kasur	11	284.5	-26.1%
Pattoki	13	22.4	-12.6%
Region	33	92.2	75.2%

In line with patterns of spatial variations discussed earlier, there is significant variation in rates of car ownership and population density across towns. As shown in Table 2, the car ownership rate (per 1,000 persons) varies from a meagre 14.1 in the densely populated Ravi Town to over 143 in the car-dependent and largely residential Iqbal Town. As expected, there is a strong negative correlation between population density and car ownership rates, further confirming that outer city towns such as Cantonment and Iqbal remain highly car-dependent. In the absence of affordable and convenient public transport, this significantly reduces access to economic opportunities for individuals without access to privately owned vehicles. For example, any low-income individuals residing in RA Bazar area of Cantonment Town and attempting to access industrial jobs along Raiwind or Ferozpur Roads (Lahore-Kasur section) would stand at a significant disadvantage in terms of labour market access.

The inner-city towns of Ravi, Data Gunj Bakhsh and Shalamar, located west of river Ravi are the most densely populated areas, within which the old walled city remains the trading and wholesaling district [Glover (2007)]. The variation in density is illustrated by the fact that Ravi's density alone is more than 21 times that of Wagah and nearly 10 times the overall regional average. While theories of urban economic growth and innovation (developed largely in the West) view population density positively, the correlation between high density and low-income (with low levels of educational attainment) in Lahore's towns shows that this is merely congestion without any low likelihood of positive impacts on human creativity [Glaeser (2011); Florida (2002)].

In line with other major South Asian cities, Lahore is devoid of any identifiable Central Business District (CBD), and presents a polycentric urban landscape with spatially dispersed job centres [Haque (2014)]. By measuring the differences between day and night time populations, the third column in Table 2 estimates the movement of workers (all employed individuals) with positive values indicating net inflows. As expected, the districts of Sheikhupura and Kasur are net suppliers of workers to jobs based in Lahore District's job centres, led by Gulberg, Data Gunj Bakhsh and Iqbal. The fact that Gulberg's worker population doubles during the day indicates that it's the closest to being Lahore's CBD. Moreover, Lahore District's overall worker inflow of 163.6 percent shows that despite chronic transportation problems, Lahore's workforce is highly mobile albeit in an inefficient manner. Despite the lack of origin-destination matrices, it is safe to assume that workers based in the towns of Aziz Bhatti, Nishter and Shalamar move in and out of job centres located several kilometres away, hence any public investments in improving the affordability and/or convenience of mobility would boost worker productivity [Moretti (2014)]. The following subsection therefore articulates Lahore's current policy response to the challenges posed by this urban form.

Having outlined the urban form and function *vis-à-vis* its impact on the transport requirements of this burgeoning metropolitan region, the following section evaluated three option response options. By reviewing their theoretical foundations, the paper explores whether they are likely to resolve the city's chronic need for urban transportation infrastructure, preferably through mass transit systems.

3. THE OPTIONS FOR FINANCING TRANSPORTATION INFRASTRUCTURE

As discussed in Section 2, traditional policy responses to Lahore's transportation challenges have centred around investments in road based infrastructure, which in turn are based on the belief that wider roads and improved traffic management will alleviate traffic congestion. However, urban transportation literature confirms that vehicle miles travelled tend to increase one-to-one with provision of additional roads [Duranton and Turner (2009)]. Hence the policy response to building additional road lanes, flyovers and underpasses can at best provide short-term relief without addressing the underlying and long-term issues. Despite the clear need for reforms and fresh thinking, urban transportation planning appears to have reached an imaginative dead-end. Irrespective of whether or not mass transit is economically viable in Lahore, there exists an overwhelming need for additional transportation infrastructure throughout the city and its sprawling suburbs [Planning Commission (2011)]. Whether that infrastructure is in support of road-based transportation or for mass transit remains to be decided.

While there are several options for responding to Lahore's transportation infrastructure challenge, this paper will introduce fresh ideas on improving the situation followed by a discussion of the potential bottlenecks in implementation. Given the recent focus of the Punjab government on mass transit projects, policy-makers will be offered an analytical perspective on viable and sustainable policy options for financing expensive infrastructure projects across Pakistan's major cities. In the following subsections, we evaluate the policy options of Public-Private Partnerships, creative municipal financing mechanisms and finally, introducing mixed land-use in areas where it remains absent.

3.1. Can Public-Private Partnerships Work in Lahore?

In the past fifteen years, public-private partnerships (PPPs) have generated immense interest amongst developing countries' governments who see them as means of cost cutting and efficient allocation of public resources [Estache, *et al.* (2007); Brown (2007)]. PPPs are a special form of public procurement which "bundles investment and service provision in a single long term contract" whereas the "concessionaire manages and controls the assets, usually in exchange for user fees and government transfers, which compensate for investments and other costs" [Engel, *et al.* (2011)]. They further argue that PPPs are closer to privatisation of infrastructure and optimal risk allocation can lead to short-term welfare gains which are much needed in countries with burgeoning levels of public debt.

