

Spatial Industrial Policy, Special Economic Zones, and Cities in South Africa

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1. Introduction

1.1 Global context

The past decade has witnessed a resurgence of industrial policy as a key tool for governments to promote growth and structural transformation of the economy, driven in part by the successful experience of East Asia's manufacturing-driven transformation (Page, 2005) and increasing emphasis on the creation of quality employment. While 'Industrial policy 2.0' eschews picking winners (Rodrik, 2008) and promotes greater emphasis on horizontal policies and following comparative advantage (Lin, 2012), it retains a strong emphasis on manufacturing as the driver of sustainable growth and job creation (Peet, 1997; Lin, 2012; McMillan et al 2016).

The re-emergence of industrial policy is taking place in parallel with increased attention to spatial outcomes of development processes, as a result of rising inequality across regions within countries (World Bank, 2009; Barca, 2009; OECD, 2009). Spatial policies (sometimes referred to as 'place-based' policies) generally aim to shape the geographical distribution of economic activity, most commonly by developing 'growth centers' with strong forward and backward linkages into the local economy. Most spatially targeted policies aim to develop regions that have been economically lagging, and are often explicitly anti-urban, which is at odds with a parallel trend that see increased attention to the role of cities in driving national competitiveness and economic growth (Box 1) (Glaeser, 2011; World Bank, 2015).

Box 1: Cities, job creation, and productivity

The industrial development of modern economies almost always starts in cities. A recent study World Bank, 2015) found that of 750 of the largest cities analyzed across 140 countries from 2000 to 2012, 72

percent outperformed their national economies in terms of economic growth (with most of the exceptions being cities in resource-rich countries or in countries with already high levels of urbanization). Those 750 cities created 87.7 million private sector jobs, accounting for 58 percent of all new private sector jobs, despite being home to only 25 percent of total private sector employment (World Bank, 2015).

The job creation success of cities stems largely from the productivity advantages they confer. The productivity advantages of cities and urban clusters with a high density of firms and workers first received the attention of Adam Smith (1776) and Alfred Marshall (1890). Evidence from today's developed and emerging economies shows that urbanization is a source of dynamism that drives entrepreneurship, innovation, and enhanced productivity (Duranton and Puga, 2013). For the United States, it has been shown that as a city grows, employment in new manufacturing start-ups increases more than proportionately (Glaeser and Kerr, 2009). As many studies have shown, jobs in large cities are typically more productive and therefore well-paid than jobs in smaller cities or rural areas, even after factoring in the higher cost of living in cities. For example, it has been found that wages typically rise by 5 percent as density doubles in the United States, but may go up as much as 20 percent in China with a doubling of density (Chauvin, Glaeser, Ma, and Tobio, 2016).

Agglomeration economies are the starting point for understanding how cities enhance productivity. A firm set up in an isolated location can benefit from internal economies of scale: the larger it is, the more it can exploit fixed costs and increase efficiency through the division of labor. However, it cannot benefit from the competitive benefits of external economies of scale. These gains arise from a number of sources: a reduction in transport costs (Krugman, 1991), the ability to share common overheads and services with other firms, a thick labor market and information and knowledge spillovers.

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Agglomeration externalities are commonly divided into two types: i) localization economies, or 'Marshallian externalities' (Marshall, 1890), are produced when firms within the same industry co-locate; and ii) urbanization economies, or 'Jacobs externalities' (Jacobs, 1969), result from the agglomeration of a large and diverse set of business activities in a particular place, providing access to services and promoting exchange of knowledge and technology.

Of course agglomeration also leads to congestion costs, resulting in higher land prices, higher wages, worsening traffic, and environmental damage. These negative externalities reduce productivity, driving some firms and industries (typically routine manufacturing) to relocate to the urban periphery and secondary cities. However, knowledge and technology-intensive manufacturing and services tend to remain highly clustered in large cities. Moreover, the externalities that emerge from agglomeration, including the concentration of specialized suppliers and skills, as well as deeply-ingrained tacit knowledge, lead to strong forces of path dependence which tends to lock in firms and sectors to cities (Duranton, 1999).

