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**Provincial systems of innovation and globalisation in South Africa**

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October 2008

## Abstract

The re-drawing of the provincial map in South Africa after the collapse of apartheid had to address the spatial economics that had emerged within the peculiar frame of reference of apartheid. The main parameters of this planning context had been the creation of homelands, or bantustans, as independent political economies and the containment of black labour within townships close to, but separated from urban/industrial areas designated as white. The effects of the spatial economics of apartheid were most manifest in the extreme degrees of unevenness of the development in the various bantustans, homelands and provinces that had emerged under that regime. This unevenness also carried implications for the degree to which and the manner in which different local economies engaged with the world of unprecedentedly integrated global markets into which they were suddenly plunged with the advent of democracy. This paper will examine the extent to which the re-drawing of the provincial map in the post-apartheid South Africa has addressed these issues and the relative effects of globalisation on the performance of provincial economies. The analytical basis of this paper is a broadly defined “systems of innovation” approach. From this approach I will address the issues of the viability of the current provincial mapping of the South African economy, the linkages between provincial systems of innovation with global systems and the effects of regional disparities on class structures within South Africa.

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# Provincial systems of innovation and globalisation in South Africa<sup>1</sup>

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9 October 2008

## Abstract

The re-drawing of the provincial map in South Africa after the collapse of apartheid had to address the spatial economics that had emerged within the peculiar frame of reference of apartheid. The main parameters of this planning context had been the creation of homelands, or *bantustans*, as independent political economies and the containment of black labour within townships close to, but separated from urban/industrial areas designated as white. The effects of the spatial economics of apartheid were most manifest in the extreme degrees of unevenness of the development in the various *bantustans*, homelands and provinces that had emerged under that regime. This unevenness also carried implications for the degree to which and the manner in which different local economies engaged with the world of unprecedentedly integrated global markets into which they were suddenly plunged with the advent of democracy. This paper will examine the extent to which the re-drawing of the provincial map in the post-apartheid South Africa has addressed these issues and the relative effects of globalisation on the performance of provincial economies. The analytical basis of this paper is a broadly defined “systems of innovation” approach. From this approach I will address the issues of the viability of the current provincial mapping of the South African economy, the linkages between provincial systems of innovation with global systems and the effects of regional disparities on class structures within South Africa.

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## **Introduction**

In this paper, I explore the possible effects of globalisation on the spatial economy of South Africa in light of its post-apartheid provincial map. This exploration proceeds in three stages. The question that is initially addressed is whether the provinces that have been demarcated in post-apartheid South Africa constitute valid local (sub-national) systems of innovation. Should they do so, the issues of the viability of these systems and the strategies for their development then arise. Where provinces do not constitute systems of innovation, the rationale for their existence would then have to be interrogated.

The second related question concerns the effects of globalisation on South Africa after apartheid and within the new spatial economic context. Most critics of the effects of globalisation (see Bauman, 1998) identify the exclusion of sections of the population, especially in developing economies, as introducing a novel and more pernicious form of class division as well as a worsening of the bargaining powers of the locally grounded labour force. In the case of post-apartheid South Africa, this exclusion was doubly reinforced. Apartheid, by the very nature of its logic had excluded the majority of the population from any developmental participation in modernity. Indeed one can argue that apartheid was by its nature and within the context of the post-war global economy, progressively anti-modern. Within this overall political economic framework, the relegation of virtually all of the black population to the periphery of the economy, both spatially and through job reservation, over several decades had already removed the large majority of the labour force from the effective engagement with the modern economy. The advent of democracy in 1994 plunged the economy in a world economy where globalisation after the collapse of the Soviet Union had reached unprecedented spheres of influence. The sudden exposure to international competition that was already largely independent of national boundaries thus found an economy with a labour force that was singularly uncompetitive, by virtue of a long term programme of exclusion and effective de-skilling in combination with a legitimate aspiration of the majority of the population to an improvement in the material quality of life after political liberation.

These two related issues form the core argument of this paper about the convergence of the effects of the post-apartheid provincial map with the sudden immersion of the South African economy in a globalised world. The specific variable that will be examined will be human capital formation, that Janus-faced concept that, in its broad definition, reflects the quality of life of a population as well as the main source of competitive advantage, simultaneously the end and the means of growth and development.

### **1. The systems of innovation approach to growth and development**

The “system of innovation” approach to the analysis of the growth and development process has gained wide credence of the past two decades, not only among academics but also within the policy making environment at both the national and the global levels. Broadly speaking, the term refers to networks of institutions which form the context for innovation (see Archibugi and Lundvall, 2002, Nelson, 1993 and Nelson and Winter, 1974). However, the definition of the concept is still quite fluid and this can be the cause of a degree of confusion in the debates on its applicability for analytical and prescriptive purposes.

Its common usage, especially in innovation surveys such as those developed by the OECD, refers to largely technological innovations and as such constitutes an important expansion of the old R&D surveys to include innovation as the wider object of measurement and analysis. In this respect, the choice of institutions that should be considered as part of the system is a

consequence of the breadth of the definition of innovation that is adopted and at the same time a determinant of the analytical and prescriptive implications of the approach. In its narrowest sense a system of innovation may refer to the web of those formal institutions that directly create the conditions for the development of science, technology and innovation. As such, a national system of innovation is by implication defined as a sector of the economy. This web may be extended to contain other formal institutions which, while not directly concerned with science and technology, have an adjacent effect on the intensity and patterns of innovation paths. The inclusion of informal institutions in the form of broadly defined routines and practices further extends the analysis of innovation and widens its scope to an economy wide scale, at least in terms of the contextual set of determinants of innovation, broadly defined to include all novel ways to order economic activity within a certain context.

However, if innovation, broadly defined as all contextually new ways of engaging in economic activities, is dragged from the fringe assigned to it by neoclassical theory to the core of the process of economic growth and development the study of the determinants of innovation and the consequent innovation policy would take the centre stage in the analysis of economic dynamics and in economic planning. A possibly extreme position would be to rearticulate this approach as a new general theory of economics, particularly suitable for the understanding of economic dynamics. There is however still too much of a debate on the definition of the system of innovation for a comprehensive general theory of this sort to emerge as yet.