Not surprisingly therefore, PPPs are being promoted by the Punjab provincial government as the most viable alternative to the unsuccessful traditional approaches to building infrastructure [Government of Punjab (2010); Planning Commission (2011)]. They are seen as the most viable response to Lahore's chronic transportation infrastructure shortages. These assertions, however, are not without merit. After reviewing many years of projects implemented by the World Bank for example, Gwilliam (2002) concludes that the private sector often commands much-needed resources that developing country governments simply cannot provide. However, Prud'homme (2004) argues that the long-term and lumpy nature of infrastructure makes it impossible for the public sector to remain on the sidelines. In many cases therefore,

governments end up encouraging private investment, but only after providing guarantees that most project risks will be borne by them.

However, the real challenge is to ensure seamless implementation of projects through coordination between the public and private sectors. Often the interests of the two parties diverge, thus creating disincentives for them to work harmoniously in the pursuit of mutually acceptable objectives. Urban transport is especially problematic due to complications arising from land ownership disputes, land grabbing mafias, windfall gains and the general lack of legal mechanisms in developing countries to deal with these challenges. In many developing countries, land tenure remains insecure, which delays progress on infrastructure projects [Gwilliam (2002)]. Even when these constraints are not binding, government's procurement laws and processes happen to be archaic while the "project-to-project approval culture at the highest government level is inefficient" and leads to disempowerment of the public bodies responsible for implementation in the Pakistani context [Planning Commission (2007)].

The basic purpose of implementing PPPs is to utilise private sector capital and technical expertise in the provision of infrastructure. In Pakistan, however, harnessing private sector potential for the benefit of the general public remains a challenge due to socio-economic and political reasons discussed in detail later. Several World Bank reports look at PPPs as another procurement option, but government in most cases outsources the job of building infrastructure. [Bojovic (2006)]. It is assumed therefore that the private sector has the capacity, resources, technical capacity and willingness to invest heavily in transport projects [Gwilliam (2002); Harris (2000)]. However, it must be kept in mind that private parties are mostly interested in profits and thus it becomes the government's responsibility to ensure that their involvement remains profitable. Without profits, future projects are unlikely to generate traction in the private sector, thus endangering the very concept of PPPs [Linder (1999)].

Private construction and infrastructure companies in Pakistan can seldom boast of capital flows and technical knowledge necessary to undertake international quality projects. It is not surprising therefore, that all pre-feasibility studies of the proposed Lahore mass transit project were undertaken by foreign companies [Oriental Consultants (2011)]. While international contractors bring world-class expertise, their involvement translates into a host of complications such as risks associated with currency conversions, international political economy issues and highly complicated bidding processes etc. The lack of indigenous private sector capacity poses a severe challenge to the establishment of PPPs as a viable financing mechanism in the context of Pakistan.

3.2. Does Municipal Finance Offer any Viable Solutions?

Apart from the option of partnering directly with private sector firms, local and municipal governments can usually utilise localised financing mechanisms such as municipal bonds to fund infrastructure projects [ADB (2009); Vaidya and Johnson (2001)]. Without going into the details of financial instruments available, this section will focus on key factors preventing Lahore's city government from proactively pursuing these options despite the overwhelming need for funding.

The first problem lies in the realm of underdeveloped markets. In this case, countries do not have any financial market mechanisms to attract institutional or even

individual investors towards buying municipal or project related bonds tied with specific infrastructure initiatives [Rastogi and Rao (2011)]. While many countries have utilised this facility including neighbouring India, Pakistan's financial markets are poorly organised and are marred by poor regulation and frequent market failures featuring stock market crashes [Ellahi (2011)]. The savings rate of the country is amongst the lowest in the region, whereas the unbanked population of the country offers tremendous commercial banking opportunities [Khan, *et al.* (1994)]. Yet the central bank has made effort to incentivise commercial banks to reach out into the country's rural heartland where it is still customary to save money in stacks of cash under beds and in hidden closets. Given the great amount of assets to back securities and the sovereign guarantees of national governments, it is not difficult to raise capital through municipal bonds which can then be used to develop expensive infrastructure [Bailey, *et al.* (2009)].

But in order for this to happen, Pakistan's financial sector must be allowed to develop other fixed income financial assets that are traditionally not the hallmark of the Karachi-based financial market of the country. Over-regulation of the financial industry, mainly due to slow-moving government bureaucracy and lack of political will, has severely hampered economic growth in Pakistan [State Bank (2005)]. In order to break this low-credit-low-growth cycle, the burgeoning regulations on the financial industry need to be slashed, allowing indigenous financial institutions to innovate for expanding their product lines [Husain (2004)].

