Subject: Note on spatial issues in Urban South AfricaFrom: Alain BertaudDate: Oct 7, 2009

A. Spatial issues

1. Spatial issues and the South African economy

Spatial concentration of economic activities and of labor increases productivity and technological innovation. While South Africa already possess large urban concentrations showing high productivity, the urbanization process is far from complete. The current pattern of urban densities – already often unfavorable because of the history of apartheid – could evolve, if the current trend continues, into even more unfavorable spatial pattern resulting in the economic marginalization of a large part of the urban population.

The pattern of population densities is the result of complex interactions between markets forces and investments in transport infrastructure, government regulations, taxes and subsidies. Government regulations, taxes and subsidies have seldom a spatial objective, their impact on densities and spatial dispersion is nevertheless usually important.

For instance, the current housing subsidy program by fixing a ceiling cost, a minimum floor area and land use standards, de facto establishes the cost of land as the dependent variable. The more isolated is the location for subsidized housing projects, the lower is the price of land and consequently the more financially feasible is the project, all other cost parameters being practically fixed by regulations or practice. Unwittingly, the housing subsidy program, as currently designed, becomes a major factor in the dispersion of population within metropolitan areas of South African cities.

Other government actions, such as land use regulations and taxation also contribute to promoting low densities and population dispersion.

The low density of South African cities and the dispersion of employment centers make mass public transport inefficient. In South African cities of more than a million people, the presence of large number of low-income households makes the use of mass transit a necessity. One could argue that most North American cities have densities even lower than South African cities, have dispersed employment centers, and nevertheless constitute efficient labor markets. In North American cities, however, workers rely mostly on individual cars for reaching their job and the road infrastructure is consistent with individual means of transport. In South Africa, by contrast, most workers cannot afford to commute by individual car, and the road infrastructure would not be sufficient to handle traffic efficiently if they could. In South African cities, low-income households use collective taxis as a substitute for individual cars because densities are too low and jobs are too geographically dispersed to allow the use of mass transit efficiently. However, collective taxis are expensive and are slow because the need of multiple transfers to reach dispersed job locations.

The main spatial issue confronting South African cities could therefore be summarized as follows:

- Low-income populations are dispersed in relatively dense settlements but very distant from employment areas that are themselves dispersed;
- Collective taxis are currently the main mean of transportation for low-income households. This mean of transport is the most adapted to current South African city structures but it is expensive, erratic and result in long commutes of often several hours;
- The cost of transport and the long commuting time does not allow low-income households to take full advantage of the large labor markets potentially existing in South African cities. This result in

 (i) high unemployment rates, and for those who are employed (ii) a loss of productivity and (iii) a low saving rate because the cost of transport constitute a form of regressive tax on earnings.
- The current structure of South African cities is well adapted to middle and high income households who can afford to travel by car. Their productivity is not affected and therefore they can fully take advantage of the efficiency procured by large labor markets. Their income is likely to rise in the future together with the South African economy.
- The current spatial structure of South African cities is therefore partially responsible for an increased income gaps between the poor who cannot afford the mobility required in large cities and the middle and higher income groups who are fully mobile and can take advantage of increased productivity.
- Modifying current urban structures should therefore become an economic and social priority of GSA.

I will discuss below the possibility of modifying over the long term the

structures of South African cities, and what role each level of government should play in it. As argued above, urban spatial structure are not the product of one policy or one decision but are the combined side effects of a multitude of decisions taken by governments in different sectors and by markets reacting to incentives and disincentives created by governments decisions. Identifying the spatial side effects of government decisions and modifying them in a consistent manner is not an easy task and requires consistency and determination over a long time.