From its origins, this approach was anchored to the nation (or multi-nation) state as the defining space of systems of innovation. However, two factors caused an extension of the scope of the approach to other demarcation lines in recent times. The first was the modern phenomenon of globalisation and the consequent wearing down of the power of nation states to command their own economic fortunes. Within a global context of instant and virtually costless transmission of information and the rapid dismantling of barriers to the flow of goods, services and financial and human capital the economic relevance of national borders is rapidly, albeit unevenly, being eroded. The increasing effectiveness of economic blocs further reinforces this erosion. The second factor was the assumption of specificity as a non-trivial determinant of economic structures and development paths that is at the core of the system of innovation approach. It is this assumption, more than any other, which marks this approach as the counter discourse to the neoclassical account which assumes an overwhelming degree of universality of explanation across time and space. However, once specificity is introduced, the nation state, a relatively recent political construct, loses some degree of its relevance in the face of the possibility of sub-national systems of innovation.

There is however one proviso to the argument for local systems of innovation as a basis of analysis. The sovereign nation state is generally a given and internationally recognised legal entity. Its integrity is only challenged in those relatively rare cases of internal conflict, such as civil war or separatist movements, or in the case of an act of war by another nation state. In contrast, the legal basis for sub-national systems of innovation tends to be less firm and inviolate. Thus, in the case of provinces and municipalities, for example, the legal demarcation lines may be changed relatively easily through internal political processes. This has considerable implications for the analysis of systems of innovation. The nation state is a given, regardless of its origins. The legal delimiters of this entity are powerful enough to fix it as the object of analysis. In this case it is valid to analyse a *de facto* national system of innovation using the biological metaphor of this approach. It is then possible to assess the 'health' of such systems when the definition of institutions is all inclusive and to evaluate the

viability of national systems of innovation in terms of their ability to reproduce, grow and adapt. This does not apply with the same degree of necessity to legally defined sub-national entities and here the issue that arises is whether any particular sub-national legal entity, such as a province, does actually constitute a system of innovation.

This has a powerful bearing on the relevance of the approach to the analysis of such entities. In the case of large sub-national entities such as provinces there are three possibilities with regard to their identification as distinct systems of innovation. In the first place we may find that a particular province has been defined on the foundation of explicit and distinct sets of historically determined specific characteristics, networks and linkages among its various sectors. Alternatively, this foundation may be weak, but there could exist some specific distinguishing characteristics within the provincial borders that offer the opportunity for the development of a distinct and viable provincial system of innovation. Finally, the foundation may be so weak as to offer no feasible chance for the development of a distinct provincial system of innovation.

This classification holds distinct implications for the viability of provinces, for their role in the national development process and for policy. In the first case the viability of the provincial system of innovation predates the legal formation of the province. In this case, given adequate provincial administration, there is every chance that the new legal construct acts as a catalyst for the accelerated development of the system. The role of the state here would be primarily an enabling one, largely designed to capitalise on an already viable system for the benefit of that system and the broader national one. In the second case the creation of the province is based on the potential of the institutional networks in the specified geographic area to develop into a viable and identifiable system. In this case the role of the state in managing the new entity becomes crucial for the emergence of the viable provincial system. It would entail, *inter alia*, the establishment of structures and of the right institutional networks in order to establish and entrench the long term viability of the system, again within the broader systemic context. Finally, there are those provinces which lack the pre-requisites for the development of a viable system of innovation. The creation of such provinces would often be the sole result of political bargaining with little regard to economic constraints and prospects. In this case the only logical role of the provincial government would be to ensure a minimum guaranteed quality of life for its constituency through transfers from the national government. Alternatively, the rationality of its creation in the first place may have to be re-addressed and the possibility of the re-configuration of the provincial map may have to be considered.

It is therefore incumbent on the researcher and the policy maker to identify the possibilities of existence for provincial systems of innovation, those specific elements which are necessary for a system to exist, and if possible to provide some indication of threshold levels which determine the “coming into being” of such systems. These elements can be roughly grouped into three broad categories. The first concerns the legality of the sub-national entity. The legal definition of a province has some “truth effect” in that it sets the initial conditions for the existence of a provincial system of innovation, but this has to be qualified by the degree of autonomy of the province, be it legal, institutional or fiscal, *vis-à-vis* the central or national authority. The next category covers economic relationships and the networks of economic activities within the province. In this case intra-province economic relationships can refer to vertical production relations and to the clustering of enterprises within the same sector. As indicators we can look at input-output matrices and examine the strength of upstream/downstream relationships, relative to the national norm. Within this category we

can also include the relative weighting of intra-province production chains as compared with the production links with other provinces and with extra-national systems of innovation. This will enable an assessment of the leader/follower role that a specific province plays within the national economic context. The third category comprises resource flows within provinces, between provinces and between provinces and other countries. With regard to resources we need to distinguish between financial capital, labour and human capital, and physical capital. The flows of these various types of resources carry different implications with regard to the existence/non-existence and the viability of the sub-national system of innovation. Of these three the strongest indication would be the net migration of human capital; a positive net migration indicates the strength of the core capital stock of an innovation system, and the ability of that system to attract such capital. The net flows of the other two types of capital may provide ambiguous variables; they simultaneously indicate an attractive environment for investment and a strong source of investment for the rest of the national system of innovation. In this case, these two indicators should be weighted by the ratio of intra-province investment to cross-province investment. Table 1 provides a schema of these various relations which may be useful in the assessment criteria for the evaluation of sub-national systems of innovation.

**Table 1: Guidelines to the evaluation of sub-national systems of innovation**

Element	Indicators	Interpretation
Legal <ul style="list-style-type: none"> <li>• Institutional</li> <li>• Fiscal</li> </ul>	Degree of autonomy: <ul style="list-style-type: none"> <li>• Provincial institutional space relative to central government</li> <li>• Local budget relative to transfers from central government</li> </ul>	A high degree of institutional and budgetary autonomy strengthens the development of the provincial system of innovation
Economic relationships and networks <ul style="list-style-type: none"> <li>• Vertical integration</li> <li>• Clusters</li> </ul>	Internal economic linkages <ul style="list-style-type: none"> <li>• Intra-province input-output coefficients by sector vis-à-vis national coefficients, by sector</li> <li>• Size of economic clustering by sector relative to the national norm</li> </ul>	The viability of the provincial system of innovation is positively related to the values of these two indicators

Resource mobility <ul style="list-style-type: none"> <li>• Physical capital</li> <li>• Financial capital</li> <li>• Human capital</li> </ul>	Balance of resource flows <ul style="list-style-type: none"> <li>• Net direct investment in plant and machinery</li> <li>• Net financial flows</li> <li>• Net migration by skills category</li> </ul>	<ul style="list-style-type: none"> <li>• Net skills immigration is positively related to viability</li> <li>• Financial and direct investment flows should be qualified further by the intra-province to cross-province ratios</li> </ul>
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Other indicators would reflect the relative size of provinces, their economic base, unemployment rates, educational profile, and the general quality of life conditions as represented by the human development index. These conditions, or rather pre-conditions for the existence of legally defined sub-national systems of innovation should enable an initial assessment of the possibilities of the existence of systems. Of course, there is here a mix of *ex ante* and *ex post facto* analysis since, except at the pre-legislative planning stages, these assessments are usually carried out *vis-à-vis* existing legally defined sub-national units. The overall success of spatial economic delineation is the extent to which performance indicators for the various provinces converge within an overall national growth and development path.

