

TRANSPORTATION: A TOOL TO COMBAT CHALLENGES IN GLOBAL CITY REGIONS

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ABSTRACT

Global City-Regions are regional economies that consist of one or more functionally linked metropolitan areas and their surrounding hinterlands. As an increasing number of regions across the world aim to attain Global City-Region (GCR) status, this paper describes a few of the challenges that are faced by these city-regions, as well as transportation interventions that can be used to combat some of these challenges. Broadly categorised, these challenges include socio-economic challenges as well as land use management challenges such as spatial fragmentation. Through consideration of the integral role that transportation plays in GCRs across the world, particularly the role of transportation interventions and their effects on mobility in the Gauteng City-Region, it was concluded that transportation is indeed a tool, when implemented correctly, which can be used to effectively combat challenges in GCRs.

1 INTRODUCTION

Global city-regions (GCRs) have been defined as city areas with populations in excess of one million people (van Huyssteen, et al., 2009). They are characterised by large and dynamic economies along with transportation networks that allow for functional connectivity and multimodality (van Huyssteen, et al., 2009). GCRs each have an “urban functional area” which consists of its hinterlands, for which they are required to provide a significant portion of precisely stipulated services (van Huyssteen, et al., 2009). It must be noted that there is a difference between global cities and global city-regions; this is with regard to the larger size and increased competition and competitiveness in GCRs relative to global cities (Rogerson, 2009).

According to Scott et al. (n.d) there are more than 300 city-regions in the world, and consistent with the literature of van Huyssteen, et al. (2009), each have populations in excess of one million people. In fact, a minimum of twenty of these GCRs have populations exceeding ten million people (Scott, et al., n.d.). GCR's can take on various spatial forms ranging between and including: a) *Monocentric city-regions* which are agglomerations of metropolitan cities that are characterised by a strong central node. An example of this would be London or Mexico City (Scott, et al., n.d.); and b) *Polycentric city-regions* which are agglomerations of metropolitan cities that are characterised by decentralised nodes in addition to the central node. An example of this would be the Randstad or Emilia-Romagna (Scott, et al., n.d.).

Scott et al. (n.d) and Fainstein (2012) concur that GCRs are expanding rapidly as government and business leaders quintessentially aim to reach global city-region status. However, Fainstein (2012) approaches this vigorous progression towards GCR status with caution as no evidence has been presented to support that GCR dwellers perform better than dwellers of lesser areas. Furthermore, according to Scott et al. (n.d), this rapid progression towards GCR status presents profound challenges for researchers and policy makers in the twenty first century which are more profound in developing countries than in developed countries.

The objective of this essay is to identify socio-economic, spatial and transport challenges facing GCRs, as well as transport interventions that can be implemented and utilised to combat these challenges.

2 SOCIO-ECONOMIC AND SPATIAL CHALLENGES IN GCRs

2.1 Poverty

GCRs are progressively attracting and retaining youth as well as the largest and most competent segment of the formal and informal labour markets (Oranje, et al., 2008). However, they also attract the largest portion of those that are “unskilled, economically inactive and in search of the most basic of livelihood opportunities.” (Oranje, et al., 2008). Subsequently, this increases the levels of poverty and dependency on municipalities to maintain an adequate quality of life across the GCR population (Oranje, et al., 2008). This is reinforced by the work of van Huyssteen et al (2009) who state that although GCRs are areas that stimulate the growth of population, spatial distribution, connectivity and the economy; a substantial portion of their populations are plagued by poverty and their large spatial size results in adverse social, political, spatial and environmental impacts.

South Africa can be used to illustrate these points and drive them home as there are many areas, primarily consisting of GCRs which house 40% of the population, that are suffering from poverty, unemployment and service delivery challenges (Oranje, et al., 2008). Municipalities are unable to meet the demands of these areas and thus require support from a regional and/or national level (Oranje, et al., 2008). Evaluating the provision of basic services has revealed that, the four city-regions in South Africa, namely: eThekweni, Cape Town, Nelson Mandela Bay and Gauteng, may have the largest concentration of formal housing but they also have the largest number of households living in informal housing; 24.1%, which exceeds the national average of 18.3% (Oranje, et al., 2008). Furthermore, these GCRs have the highest percentage of households with access to piped water and electricity but also the highest percentage of households without access to these services (Oranje, et al., 2008). The contiguous of a growing population followed by increased economic activity in the GCRs makes them considerable polluters, producers of waste and consumers of resources, which adversely affects the environment and society (Oranje, et al., 2008). According to van Huyssteen et al. (2009), urgent interventions are required to tackle costs and challenges associated with congestion due to growth, emergent poverty and harm to the natural environment as this counters sustainable development by jeopardising the future quality of life of inhabitants of GCRs and their surrounding hinterlands.

2.2 Immigrants

According to Scott et al. (n.d.) and Fainstein (2012), GCRs attract an abundant number of immigrants. This has resulted in the revolutionary formation of regions that depict extensive cultural diversity (Scott, et al., n.d.). However, Scott et al. (n.d.) expresses concern regarding this large scale migration to GCRs because albeit it presents opportunities for increased social integration, justice and mobility, it can be accompanied by significant dangers. Subsequently, the primary challenge for GCRs is to accommodate the increasingly expanding population of immigrants, as the act of migration itself cannot be ceased (Scott, et al., n.d.).