Yet even if these reforms are introduced and local governments become motivated to raise finances, there are other challenges in the governance system that will create bottlenecks. The budget of an average Pakistani local government relies up to 80 percent upon fiscal transfers from provincial or federal level, thus in real terms they only have about 20 percent control over the total resources that they command [Gupta and Rayadurgam (2008)]. This leads to the so-called dependency syndrome which eventually incapacitates local and municipal governments to generate revenues from indigenous resources. Remaining consistently dependent on fiscal transfers not only erodes the autonomy of local governments, but also creates disincentives for forward-looking agencies to develop innovative financing tools [Cheema, *et al.* (2005)]. In order for local-level infrastructure financing to become a reality in Pakistan therefore, local governments must be granted greater fiscal autonomy. Rastogi and Rao (2011) argue that financial risks are over-priced in developing countries and thus higher levels of government involvement (both federal and local) will be necessary to maintain the balance between supply and demand of financing. It follows that the true potential of PPPs cannot be realised without fiscal, regulatory and operational reforms that would facilitate debt market development.

Reforms are not that simple though. There are deep-rooted political and social interest groups who maintain a vested interest in maintaining the status quo [Raza (2011)]. Pakistan's economy today is marred by organised rent-seeking groups that are strongly connected to the ruling élites. Every time reforms are introduced, attempts are made by these parties to delay or sabotage genuine devolution of power to the grassroot level [Lieven (2012); Zaidi (2011)].¹⁰ Therefore, more viable policy alternatives need to be explored which can be implemented through political will, and which ultimately will lead to genuine policy reform.

¹⁰A detailed discussion on this topic is beyond the scope of this paper, however it will be dealt with in greater detail in future research.

3.3. Can Altering Land-Use Zoning Solve the Problem?

A new wave of development thinking has been inspired by Romer's (1990) seminal work, arguing that human ingenuity lies at the heart of economic development. It follows that capital investments by government in hard infrastructure merely provide the support structures that facilitate the core processes of creativity. Florida (2002) coined the term "creative class" to refer to the hi-tech professionals, artisans, and musicians whose presence in urban metropolises fosters an open and dynamic environment that attracts investments that lead to innovation. Dividing cities into residential and commercial zones hampers creativity and innovative capacity of its residents, both of which are essential for long-term economic progress in the 21st century economic environment [Landry (2008); Glaeser (2011)]. As early as in the 1960s, seminal works from urban theorists were arguing that cities are essentially people-systems and urban policy should foster human interactions instead of constructing urban highways to ensure free flow of vehicles [Jacobs (1961)].

However, policy-makers in Pakistan appear to largely ignore these insights by still planning cities as enclaves of residential, commercial and recreational areas. This prevents the creation of dynamic urban environments, including clustering of industries, that can foster creative interactions leading to economic growth [Trip and Romein (2012); Yigitcanlar (2012)]. Unlike the world's most creative urban centres such as San Francisco and London, Pakistan's cities only allow three urban zones: residential, commercial and recreational. In the case of Lahore for instance, while inner-city towns such as Ravi and Data Gunj Bakhsh are *defacto* mixed land-use areas due to lax enforcement, the *dejure* urban zoning laws are highly restrictive.

From an urban planning perspective, revamping the zoning system remains a powerful instrument for governments to intervene in market operations, eventually curbing land market distortions. Gomez-Ibanez (2006) argues that by resorting to land-grabbing and other forms of rent-seeking, small groups of influential incumbents enjoy windfall gains at the cost of the majority. This is particularly true in Lahore as its wealthy elite are enjoying highly subsidised downtown facilities on expensive State-owned land. Haider (2006) argues that this is part of a "systematic bias" against low-income households in Pakistan which remain the periphery for the influential urban core. The existence of government-owned and exclusive recreational facilities in downtown Lahore creates land market distortions which can only be reversed through rezoning reforms.

Most interestingly, while Gomez-Ibanez (2006) argues that since government is the least likely stakeholder to get captured hence it must always have a legitimate role in infrastructure outcomes; in Lahore there are elements within the state apparatus that are capturing the land market. According to the World Bank (1994), infrastructure provision should be aimed at "sharing of the benefits of growth to reduce poverty" and must be built around the "connecting role of infrastructure". If these objectives are to be met, then Lahore must make room for relaxing its archaic and unrealistic urban zoning system.