Once the levels of viability of the provincial map have been established, we can then proceed to explore the degree to which globalisation assists or impedes the convergence of these performance indicators. This is not the type of causality that can easily be empirically tested; rather, its exploration mostly proceeds through argument and some evidence regarding the context.

## 2. Provincial systems of innovation in South Africa

When addressing specific case studies there is always a tension between generalisations and specificities. A neoclassical analysis usually tends towards the extreme application of a general approach where the specific characteristics of individual cases are normally seen as extra, relatively trivial, add-ons to the core of the analysis and where history is rarely considered as germane. This approach allows for a high degree of comparability across space and, at least implicitly, across time. An innovation systems approach tends towards the other end of the spectrum between generality and specificity. Here the specific characteristics of particular cases are treated as non-trivial elements of the analysis and history is often considered as a crucial determinant of present states. In an extreme case the analysis of particular economies would be so specific as to allow no comparison across contexts. Of the two approaches, however, the system of innovation approach permits a far greater degree of flexibility in the mix of generality and specificity. Within a system of innovation framework all systems are to some significant degree unique, but some are more unique than others. Arguably, the history of apartheid makes the South African case one of the more unique ones even among post-colonial economies. Apartheid was a distinct exercise in social (and economic) engineering that was incomparable on several levels in post-war economic history. Its single most deleterious lasting effect was the systematic impoverishment of the human capital base of the economy, an effect which, in its various ramifications, is still the most formidable obstacle to the successful development of the post-apartheid economy.

From a system of innovation approach the usual determinants of current topographies of local development almost always fall into the two, broad but interlinked, categories of history and policy. In the case of South Africa it is often convenient to use the pre-democracy and post-apartheid periods as the identification of the point of rupture in the analysis of economic history and the evolution of economic systems. This however may be analytically misleading since a radical change in the nature of the state does not necessarily imply an equally radical change in the nature of economic relations.

The blueprint of apartheid, the economic feasibility study for “separate development”, came out in the report of the Tomlinson commission<sup>2</sup>. In spite of the subsequent evidence of the wide inaccuracy of the projections of the demographic trends on which its recommendations had been based, the methodology of this report was to fundamentally determine the economic map of the country thereafter. This study worked backward from the basic requirement of apartheid that the black section of the population should as far as possible be removed from the designated central areas of white dominance. The policy of *bantustans*, as self-sufficient homelands, was to be the foundation stone of this programme. True to the doctrine of “separate development” as articulated under Verwoerd, the *bantustans* were created along ethnic lines<sup>3</sup> and were meant to be economically viable in order to establish their legitimacy. However, the major constraint, and an insurmountable one at that, to the fulfilment of this policy was the area of land required for allocation to the rural black population as compared to existing allocations and the impoverished state of these areas. On paper, the solution to this constraint required that the estimated minimum income requisite for the sustainability of a rural family had to be adjusted downwards and that structural changes in production and distribution should be recommended in order to raise income from agricultural land in order to make the figures of the attainable tally with the requirements of the envisaged programme of separate development. In the case of the industrial nucleus of the Vaal triangle<sup>4</sup>, where the dependence of the industrial hub of the country on permanent pools of black labour, excluded the possibility of establishing a “homeland”, black residential areas spatially separated from the urban centres were established. “White” South Africa was divided into four provinces - the Transvaal, the Orange Free State, Natal and the Cape Province - and influx control and pass laws rendered black South Africans foreigners in their own country. These four provinces, unlike the *bantustans*, had well established economies that had evolved on the basis of sets of comparative advantage which transformed into competitive advantage on the basis of streams of investment over time.

Influx control was the name given to measures used to regulate the inflow of black Africans into South Africa's urban areas during the pre-Apartheid and Apartheid eras. First introduced

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<sup>2</sup> See Union of South Africa, *Report of the Commission for the Socio-Economic Development of the Bantu Areas within the Union of South Africa* (U.G. 61-'55) (Tomlinson Report), and Union of South Africa, *Government Decisions on the Recommendations of the Commission for the Socio-Economic Development of the Bantu Areas within the Union of South Africa* (W.P.F.-'56).

<sup>3</sup> Ultimately four “independent” *bantustans* were created along ethnic lines. These were Transkei (Xhosa), declared independent on the 26<sup>th</sup> October 1976, Bophuthatswana (Tswana), declared independent on the 6<sup>th</sup> December 1977, Venda (Venda), declared independent on the 13<sup>th</sup> September 1979, and Ciskei (also Xhosa), declared independent on the 4<sup>th</sup> December 1981. The other six homelands - Gazankulu (Tsonga [Shangaan]), KaNgwane (Swazi), KwaNdebele (Ndebele), KwaZulu (Zulu), Lebowa (Northern Sotho or Pedi) and QwaQwa (Southern Sotho) - were assigned partial administrative autonomy.

<sup>4</sup> Also referred to as the Pretoria, Witwatersrand and Vereeniging (PWV) area.

by the Smuts' government, the *Native (Black) Urban Areas Act No 21 of 1923*<sup>5</sup> imposed a system of segregation which allowed black Africans access to towns only to serve white labour needs. Domestic workers were allowed to live in town, while the rest of the black labour force would be restricted to finding housing in townships on the outskirts. Legislation in 1937 restricted black African males to a window of 14 days in which to find employment or return to the reserves. Pass laws<sup>6</sup> and other related legislation were the main methods of control. But despite rigorous application of apartheid law, the number of black Africans living in urban areas increased over time with the increasing labour input requirements of industrial growth.