Immigrants play a vital role in strengthening the regional economy as cheap labour and entrepreneurs, especially in penetrable sectors that include small firms that sell clothing, electronics and a variety of services (Scott, et al., n.d.). With the absence of appropriate measures to enhance social integration and to provide education and housing to immigrants, GCRs will find it challenging to maintain or increase the positive contribution of immigrants to the economy as political clashes will inevitably arise (Scott, et al., n.d.).

2.3 Economic structure

Scott et al. (2009) and Fainstein (2012) found that the economic structure further intensifies the disparities between the wealthy and the poor and lead to 'social polarisation', as there are high-class sectors on the one hand that employ the extraordinarily high earning individuals and on the other hand there is a proliferation of demand for low-skilled, low paid service workers. This employment structure adopted in GCRs inevitably creates a pronounced divide in the earning structure and subsequently leads to the loss of the middle class (Fainstein, 2012).

According to global city theory, although GCRs may differ with regards to culture, history, government institutions or public policy, they will all tend to depict similar socio-economic characteristics (Fainstein, 2012). Fainstein (2012) then adds that this increased similarity between GCRs is not only as a result of globalisation but is also caused by "ineluctable economic forces that impose a particular economic and social structure on these nodal sites." For example, an analysis carried out by Fainstein (2012) of five GCR, namely: New York, London, Tokyo, Paris and the Randstad, revealed that each GCR displays this proliferating social inequality, but there was no clear evidence supporting the disappearing middle class and the growth in the concentration of the low-income, low-skilled individuals. The delineated common ground of these GCRs is that they are becoming increasingly unequal due to the progressive large-scale earnings of wealthy individuals and households (Fainstein, 2012).

Socio-economic instability also becomes a challenge to be reckoned with as GCRs become highly dependent on international financial flows and markets subsequently making them highly susceptible to the consequences of fluctuations in these volatile global financial markets (Fainstein, 2012).

2.4 Spatial fragmentation

According to Rogerson (2009), Fainstein (2012) and Harrison & Hoyler (2014), albeit GCRs are the wealthiest areas of their nations, they quintessentially have large concentrations of extremely poor people who are barely surviving below the poverty line, living in close juxtaposition with concentrations of the remarkably wealthy. To reiterate this, Scott et al. (2009) found that globalisation generates various forms of economic change that widen the social, spatial and economic disparity between the wealthy and the poor; this peaks in GCRs because a high proportion of the wealthy tend to live in these regions along with the rapidly increasing welfare dependent and the working poor. The working poor refers to households with multiple members that are employed but they are still living below the poverty line (Scott et al, 2009).

Spatial fragmentation occurs as the wealthier portion of the GCR inhabitants gradually withdraw from civil society and responsibilities to dwell in “fortressed households and gated communities”, subsequently creating their own privately governed residential structures, also known as a “privatopias” (Scott, et al., n.d.). As GCRs continue to expand spatially and their populations continue to diversify, there has been a complete spatial mismatch between the location of the population in need and the location of jobs, housing and transit facilities; this has negatively affected the environment and the quality of life of these inhabitants of the GCRs (Scott, et al., n.d.). These effects manifest and range between two extremes; on one hand, good jobs migrate to the outer city, therefore the existing housing in the inner city becomes overcrowded and dilapidated, subsequently increasing homelessness (Scott, et al., n.d.). On the other hand, with continuous expansion of the urban fringe, there is the formation of isolated areas in the peripheries which attract families that prefer cheap housing and subsequently they find themselves located relatively far from their jobs and having to travel for extended periods of time each day to get to them (Scott, et al., n.d.; Fainstein, 2012).

In the following chapters transport challenges and interventions will be addressed in detail and the Gauteng City-Region will be used as an example to illustrate the use of transport interventions to combat both spatial and transport planning challenges.

3 TRANSPORT IN GCRs

3.1 Transport challenges

It is evident from the literature that transport either directly impacts or is impacted by the socio-economic and spatial challenges facing GCRs. In GCRs where there is the common coalition of urban sprawl, poverty and spatial fragmentation, the affordability and access offered by transport facilities is crucial in terms of the development of the region (Gotz, et al., 2014). Scott et al. (n.d.), as mentioned above, presents a detrimental misalliance?? between the location of the poor and transit facilities. This notion is supported by Gotz et al (2014), as they highlight that this misalliance?? results in “high day-to-day costs of travel, the unavailability of public transport in many peripheral areas, and poor home-to-work connections because of badly defined routes and weak intermodal integration” which all have adverse impacts on the quality of life of the poor and the environment.

The increased population witnessed in GCRs through various sources including the act of migration results in increased congestion on roads and in public transport (Coyle & Rosewell, 2014). Supplementary to this, Gotz et al. (2014) add that congestion affects urban flow, subsequently increasing the cost of doing business and thus affecting the ability of the GCR to compete regionally.