The domains of industrial and spatial policy are closely linked. The outcomes of industrial policies are seldom spatially neutral, and policies pursued to address spatial imbalances will shape industrial outcomes. Meanwhile, the decisions taken in pursuing both spatial and industrial policies will both impact and be shaped by places, in particular by cities. Yet while governments around the world implement both sets of policies (with widely varying results), there remains little attention to ensuring alignment and coordination across industrial and spatial policies. Indeed, if policymakers seldom take full advantage of the potential to use industrial policy as a tool for regional development, they might be considered almost negligent in the use of regionally and locally differentiated policies, and of urban policies, to promote industrialization and job creation. This is as true in South Africa as it is globally.

1.2 South African context

South Africa has a long history of spatially targeted economic – and, in particular, industrial – development programs. Some excellent analysis of South African spatial and industrial policies and programs have been written in recent years (Todes, 2013; Todes and Turok, 2015; Robbins, 2015) and, while there is therefore no need for a thorough review here, it is worth noting a few key points that emerge from this literature. First, post-1994 economic policy, which focused primarily on export-led growth and traditional macro-economic policy instruments at least until recent years, has paid little attention to subnational impacts and regional differentiation. Second, what attention has been paid to spatial aspects of development has been almost

exclusively focused on closing geographical disparities in output and employment. While the underlying motives of Apartheid-era industrial decentralization programs² and post-1994 spatial development initiatives – including SDIs, IDZs, SIPPs, ISRDP, and URPs, among others – were vastly different, they shared the proximate aim of spreading out industrial development and bringing jobs to people in the places they reside. While some of post-1994 programs had a metropolitan focus, on balance the policies have failed to engage significantly with metropolitan areas as sources of job creating externalities (Turok, 2012). Moreover, the lack of attention to the management of urban growth has contributed to a reproduction of inequitable and inefficient apartheid-era spatial patterns.

Insofar as recent industrial policy has been spatially oriented, the aim has continued to be 'bringing jobs to people'. The main objective of the industrial policy articulated by the government is to shift from commodity dependence toward a higher value-added, diversified, and export-intensive economy (Robbins, 2015). This is expected to be achieved primarily through industrialization. In parallel, there is an explicit objective to spread out industrial development in order to support lagging parts of the country. Special economic zones (SEZs) are at the heart of this policy approach, introduced as instruments to support both industrial competitiveness and industrial decentralization.

1.3. Objective and main arguments in this paper

The objective of this paper is to explore the theoretical and empirical evidence to inform thinking on how best to design and deliver spatial industrial policy for job creation in South Africa by leveraging the potential of cities. It includes a specific focus on SEZs as South Africa's most prominent spatial industrial policy instrument. The paper makes five main arguments:

1. *Agglomeration may be an unexploited opportunity to address the challenges of spatial inequalities and lack of job creation:* South Africa has long-standing, significant, and entrenched spatial disparities. It also has a serious problem with far too few jobs being created in the economy. Given the imperative of job creation and the twin realities of an open economy and limited wage elasticity, competitiveness and job creation will rely on raising productivity. This of course calls for attention to the well-trodden path of skills development. But taking maximum advantage of the potential for agglomeration is a path less well pursued in South Africa that may also deliver significant productivity gains.
2. *Targeting spatial industrial policy to unlock constraints at the urban level may deliver greater returns on*

² Apartheid-era programs running from the 1940s onward aimed to promote industrial development outside of cities in order to keep the African population in the homelands and limit migration into the cities (Todes and Turok, 2015)

investment than the current focus on lagging and peripheral areas: South Africa's cities are already its main source of growth and job creation. With urbanization – currently at just 60 percent – predicted to rise to 80 percent by 2050 (World Urbanization Prospects, 2014), shifting economic growth away from cities would seem to work against strong natural forces. Moreover, while there are indisputable gains to be had from more equitable geographical distribution of economic activity, there is also clear evidence that increasing urbanization has strong, positive externalities through deeper and more extensive forward and backward linkages. In this context, the approach to spatial industrial policy in general, and to SEZs in particular, may benefit from being more attentive to exploiting the potential of urban agglomerations to deliver the large-scale job creation that is urgently needed in South Africa. This may be all the more critical in a constrained fiscal environment, where the spreading out of public investment may seriously dilute its impact. Of course, it will still be necessary to have a development strategy to support rural and peripheral regions, and in some cases this may involve targeted industrial investments. The caution raised here is simply against an industrial policy that promotes industrial decentralization explicitly.