Given this heritage, one of the first priorities of the new democratic government was to dismantle the *bantustan* system and to re-draw the provincial map of South Africa. The result was the post-apartheid administrative topography consisting of nine provinces and two hundred and eighty three district and metropolitan municipal regions. However, a high degree of disparity appeared with the re-drawing of the provincial map. The four “white” provinces that were in place prior to democracy were broken down to various degrees and parts of them were combined in different ways with the *ex-bantustans*, with one exception. The exception was the amalgamation of Transkei and Ciskei which were combined to become the Eastern Cape. The Orange Free State became the Free State with the absorption of QwaQwa and parts of Bophuthatswana. In the case of the other provinces the Transvaal was broken up into Gauteng, Limpopo, Mpumalanga and part of North-West, the Cape Province was broken up into the Western, Northern and Eastern Cape and part of North-West and Natal was combined with KwaZulu to become KwaZulu-Natal. In the case of the *bantustans*, the larger part of Bophuthatswana was added into the North-West province, with other parts going to the Free State and Mpumalanga. Venda, Gazankulu and Lebowa became part of the Limpopo province. KaNgwane and KwaNdebele, along with a part of Bophuthatswana and the old Eastern Transvaal became part of Mpumalanga. Table 2, below depicts the post-apartheid reconfiguration of the pre-democratic provincial/*bantustan* map.

**Table 2: The provincial composition of South Africa**

Province	Composition	Core economic structure
Gauteng	The Pretoria-Witwatersrand-Vereeniging industrial heartland of the Transvaal	A fully fledged economy which contributes almost 60% of the GDP almost 40% of the GDP of the entire African continent.
Western Cape	The economic concentration of the Cape province	The main economic sectors are tourism, services and viniculture
KwaZulu-Natal	The amalgamation of the Natal Province and KwaZulu	Diversified economy with agriculture, ports and a spread of industries, and a

<sup>5</sup> The act essentially removed residence rights for black males, only allowing temporary residence rights for those who could prove employment. The creation of *bantustans* along ethnic lines eventually allowed the separate citizenship of the black population in the respective *bantustans* according to language.

<sup>6</sup> Blacks were obliged to carry identity documents which contained their residential status and their employment history.

		growing tourism sector
Free State	The Orange Free State combined with QwaQwa and parts of Bophuthatswana	Agriculture and mining
North-West	A combination of parts of Bophuthatswana, Transvaal and the Cape province	Mining and agriculture
Northern Cape	The mining part of the Cape Province	Mining and agriculture
Limpopo	A combination of the northern part of the Transvaal, Gazankulu and Lebowa	Agriculture
Mpumalanga	A combination of the eastern part of the Transvaal, a part of Bophuthatswana, KaNgwane and KwaNdebele	Mining and agriculture
Eastern Cape	The combination of Transkei and Ciskei	Automotive industry cluster

The core of the economy of the first four provinces, Gauteng, the Western Cape, KwaZulu-natal and the Free State, is that of the heartlands of the four provinces in “white” South Africa under apartheid. These were innovation systems in their own right which had evolved through the colonial, segregationist and apartheid history on the basis of natural resources and strategic location with cumulative and path dependent trajectories of private investment and state support. This could never have been true of the *bantustans* whose creation essentially served to establish a dumping ground for the rural black population and to render all urban blacks foreigners in their own country. They could never have been viable systems of innovation, by virtue of their ersatz creation, their location, their size and resource pool, and their generally inefficient and often corrupt local administration. The last is perhaps the major lasting constraint on development, an “inability to invest” *a la* Hirschman (1973). Informal institutional networks, such as patronage systems tend to endure long after political change and even after the change of guard and there is every reason to have expected such systems to be strongly self-reproductive. Magubane (1979: 87-90) and Davenport (1987: 383-385) chart the resistance of traditional leaders to the creation of the *bantustans* and the eventual defeat of such resistance. New patronage systems were installed with the specific goal of lending legitimacy to the apartheid model of “separate development”. In this pursuit the apartheid government was generally quite willing to exempt them from most of the control mechanisms on administration systems that were the norm for the rest of the country. This was a perfect environment for the development of a culture of corruption and mismanagement which has in general tended to survive the demise of apartheid. To a large extent, therefore, the composition of provinces in terms of the old apartheid spatial administrative entities may provide an indication of the development prospects of the various provinces, with those that reproduced the old *bantustan* configuration least likely to develop a viable system of innovation.

### 3. Performance indicators

The tables in this section provide some data that may reflect the levels of performance of the different province and the capacity to proceed on to a sustainable path of growth and development. These comparative data also give some indication of the convergence of the economies of the different provinces within the overall national economy. Most of the

information provided in this section reflects a high degree of disparity among these provinces in terms of a number of broad indicators of economic performance and capacity. There are also worrying indications regarding convergence.

Table 3 below shows Gross Geographic Product (GGP) per capita. Here we can see that Gauteng offers by far the highest gross measure of the standard of living with the Western Cape as a distant second at 70% of the Gauteng figure. The GGP per capita for Gauteng is more than seven times that of the Limpopo. The extremity of this geographic distortion between the richest and the poorest provinces may have eased somewhat towards 2004, as the doubling of the contribution of the Limpopo to GDP may indicate. However, this is too tentative a conclusion, given the absence of other data that would allow this inter-period comparison.

One of the immediate implications of the figures provided in Table 3 is that if incomes per capita are to some extent related to GGP per capita huge national imbalances in the standard of living of the population appear to exist. Apart from other effects, these imbalances would generate strong flows of internal migration away from the economic peripheries to the centres of economic activity and indeed this exists, as is shown in Table 8 below. Within the current provincial map, the role of the state in this case should be twofold. In the first place an effective system of inter-provincial transfers should ensure a minimum standard of living across provinces. Secondly, on a longer term perspective, local economic development initiatives should be pursued to raise the indigenous income generating capacity across the country as much as possible.

**Table 3: Gross Geographic Product (GGP) for each province 1998**

	GGP (billion rand)	% contribution to the GDP		Per Capita Gross GGP (Rands)
	1998	1998	2004	1998
Western Cape	75 157	14	14	18 379
Eastern Cape	41 584	8	8	6 305
Northern Cape	10 536	2	2	12 132
Free State	31 749	6	5	11 583
KwaZulu-Natal	80 366	15	17	9 189
North West	29 934	6	6	8 532
<b>Gauteng</b>	<b>200 181</b>	<b>38</b>	<b>33</b>	<b>26 309</b>
Mpumalanga	42 825	8	7	14 633
Limpopo	19 454	4	8	3 745
<b>South Africa</b>	<b>531 786</b>	<b>100</b>	<b>100</b>	<b>12 578</b>

Source: Ntsika Enterprise Promotion Agency, *The State of Small Business in South Africa 2000*; The Gross Geographic Product Per Capita figures were calculated from estimates from OHS 1998