This goal can be achieved by relaxing land-use zoning, as illustrated in the following example. In the area around Mall Road's Panorama Centre in Lahore, the market value of commercial land stands at approximately \$159 per square foot (Source: www.Zameen.com). Within a mile from this commercial area, there are large swaths of State-owned lands including the Governor's 100-acre mansion, the Aitchison College,

Government College University, the Lahore Zoo, the Jinnah Gardens, Punjab provincial Assembly building, government officers residences, Al-Hamra arts council and two golf courses located within the exclusive Punjab and Lahore Gymkhana clubs. As shown in Appendix A, the ballpark market value of the Governor House alone stands at \$694 million (assuming no second-order impacts), enough to build 11 miles of over-the-ground metro rail line along the same corridor.¹¹ While some establishments mentioned above include public spaces and educational institutions that deserve to remain centrally located, others including the Governor's mansion, elite golf and horse racing courses and expansive housing for bureaucrats need not be situated in the area. The government of Punjab has the administrative capacity to move these facilities to other parts of the city without any obstacle. Given the size of Pakistan's entire economy to be \$480 billion,¹² these potential investment gains are large enough to boost the annual GDP growth rate by 0.16 percent on their own without considering the potential second and third order effects.

Through a well-planned and carefully implemented commercialisation and land-financing programme, expensive State-owned land can be utilised for stimulating much needed investment in the country.¹³ In order to avoid the malaise of endemic corruption, each commercialisation endeavour should be explicitly tied to well-specified projects as a form of public accountability. For example, if the Governor house's size is to be reduced to 10 acres, the remaining 90 acres could directly fund mass transit in the same vicinity. While this would require unprecedented and broad-based political willingness, introducing land-use zoning reforms are relatively straightforward. The highly expensive and sought-after residential neighbourhoods should be zoned as mixed land-use areas, thus allowing the opening of commercial establishments such as restaurants and retail outlets. Not only will home-owners and the government enjoy capital gains and revenues respectively, but these areas would potentially turn into dynamics hubs of interaction between citizens belonging to all strata of society. Moreover, such initiatives would usher a more inclusive urban environment, which in turn could improve economic outcomes [Landry (2008)].

4. CONCLUSION

This paper has highlighted some of the fundamental challenges facing urban transport planning in Lahore (as representative of other developing country cities) while exploring its urban form and function. In addition, by surveying selected academic literature on municipal finance, PPPs and urban development, an attempt was made to apply theoretical knowledge through viable policy option evaluations. By discussing PPPs, municipal finance and urban zoning the author has attempted to highlight their inter-linkages through a societal lens. In all three areas, poor governance and institutional incapacity exacerbate the situation whereas socio-economic elites maintain a vested interest in maintaining the status quo that protects their essential interests. As indicated

¹¹This estimate is made based on New Delhi metro's phase I completing financing details, according to which the average per mile cost of building overhead metro stands at over \$40 million.

¹²Based on Purchasing Power Parity (PPP).

¹³From their peak of 22.5 percent of GDP in 2007, investment levels in Pakistan have fallen steeply to their current level of only 12.5 percent of GDP. This is the lowest level in six decades!

by the survey of literature and practitioner reports, Lahore is not alone in facing these challenges, most of which are common across the developing world.

Moreover, by situating urban policy challenges into a solution-oriented framework, this paper offers a platform for further research on Pakistan's urban and economic development challenges such as congestion, sprawl, poor service delivery etc. Beyond the political economy of urban development, the problems of rent-seeking and the over-involvement of the State in the economy are larger issues that plague every aspect of economic development in countries like Pakistan.

APPENDIX A

ESTIMATING THE VALUE OF STATE-OWNED LAND

The following outlines the rough estimation of the market value of State-owned land along the Mall Road in the heart of Lahore. It must be stated that this is a simplistic method based on linear extrapolation of commercial land values, assuming that the commercial land value along the Mall Road can be applied to much larger swaths of land such as the 100 acre Governor's house. In the real-estate market, however, there are several unknown factors that determine the land value, thus these estimates are merely guesstimates.

These are the steps followed for the simple arithmetic calculation:

- Price of commercial land on the Mall Road: \$159 per square foot.¹⁴
- Size of Governor House Lahore: 100 acres¹⁵ = 4.36 million square feet.
- Commercial worth of Governor's House: \$694 million.
- Size of Pakistan's Economy: \$488 billion (at Purchasing Power Parity).
- Governor's House worth as percentage of economy: 0.14 percent.

Apart from the Governor's House, there are large swaths of land occupied as government officers' residences, Lahore Gymkhana and Aitchison College, none of which are being included in the calculation.

Following are the steps for calculating the length of mass transit that can be constructed from around \$700 million. Being the closest city with a mass transit system, New Delhi was used as a benchmark for costs of construction.

- Cost of Delhi Metro phase 1: \$2.6 billion for 65 kilometres length.
- Cost per kilometre: \$40 million; Cost per mile: \$64 million.
- Total miles of mass transit for Lahore Governor House: 10.9 miles.

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¹⁴Average price in Panorama Centre and Hall Road commercial areas, only 500 feet away from the western wall of the Governor's mansion.

¹⁵Size was estimated from Google Maps using multiplication of length and width from the scale developed by the map provider.

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