3. *Current industrial policy may be pulling in opposite directions:* Spatial and sectoral industrial policies may well be working against each other, with spatial policies targeting decentralization and sectoral policies at least implicitly reinforcing urban and peri-urban areas. Given the relative scale of sectoral policies, they may well overwhelm the potential for impact of spatial policies.
4. *The instrument chosen to drive spatial objectives of industrial decentralization may not be fit for that purpose:* While the impact of SEZs varies widely in different global contexts, they have seldom succeeded in peripheral locations. Delivering on transformational job creation – particularly in an environment like South Africa's, which is not globally competitive for large-scale, labor intensive manufacturing – relies on developing extensive forward and backward supply linkages. This is significantly more achievable around South Africa's metropolitan areas.
5. *While SEZs have the potential to drive job creation through domestic linkages anchored around cities, substantially more attention is needed to ensure effective intergovernmental coordination in the design and delivery of the SEZs:* Given the importance of integrating the SEZs into the local and regional economies, the current institutional approach, which lacks any clear guidelines, raises significant concerns. While coordination at the municipal and provincial level is very effective in some areas, it is lacking significantly in others. More broadly,

SEZs are a national program but at present they are being systematically designed and delivered in collaboration with city (municipal) and provincial governments.

The paper proceeds as follows: section 2 reviews the evidence on the economic geography of the manufacturing sector in South Africa and assesses the policy response through the Industrial Policy Action Plan (IPAP); section 3 provides an in-depth assessment of SEZs as the key instrument of spatial industrial policy in South Africa; section 4 concludes with some potential policy priorities.

2. Economic geography and industrial policy in South Africa

Industrial policy in South Africa is predicated on the objective of job creation through the development of a larger, more value-adding, and more *geographically decentralized* manufacturing sector. This section discusses first the evidence and factors that shape industrial location in South Africa, with the intention of clarifying the question: “*what is the problem spatial industrial policy is trying to solve in South Africa?*” It then reviews briefly the industrial policy response – i.e. “*what are the instruments being used to solve the problem?*”

2.1. The economic geography of manufacturing in South Africa

How concentrated is industrial employment in South Africa?

In discussing the need for decentralization of the economy, national planning documents, including NDP 2030 and IPAP, highlight the continuing concentration of economic activity (and specifically of manufacturing) in South Africa's core metropolitan areas (and specifically in Gauteng). The data suggests a more nuanced picture. What is certain is that there are far more formal manufacturing jobs available in metropolitan areas – around 2.5 times more jobs per resident³ – than in non-metro areas. In absolute terms, metropolitan areas accounted for around 63 percent of all formal manufacturing jobs in 2015, with cities overall (including secondary cities) accounting for almost 79 percent of formal manufacturing jobs.

However, evidence suggests that while metros, especially Gauteng-based metros (Ekurhuleni, Johannesburg,

³ According to data calculated from Quantec Regional database there was one formal manufacturing job per 281 residents in cities versus one for every 684 residents in non-metro areas.