Table 4 below shows the spread of the rates of unemployment across provinces. Again significant disparities are evident with the lowest unemployment rate for the Western Cape less than half that for the two worst provinces, the Eastern Cape and the Limpopo. The unemployment rates in this table refer to the official definition of the unemployment rate which works on the basis of those of the unemployed who register for work. The broader definition includes those unemployed who no longer register for work. According to this broader definition, unemployment in South Africa as a whole stood at slightly less than 40% in 2006. It is difficult to estimate the geographic spread of this broader definition of unemployment. The generally accepted reason for failure of unemployed people to register for work is a loss of hope in the possibility of finding formal employment. One can assume that this element will tend to be more significant in those provinces which already have high rates of unemployment, a low GGP and a narrower diversity of economic sectors. The figures in this table also indicate a relatively high rate of unemployment in the richest province of Gauteng. This may be due to a number of reasons. In the first place, as the economic powerhouse of the country, this province would consistently draw migrants away from poorer provinces in expectation of employment opportunities that do not always materialise. Secondly, the more effective and accessible public administration infrastructure may entice more of the unemployed to register for unemployment and other social benefits. If this accessibility is not uniform across the country, it may lead to distortions in unemployment figures. Finally, the opportunities for informal unemployment should be much higher in rich, densely populated, urban sprawls as are found in Gauteng, than in poorer provinces.

**Table 4: Estimated unemployment rates, of a population of working age (15-65 years) by province, gender and labour market status according to the official definition of unemployment, September 2006**

Province	Unemployment Rate (%)
SOUTH AFRICA	25,5
WESTERN CAPE	15,0
EASTERN CAPE	32,0
NORTHERN CAPE	28,7
FREE STATE	26,5
KWAZULU-NATAL	26,6
NORTH WEST	29,7
GAUTENG	23,2
MPUMALANGA	28,0
LIMPOPO	32,0

Source: Stats SA, Labour force survey (LFS) (Statistical release P0210)

Totals include other and unspecified population groups and sex. Due to rounding, numbers do not necessarily add up to totals.

The possibility of a provincial system of innovation, especially given the size and potential internal markets of provinces, is the diversity of the production structure. Table 5 below gives some indication of the spread of sectoral diversity in the various provinces. Gauteng stands out as the most diverse economy with mining and quarrying contributing only 1.9% to the industrial output of this resource rich province and with the manufacturing industries and tertiary industries showing the highest relative contributions to industrial output out of all provinces. It is worth noting that the North West and the Northern Cape which are the most heavily reliant on the primary sector (platinum mining in the North West and agriculture in the Northern Cape) are also among the poorest provinces. Diversity and economic well being seem to correlate, regardless of the direction and complexity of the relationship.

**Table 5: Percentage contribution to industrial output by sector and province (2004)**

INDUSTRIAL SECTOR	PROVINCE									
	W. Cape	North West	Mpumalanga	Limpopo	KZN	Free State	Gauteng	E. Cape	N. Cape	
<b>Primary industries</b>	<b>5.6</b>	<b>30.6</b>	<b>24.2</b>	<b>27.6</b>	<b>6.6</b>	<b>17.3</b>	<b>2.5</b>	<b>2.4</b>	<b>37.8</b>	
Mining and quarrying	0.4	27.8	20.0	24.2	1.8	12.1	1.9	0.3	28.8	
<b>Secondary industries</b>	<b>26.0</b>	<b>10.7</b>	<b>27.3</b>	<b>8.5</b>	<b>29.2</b>	<b>18.6</b>	<b>27.9</b>	<b>21.7</b>	<b>7.6</b>	
Manufacturing	20.9	7.8	20.8	3.9	24.3	14.1	22.9	18.6	3.8	
<b>Tertiary industries</b>	<b>68.4</b>	<b>58.6</b>	<b>48.5</b>	<b>63.8</b>	<b>64.2</b>	<b>64.1</b>	<b>69.5</b>	<b>75.9</b>	<b>54.7</b>	
Wholesale and retail trade; hotels and restaurants	17.2	12.2	11.4	12.8	13.6	11.4	14.9	14.6	10.8	
Transport, storage and communication	10.8	9.1	8.9	9.3	12.9	8.4	9.2	8.8	9.2	
Finance, real estate and business services	30.2	15.2	12.7	17.4	17.7	17.6	23.9	21.7	13.3	
Community, social and other personal services	5.7	8.6	5.4	5.0	6.1	11.5	4.4	9.9	9.1	
General Government Services	10.9	13.5	10.0	19.4	13.3	15.2	17.1	20.9	12.3	

Source: StatsSA

Table 6 below provides an indication of the human resource capacity in the various provinces. As such it offers a preliminary snapshot of the range of development capabilities of the various provinces. Again the same pattern is repeated with the two richest provinces of Gauteng and the Western Cape having the highest proportions of their population with a

tertiary education and a matriculation certificate. The rest of the provinces lag far behind, in terms of the percentage of the population with no schooling. We can see in this pattern a self-reinforcing vicious cycle of low incomes due to untenable provincial economies which leads to low investment in human capital which in turn further inhibits local economic development. There are also implications for the quality and levels of service delivery, since an impoverishment of the human capital base of the poorer provinces also leads to an impoverishment of the municipal and provincial administrative capacity in those provinces. This feeds further into the vicious cycle of impoverishment and the increasing stratification among provinces. We should also note that the matriculation and higher education qualifications data for the various provinces may not be an accurate representation of the actual spread of skills across the various provinces. Internal migration in search of better employment possibilities after the recording of the levels of education may easily distort the actual geographical location of skills.

**Table 6: Percentage of the population aged 20 years and above in each province by educational level, 2001**

Education Level	PROVINCE									SA
	W Cape	E Cape	N Cape	Free State	KZN	North West	Gauteng	Mpumalanga	Limpopo	
Tertiary	11.2	6.3	6.1	6.3	6.9	5.9	12.6	5.9	6.8	<b>8.4</b>
Grade 12	22.4	14.1	16.5	17.5	19.8	18.5	28.0	18.2	14.0	<b>20.4</b>
Some Secondary	36.5	29.6	29.9	30.7	28.8	29.0	34.3	26.6	26.1	<b>30.8</b>
Complete Primary	7.9	7.4	8.3	7.8	5.7	6.8	5.5	5.9	5.5	<b>6.4</b>
Some Primary	15.2	19.8	21.0	21.7	16.9	20.0	11.2	15.9	14.1	<b>16.0</b>
None	5.7	22.8	18.2	16.0	21.9	19.9	8.4	27.5	33.4	<b>17.9</b>

Source: StatsSA

Table 7 below shows the Human Development Index (HDI) figures for the various provinces, along racial categories. These figures may be used as indicators of two distinct factors. In the first place they provide an indication of the success of provinces in terms of the well being of their population and they break this down in terms of racial groupings. The HDI figures show that Gauteng and the Western Cape offer the best quality of life among all provinces for all racial groupings. It also shows that the degree of variation in HDI is lowest for Whites and Indian/Asians while it is high among Coloureds and Blacks. This is obviously a function of the relative skills levels of the various groupings, with quality of life of Whites, Indians and Asians being significantly less subject to the vagaries of geographical location. The less educated and less skilled Black and Coloured populations are much less mobile and hence more closely linked to the economic fortunes of the provinces that they live in. This is one of the more enduring legacies of apartheid which has not been significantly addressed in the post-apartheid period. It is also, arguably, one of the most serious obstacles to the

attainment of a sustainable growth and development path for the country as a whole. Given that the black African and Coloured populations constitute the very large majority of the country's population these figures show a worrying failure both to address successfully the income distribution patterns of apartheid and also to set up a sound launching pad for the development of the country.