B. How to modify urban spatial structures over the long

term

1. The formation of urban spatial structures

Urban spatial structures are created by the combined side effects of many independent decisions. In South Africa the sectors more likely to have a major spatial effect are:

- land use regulations, in particular minimum standards for residential development
- structure of residential subsidies that do not allow trade-off between land cost and land use standards;
- the provision of transport infrastructure and mass transit
- the land use regulations and public investments around stations of mass transit
- the provision of bulk infrastructure and primary infrastructure networks

2. Spatial distribution of densities of population and jobs

There are no optimum densities for urban areas. However, mobility increases and commuting trips length are reduced when high densities are found near the CBD and low densities in the periphery. In South African cities, population densities are typically low close to CBD and increase with distance from the center. This deficient density pattern is the result in part of the past apartheid policy and in part of residential land use regulations that do not allow the subdivision of residential land parcels. Often taxation contributes to discourage subdivision of large parcels located close to the city center.

The decrease in densities from the center to the periphery is a "natural" outcome of free markets. Observation of densities in informal settlements in South Africa shows that in these settlements densities decrease with distance. By

contrast, in the formal housing sector densities are lower close to the center and higher in the periphery. This would tend to demonstrate that the inversion of density profile in South African cities is mostly generated by regulations and tax practices and does not reflect an idiosyncratic consumer preference specific to South Africa.

The dispersion of jobs away from the CBD contributes also to the difficulties in creating a viable mass transit system affordable to low income households. Jobs were probably more concentrated around the traditional CBDs in the 90s. Insecurity in downtown areas has contributed to the dispersion of jobs in suburbs in areas that are more defensible. Reducing crimes in downtown areas could contribute in increasing job concentration. It does not seem that land use regulations are responsible for job spatial dispersion.

3. Consumption of land in residential areas and distance from cities' centers

The standards of residential land consumption in South Africa appear to be very high for both high and low income households. Preliminary study indicates that in formal low income settlements the consumption of land per household – including stand and streets but excluding community facilities – do not go below 350 m2. This high threshold of land consumption would be more consistent with middle class suburbs where every household commute by individual car. In most countries, market forces drive residential land consumption, although consumption is constrained by regulations. In South Africa, it appears that subsidies and land acquired at less than market prices might be responsible for high land consumption.

The abnormally high consumption of residential land in South Africa large metropolises is not a trivial matter. It obliges cities to expand over large areas, it increase transport costs and commuting time and it makes mass transit unviable for operator and inconvenient for users. New "housing products" using much higher floor area ratios should be put on the market and tested for cultural acceptability.

4. Lack of investments around transport hubs

A number of cities have already started planning or building BRT networks. This new mode of mass transit will be effective in changing the structure of large South African cities if the land around the stations is used more intensively. The roads, sidewalks and open space around the stations should be carefully designed to provide a convenient and safe environment. The private lots around the stations should be allowed to be redeveloped at higher densities. It is assumed that over the medium term the operation of the BRT would create demand for higher densities around stations. Whether the government should intervene in assembling land around stations to turn it over to private developer for development is open for discussion. Creating demand for commerce and residence through an adequate design of public space is probably the first priority.

C. Responsibility of various levels of government

1. Role of government in restructuring the spatial pattern of South African cities

The tools at the disposal of the government to remedy the spatial shortcomings described above are limited. The main tools available to the government to improve the spatial arrangements of South African cities are:

- Land use regulations
- Government subsidies
- Infrastructure investments, and
- Taxation

While the responsibility for most of the above rest with the local government, the central government have a responsibility in providing objectives and guidelines to lower level of government. This is particularly important, as the spatial impact of many local government decisions is not always known. The possible action at the various level of government is tentatively described below.

2. Central government, presidency

Formulate spatial objectives, monitor indicators linked to overall spatial compliance, initiate studies; audit regulations and financial practices that distort spatial structure of cities

Financing of bulk infrastructure and mass transit investments

Review of government enterprises land holdings to relase on the market any underused or unused land.

3. Central government, human settlements

Structure of subsidies to make them spatially neutral;

Monitoring of land consumption and location in various housing schemes subsidized by government

4. Provincial government

Bulk infrastructure, monitoring of cities compactness and overall land

consumption, transport investments

5. Municipalities

Audit of municipal land use regulations to make explicit their spatial bias;

Promoting new residential product implemented abd financed by the private sector.

Road and transit investments

Investments around transport hubs, in particular increasing accessibility and security around transit stations

Network of pedestrian pathways leading to transport stations