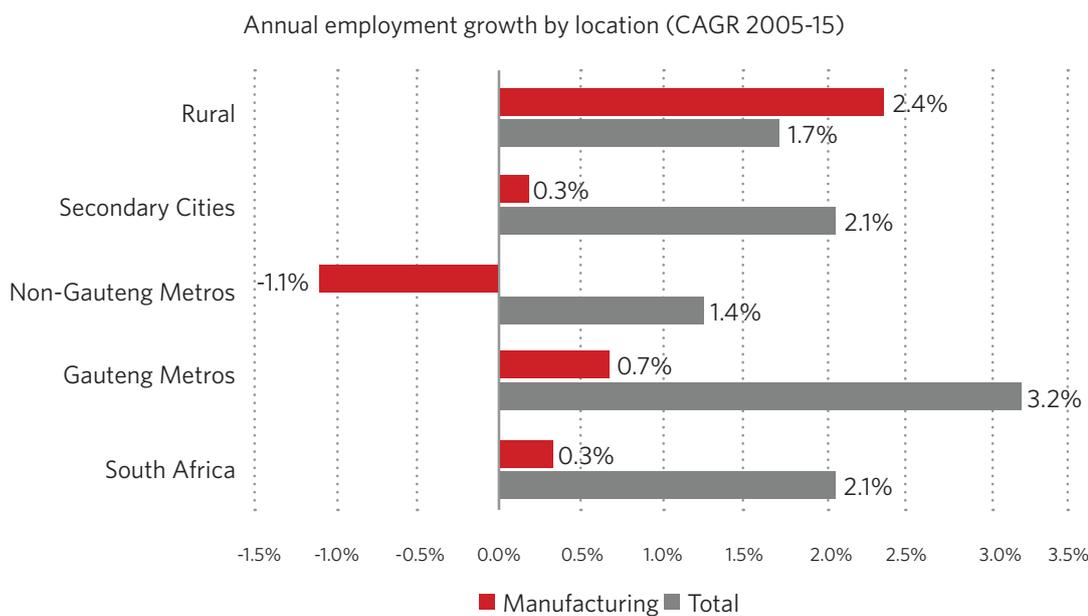
and Tshwane), have led the way in terms of overall job creation, there has been a moderate deconcentration of manufacturing employment from metro areas over the past decade (Figure 1). Rural areas experienced 2.4 percent annual growth in manufacturing employment between 2005 and 2015 compared with virtually no growth in cities, with non-Gauteng metros (Buffalo City, Cape Town, eThekweni, Manguang, and Nelson Mandela Bay [NMB]) shedding manufacturing employment at a rate of 1.1 percent annually, Gauteng metros expanding by 0.7 percent annually, and secondary cities at 0.2 percent annually.

Figure 2 breaks this down across the metros, showing the relative importance of manufacturing in 2005 along with the relative growth of jobs during the subsequent decade. It shows a significant amount of heterogeneity across cities, but overall an important fact is that cities overall are substantially more specialized in manufacturing than rural areas; and within cities, metros are substantially more specialized in manufacturing overall than non-metros. Figure 2 also supports the argument of the relative

success of Gauteng-based metros. Indeed, Johannesburg and Tshwane are among the very few cities in South Africa that were both specialized⁴ in manufacturing and experienced growth in manufacturing employment over the decade⁵.

Overall while the trend suggests a bifurcation, with manufacturing concentrating in Gauteng and rural areas at the expense of the rest of the country, it is important to recognize that rural areas are starting from a very low base. In 2005, just 7.8 percent of jobs in rural areas were in manufacturing; and over the decade 2005-15, rural areas created on average just 6,500 manufacturing jobs each year. Indeed, the story is one of marginal winners and losers in a context of overall stagnation and decline - what we are seeing is, for the most part, unlikely to be physical shifts of plants from one location to the other and more about relative performance of existing plants.

Figure 1: Annual employment growth by location (2005-15)