Thus, as well as providing a succinct picture of the relative performance of the provinces, Table 7 offers an indication of the development potential of the various provinces. The HDI captures a number of the important constituents of broadly defined human capital. From a development perspective it thus serves not only as an indicator of the objective of the development process but also as that of the state and performance of its most crucial strategy. The system of innovation approach, through its focus on the specificities of localised development processes, seeks to derive appropriate development strategies in order to optimise human capital development strategies. Here we see that not only is the overall indicator low for the largest portion of the population, but also that it varies widely by province. This provides a worrying picture of the development potential of the various provinces.

It is also worth noting that the geographic spread of development achievement indicators and those of development capacity has not been substantially altered in the fourteen years since the advent of democracy. This may be, to a large extent, due to the effect of the initial, and strongly neo-liberal, economic plan for the new South Africa which advocated minimal state interference in the re-structuring of the economy. This, when combined with a re-drawing of provincial borders and the rapid dismantling of the system of subsidies that were offered to business enterprises to locate their operations in bantustans and thus provide the illusion of a workable apartheid economic model, has led to an entrenchment of the real economic differences that were fostered under apartheid.

**Table 7: Human Development Index<sup>7</sup> by province and population group, South Africa, 2003**

Province	Population Group			
	Black	Coloured	Indian/Asian	White
Western Cape	.57	.61	.78	.85
Eastern Cape	.47	.58	.76	.83
Northern Cape	.49	.51	.75	.83
Free State	.49	.58	.70	.82
Kwa-Zulu Natal	.49	.71	.73	.85

<sup>7</sup> The three components of the HDI are (a) longevity measured by life expectancy at birth; (b) educational attainment measured by adult literacy rate (two-thirds weighting) and combined gross enrolment at primary, secondary and tertiary levels, and (c) comfortable lives measured by a GDP Index. The overall GDI value for South Africa dropped from 0.688 in 1996 to 0.59 in 2003. This dramatic drop in this index over a relatively brief period may be largely attributed to the effects of the HIV/AIDS pandemic on overall life expectancy figures.

North West	.49	.59	.75	.81
Gauteng	.61	.72	.78	.87
Mpumalanga	.48	.66	.72	.83
Limpopo	.48	.65	.76	.82
South Africa	.52	.61	.74	.85
Standard Deviation	.045	.064	.025	.018

Source: Global Insight, SA 2003

The effects of these provincial disparities on the various populations also result in migration patterns, as indicated in Table 8 below. We may draw some preliminary indications as to the state of health of the various provinces, apart from the ones discussed above. One of the more telling signs of the state of provincial economies is provided by migration flows across provincial borders. Presumably the majority of such flows would be in response to differentials in incomes and work opportunities. Table 8 below provides these data for the two years of 1996 and 2001. The migration figures for 2001 show that only the Western Cape and Gauteng recorded net inflows of internal migrants. All the other provinces experienced net outflows. Moreover, only Gauteng showed an increase in its net inflows of migrants between the two years.

**Table 8: Net migration by province for 1996 and 2001**

Province	Migration	
	1996	2001
Western Cape	244 232	184 999
Eastern Cape	-384 892	-254 791
Northern Cape	-29 184	-7 445
Free State	-6 262	-44 259
Kwa-Zulu Natal	-60 715	-75 333
North West	30 530	-22 172
Gauteng	351 490	403 326
Mpumalanga	78 040	-26 992
Limpopo	-223 239	-157 333

Source: Statistics South Africa, Population Census 1996 and 2001

In terms of “people voting with their feet” these migration patterns generally reflect and reproduce the performance patterns of the various provinces. Gauteng and the Western Cape are the recipients of the outflows of other provinces. If we assume that those who migrate are the more skilled and enterprising, then we are also witnessing a migration of skills which will further impoverish the poorer provinces. The enduring differences in the economic performance and prospects of provinces cast serious doubts regarding the viability of a number of these provincial systems of innovation and indeed in the very existence of a number of these systems at the provincial level. As I have argued earlier, while the principle of sovereignty creates a *de facto* national system of innovation, there is no such necessary premise for provincial systems. Provincial borders are the outcome of an internal political process and as such are relatively flexible.

#### **4. Globalisation and provincial systems of innovation**

The debates over the effects of globalisation on developing economies have been going on for quite some time. On the one hand, globalisation seems to be pushing the world economy towards the ideal neoclassical model with the erosion of barriers to trade, resource mobility and the flow of information, as well as the reduced incidence of transport costs in trading. Indeed the global volume of trade has increased dramatically and under the neoclassical assumption of the equalisation of returns to factors of production we would have expected the income gap between developed and developing economies to narrow. This, of course has not generally happened (see, for example Stiglitz, 2003). The counter argument, based on List (2005) and, in a narrower sense, on the Prebisch-Singer hypothesis, is that the initial stage of development of industrial and institutional structures in different economies prior to the opening up of trade would determine the effects of trade on the development paths of nations. In those instances of trade between industrialised economies and resource based economies the incomes gap would be tend to be reinforced with the advent of free trade. Both of these scenarios are, of course, quite reductionist and there are numerous contextual qualifications that would determine the effects of globalisation on specific economies and specific sets of trading partners. One of the more recent lines of enquiry has been on the effects of globalisation on the intra-nation distribution of income and wealth. Here, using the logic of neoclassical analysis, we would assume that the owners of those factors of production which are used intensively in internationally competitive sectors would see their incomes rising while the income of those owners of factors which are mostly employed in hitherto protected import substituting sectors would suffer a loss in income. The starkness of this conclusion would be mitigated somewhat by the introduction of the spreads of assets holdings across the population, since such portfolios would introduce a degree of flexibility into the resource “fixity” assumption. Again, the starting point of the analysis is crucial to the discussion of the consequences of globalisation. We would assume, *ceteris paribus*, that the more unequal the initial distribution of income and wealth, the greater is the probability that globalisation will have a worsening effect on income and wealth gaps. Given cumulativeness and path dependence over time these rifts would grow as the well endowed would progressively emerge as global citizens, increasingly independent of the local economy while the less endowed become progressively excluded from the globalised economy. The seminal factor in this progression is the rate of change of knowledge as the pre-eminent determinant of the growth and development process. Beyond some limit, and in a context where the extra-market provision of basic needs is deficient, wealth and income gaps signal categorical rifts in

the access to knowledge; hence the introduction of a cumulative and path dependent development of the distribution of economic options among the population.