Although GCRs are faced with a plethora of challenges, Coyle & Rosewell (2014) are of the notion that the benefits enjoyed in GCRs are sufficiently large that they offset the costs accompanying rapid urbanization and congestion.

3.2 Transport interventions

Investment in transport infrastructure in GCRs in the past has helped shaped their urban form (Gotz, et al., 2014) and their ability to generate increased economic activity (Coyle & Rosewell, 2014). Yücel (n.d.) highlights that one of the key characteristics of any GCR is the existence of “an advanced transportation system that offers multiple modes of transportation” as this improves the connectivity within the GCR and globally. New York is used to illustrate this as it has one of the top international air passenger gateways to the United States of America (John F. Kennedy International Airport), it has over twelve thousand yellow cabs and its subway is open twenty four hours of the day to allow for extensive connectivity (Yucel, n.d.). The continuous development of transport should accompany the growth of economies as stated by Coyle & Rosewell (2014) that in the face of emerging economies, the United Kingdom will suffer from reduced trade and output if the necessary air links are not established.

Transport interventions, as seen in the Metro Vancouver 2040, in GCRs should aim to aid a sustainable economy, encourage social cohesion and develop an integrated and sustainable transport system (Moir, et al., 2014). This can be achieved through an urban form that is densified and intensified, allowing for the implementation of a viable and efficient public transport system, and through increased focus and development for non-motorised transport such as walking and cycling (Moir, et al., 2014).

The following are a few transport interventions introduced to the Gauteng City-Region in attempt to combat both land use planning and transport challenges.

- *The Gauteng Rapid Rail Line*: This line currently comprises of ten stations and is 80 km long, of which 15 km are underground (Gotz, et al., 2014). It remains South Africa’s largest single transport infrastructure investment at a capital cost of R25 billion to date and it plays a crucial role in strengthening the urban nexus by linking together the city-region’s key urban centres including Rosebank, Sandton and the OR Tambo International Airport (Gotz, et al., 2014).
- *Bus Rapid Transit (BRT)*: BRT routes are being planned and implemented in all three metropolitan municipalities (Ekurhuleni, Johannesburg and Pretoria) in the Gauteng City-Region (Gotz, et al., 2014). In Johannesburg, phase 1A, completed in 2009, connects Soweto to the Johannesburg inner city (Gotz, et al., 2014). Phase 1B, which was completed early 2014, connects the same two areas using a different route that passes by both the University of Witwatersrand and the University of Johannesburg (Gotz, et al., 2014). Phase

1C, which was launched in April 2014, will connect Alexandra and Sandton to the existing network (Gotz, et al., 2014).

- *Long-term integrated transport planning:* The Gauteng Provincial Government has completed a 25 year Integrated Transport Master Plan (ITMP25) with the vision to create an “integrated and efficient transport system in Gauteng that promotes sustainable economic growth, skills development and job creation, fosters quality of life, socially includes all communities and preserves the environment.” (Gotz, et al., 2014). ITMP25 serves as a guideline for transport planning that aims to prioritise public transport in the city-region through various interventions, which when broadly described will aim to improve: land use development, strategic public transport networks, freight transport and road transport (Gotz, et al., 2014). Land use development involves subsidising housing in urban cores and increased densification in urban development (Gotz, et al., 2014). Although these are not transport interventions, they will allow for the efficient implementation and use of public transport networks and it speaks to effect that transport has on urban form (Gotz, et al., 2014). In concurrence with Moir et al. (2014), the ITMP25 provides a framework that aims to prioritise and conventionalise non-motorised transport.
- *Integrated transport modelling:* The Gauteng City-Region aims to implement “*Integrated transport modelling*” which will integrate land use and transportation planning, and implement planning tools that will aid the decision making process (Gotz, et al., 2014).

4 CONCLUSION

It is evident from the above literature that GCRs are plagued by a plethora of challenges. However, attaining GCR status remains the aim of various regions across the world. Intuitively, this implies that there must be effective interventions that can be implemented to address these various challenges otherwise successful GCRs would not exist.

Attaining GCR status does not only presents a number of challenges to the transport industry (of which only a few are mentioned above) but also an opportunity to increase investment in transport infrastructure and subsequently strengthen the economy and improve the quality of life of GCR inhabitants by making transport safer, affordable, accessible and more efficient. The transport interventions introduced to the Gauteng City-Region combat social, economic and environmental challenges thus creating a sustainable city-region. The Gautrain and the BRT increase connectivity and improve mobility around the city-region, not only for the middle class and affluent but also for the poor living in townships such as Alexandra and Soweto. As the use of public transport facilities by city-region inhabitants proliferates over time, congestion on the roads will decrease thus allowing for increased productivity and economic activity within the city-regions and reduced carbon-emissions as fewer people will be using their private cars to travel.

As supported by the literature, land use and transportation challenges influence one another as well as the direct society, economy and environment of any given GCR. The Gauteng City-Region captured the importance of and necessity for the integration of spatial and transportation planning especially because it is evident

from literature that transportation plays an integral role in addressing most of the challenges present in GCRs.

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