With sub-national political and economic segmentation a further determinant of differentiation enters the analysis. In the presence of significant and enduring spatial differences in economic performance and capacity, globalisation would further increase the rift between those local systems of innovation which are firmly linked to the global system of innovation and those which are progressively being removed from access to global markets. The internal migration patterns among provinces in South Africa are particularly indicative of this phenomenon. They are not only a reflection of the different economic opportunities in the various provinces, but also a dynamic determinant of the changing capacity for growth and development in the different provinces. We can reasonably assume that in general migrants tend to be the more skilled and enterprising component of the unemployed. In conditions of destitution, the ones who stay behind tend to be those who are less economically active. Thus migration patterns from sluggish to the more economically vibrant provinces indicates a shift in technological capabilities, defined as the ability to create, adopt and adapt innovations, which further reinforces the rift in the economic fortunes and prospects of different provinces.

The gaps in opportunities among provinces are exemplified in the case of connectivity. Arguably, the predominant characteristic of globalisation is interactive communication and access to global stocks of knowledge. More than any other factor it is this massive reduction in the cost of knowledge and communication that provides entry into the globalised world. However, this access is predicated on a quantum of computer training and a level of access to the internet. Table 9 below depicts the high disparities in the availability of computers in schools across the various provinces.

**Table 9: Computer in Schools across Different Provinces – 2002 (in %)**

<b>Provinces</b>	<b>Schools with computers</b>	<b>Schools with computers for teaching and learning</b>
<b>Eastern Cape</b>	8.8	4.5
<b>Free State</b>	25.6	12.6
<b>Gauteng</b>	88.5	45.4
<b>KwaZulu-Natal</b>	16.6	10.4
<b>Mpumalanga</b>	22.9	12.4
<b>Northern Cape</b>	76.3	43.3
<b>Limpopo</b>	13.3	4.9
<b>North West</b>	30.5	22.9
<b>Western Cape</b>	82.4	56.8
<b>National</b>	39.2	26.5

Source: Department of Education (Government of South Africa), *Draft White Paper on e-Education: Transferring Learning and Teaching through ICT*, August 2003, reprinted in Baskaran, Muchie and Maharajh (2006).

Within this context there is again apparent the source of self-reinforcing mechanisms of privilege and deprivation that entrench the deep differences in life opportunities among provinces. One can even argue that it is the very privilege of the liberation from the confines of the local brought about by globalisation that further increases the relative exclusion of those sections of the population who are not provided with the key to access at the formative

educational phase of their lives. The redress of these gaps depends on the patterns of privilege and deprivation. The fact that there is evident a starkly spatial and legislative dimension to these patterns requires a review of the rationale for current spatial administrative frameworks, with the possibility of a dismantlement of a structure that actually seems to add to the already highly skewed distribution of income, wealth and opportunities in the country as a whole.

## 5. The new local economic development framework for South Africa

By and large the market has yet failed to sufficiently stimulate local economies in many parts of South Africa, even where there is considerable economic potential and consumer demand. (Department of Provincial and Local Government, 2006: 13)<sup>8</sup>

This quotation from the 2006 plan for local economic development in South Africa provides an important indication of the shifts in the approach to development planning since the advent of democracy. In the early 1990s the ideological basis of the economic plan for the development of the newly democratic South Africa was a highly contested terrain. The original approach was a Keynesian programme that required a programme of direct intervention by the state to address high unemployment, an economy whose structure was still very much a product of apartheid, sluggish growth and a high public debt. This approach came out in the *Draft Reconstruction and Development White Paper* in 1993. This was however a globally unfriendly period for programmes requiring state intervention in markets, following the collapse of the Soviet Union and the apparent invalidation of any form of “socialist” economic policy. The countervailing ideology which had come to ascendancy was neoliberal economics, which in its moderate version limited the role of the public sector to addressing issues of externalities and public goods. The underlying assumption of this approach in South Africa at the time was that apartheid constituted a prime example of market distortion and that therefore liberating market forces would be the logical way to start addressing the enduring structural effects of apartheid on the economy. The “trickle down” tenet proposed that in a flourishing and liberalised capitalist economy the benefits of growth would cascade down to the general population. The final articulation of this approach came out in the *Growth, Employment and Redistribution Plan* of 1996. The attraction of this plan for the new government was the sheer simplicity of its proposed strategy. The relatively simple programme of market liberation would, by virtue of the assumption of necessarily efficient competitive markets, eradicate the inherited structural distortions of apartheid. This assumption was extremely simplistic and ignored the fact that business enterprises usually operate within a given structure, which they adapt to and within which, as in the case of apartheid, they often flourish over time. The real constraints on the business sector under apartheid had come around since the late 1970s with the increasing isolation of the country due to the growing effectiveness of the ant-apartheid movement. These constraints were removed with the demise of apartheid, but it is quite naive to assume that the structure within which the private sector in South Africa had evolved for decades would be fundamentally altered because of some simplistically conceived market efficiency laws.

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<sup>8</sup> *Stimulating and Developing Sustainable Local Economies - National Framework for Local Economic Development in South Africa (2006-2011)*, Department of Provincial and Local Government (2006)

The review of GEAR was done in 2001 and it was accepted that while successes were achieved in economic growth, fiscal discipline and inflation rates, none of this seems to have had much effect on the high levels of unemployment or on the material conditions of life (apart from the important fact of political freedom) of the majority of the population. Since then, a more direct intervention by the state in the re-shaping of the South African economy has been recommended on a number of fronts. However, the new approach to policy formulation and implementation is still fragmentary and lacking in a coherent integrated approach to economic development. The quotation at the beginning of this section mirrors the history of policy and the disillusionment of the capability of markets to address the spatial economic distortions of apartheid. The fact that the power of the untrammelled market to attain the redistributive goals of the democratic polity should have been expected in the first place shows the all-encompassing belief in basic tenets of neo-liberalism when GEAR was drafted and implemented.

The 2006 plan for local economic development is a reaction to this disillusionment and is remarkable among published government plans in its explicit statement of the underlying theoretical basis for its assessment and strategies. This theoretical basis is identified as “new institutionalism” which is defined as follows:

New Institutionalism breaks down the distinction between economy and society, showing how economic decision-making and action is shaped by the shared values, norms, beliefs, meanings, and rules and procedures, of the formal and informal institutions of society. The normative agenda of the New Institutionalism is to develop shared meaning and values, and to strengthen the networks of social interaction. This has also been variously described as building *social capital*, or developing *social cohesion*. (Department of Provincial and Local Government, 2006: 7)

The various characteristics that are identified as the indicators of successful and sustainable local development include a combination of causes and effects. They can be grouped into the following broad categories, as:

**Human capital**, which is defined in terms of a population that is skilled, problem solving and innovative. The long term development of human capital is set in a context of guaranteed safety nets. This is further reinforced by a sound environmental policy which provides for the aesthetic component of social life.

**Institutional networks** which include sound governance in terms of innovative, transparent and fully accountable local authorities, and complex sets of private sector relationships which lead to an optimal utilisation of local assets. Assets in this case are defined to include the natural, physical, financial, human and social capital of local economies. The availability of a sound physical and social infrastructure significantly lowers the incidence of transactions cost in the local economy. This lowering of transaction costs is further enhanced by sound institutional networks. One of the effects of a vibrant provincial system of innovation would be a complex economic structure with a wide diversity of production sectors. In such a context the larger portion of the income earned by the provincial population would be spent in the province. This would feed into the virtuous cycle of tax revenue generation, leading to better infrastructure with feedback effects to local consumption.

**Linkages across municipal, provincial, national, continental and global systems** provide an immediate access of the population and the economy to cutting edge information and global finance. These linkages also reinforce the competitive advantage of local

economies and their ability to access the full set of development incentives offered by the national government and global institutions.

These criteria for successful and sustainable local development cover the broad terrain that the systems of innovation approach addresses. These criteria then become the measures against which the long term viability and tenability of provincial systems of innovation should be assessed. According to these criteria a number of the provinces in South Africa do not and cannot constitute systems of innovation whether actual or nascent. In this case the acceptance of the current lines of provincial demarcation at all costs will be the source of serious mis-allocation of public funds. The case of the complete breakdown of the Eastern Cape government in 2002 which required a large, high powered troubleshooting from national government to take over the governance of the province is an extreme example of systemic failures. In those less extreme cases the few performance and capacity related statistics that have been provided in this paper indicate that five of the nine provinces do not and cannot be seen as systems of innovation. As a consequence it is highly unlikely that these geographically defined political economic units can ever deliver on their ultimate promise of a general and sustainable enhancement of the quality of life for their populations.

What the national local economic framework document has not done, since it was probably outside its mandate, was to question the *raison d'être* of the current provincial topography and to make an initial proposal for its re-configuration. However, the areas of concern of the policy document may result in a re-visiting of the current provincial map. These include

- Economic clustering re-defined to include knowledge, diffusion and innovation linkages
- The strengthening of identity through symbols and creative activities
- Institution building: developing and strengthening networks and linkages
- A movement away from autonomy to integration and non-local relationships
- An assessment of critical scale and the city-regions in order to identify sub-critical local economies and viable local systems of innovation
- Addressing provincial inequities in economic and institutional development

The specification of these foci of local development planning shows an extraordinarily broad understanding of the development process. The first three points include knowledge and innovation in economic activity but move further to list cultural identities as one of the foundation stones of development. Of course this focus may inadvertently lead to a lack of convergence among provinces, but this is addressed in fourth and fifth points which directly address the requirement that the local should be fully integrated in the national. The document identifies the following impediments to local development:

- Poor people resources (skills, enterprise and problem solving)
- Poor leadership skills, transparency and accountability
- Poor local utilisation of natural resources
- Low quality infrastructure (transport, communications, financial, law enforcement, safety nets)
- Poor links to other systems of innovation

The broad strategic initiatives that will guide local economic development include:

- All aspects of governance and poor delivery systems
- A spatial development analysis of comparative advantage and competitiveness with targeted intervention to build on these
- Enterprise support and business infrastructure development
- Community investment programming

This development agenda moves far from the conventional rationale for local government that is based primarily on issues of the specific natures of local constellations of economic activity and the consequent need to develop sound information flows as the prerequisite to sound governance and appropriate development strategies. It is an agenda that is explicitly predicated on the viability of local systems of innovation at the provincial level.

## **6. When is a province not a system of innovation?**

This short paper addresses three related issues. The first is the question of the applicability of the broad version of the concept of sub-national innovation systems to the analysis of the economic performance and prospects of provinces in South Africa. Although the innovation systems approach seems to have been officially adopted in the national strategy for local economic development policy document, the validity of the concept of provincial systems of innovation is still an open debate which merits further elaboration. Should we accept the concept, the next issue that is raised is the rationale for the existence of particular provinces as specific systems. Once this point is accepted, the next logical step for future research would be to identify the set of criteria that should be applied to identify systems along with the relevant sets of parameters. These may then be used to determine which provinces should remain and which should be merged and amalgamated. This may well prove to be the radical step that is required to address the current wide divergences in local economic development. Finally the effects of globalisation on the spatial economy of South Africa are briefly explored. The conclusion is that where sub-national disparities are insignificant we can fruitfully deal with the national system of innovation as the sole object of the analysis of the relationship between the global and the local. If, as is evidently the case in South Africa, intra-regional disparities are significant and self-reinforcing over time, the relationship between the local and the global becomes more complex due to the increased difficulty in defining the local as some homogenous whole. The main conclusion that is offered in this brief paper is that globalisation tends to reinforce even further the rift between the poor and the rich sub-national economies.

The main policy implication of the arguments presented in this paper is based on the conclusion that the current provincial map of South Africa is fundamentally flawed. Gauteng, the Western Cape and, to a lesser degree, KwaZulu-Natal and the Free State seem to have evolved as distinct provincial systems of innovation through specific histories of institutional evolution in South Africa's pre-democratic history. On the other hand, where provinces were designed to include former *bantustans* as the larger part of their territory, the development of resulting sub-national economies tends to be to be seriously handicapped. In the case of a number of these provinces there is evidence that the specific provincial system of innovation holds little prospect of developing. Indeed, in a number of cases we may legitimately doubt whether a provincial system of innovation exists at all. In this context a re-drawing of the provincial map becomes imperative.

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