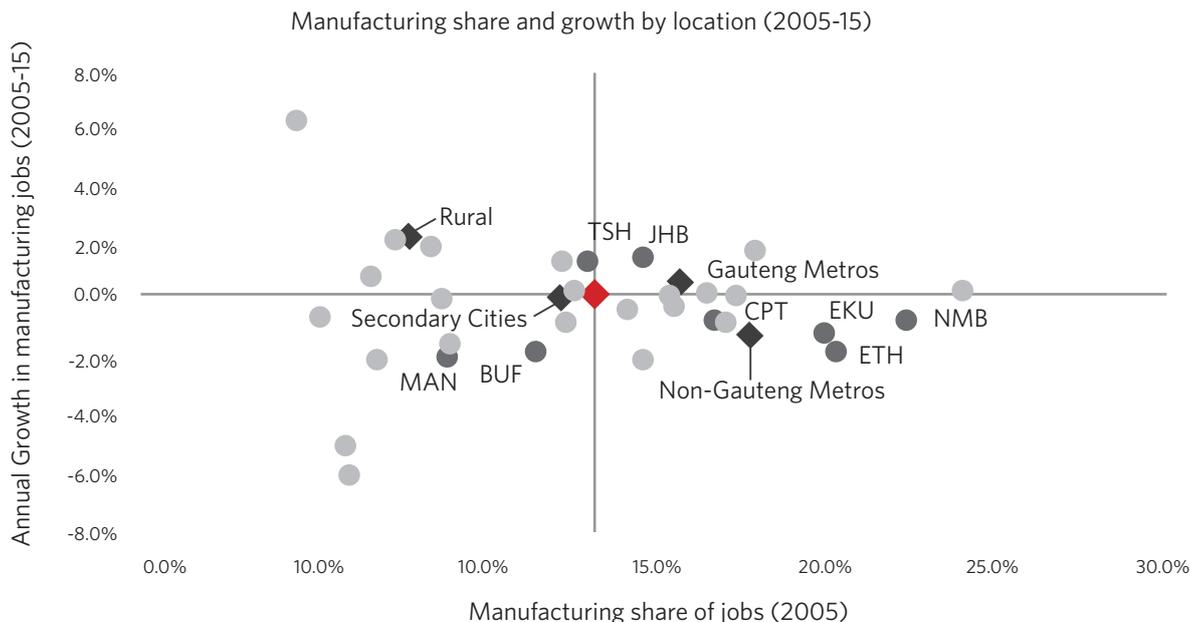


Data source: IHS Global Insight

⁴ Defined as having a manufacturing employment location quotient at or above 1.0 (rounded); in other words with a share of employment in manufacturing equal to or greater than the national average share.

⁵ Note that the two secondary cities which are most specialized in manufacturing yet experienced positive employment growth over the decade are also based in Gauteng – Mogale City and Emfuleni.

Figure 2: Manufacturing share and growth by city (2005-15)



Data source: IHS Global Insight

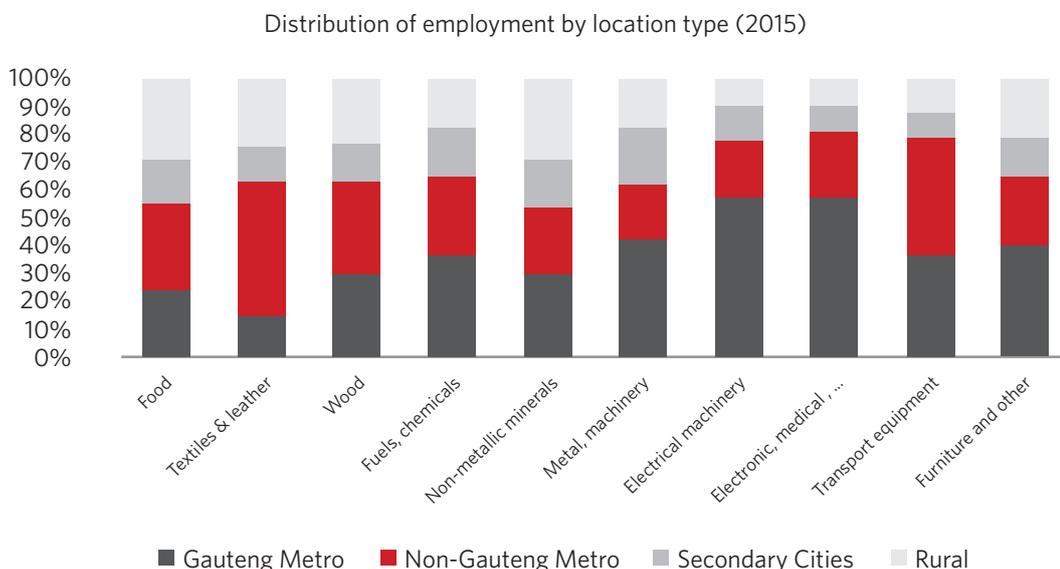
How much of this is driven by sectoral (specialization) versus spatial (territorial) factors?

Spatial trends in manufacturing performance may be affected strongly by sectoral specializations, which means they may have more to do with national competitiveness and relative shifts in capital-labor ratios in specific (see further discussion below) key manufacturing sectors than with place-specific issues. Figure 3 suggests, for example, shows that non-Gauteng metros, which experienced the biggest declines in manufacturing employment over the decade, are specialized in sectors like textiles and apparel, an industry which experienced 36 percent decline in employment nationally, and transport equipment. On the other hand, the relatively strong performance of Gauteng-based metros and rural areas may be linked to specialization in metals and machinery (Gauteng)

and food processing (non-metros), with both of these industries experiencing strong growth.

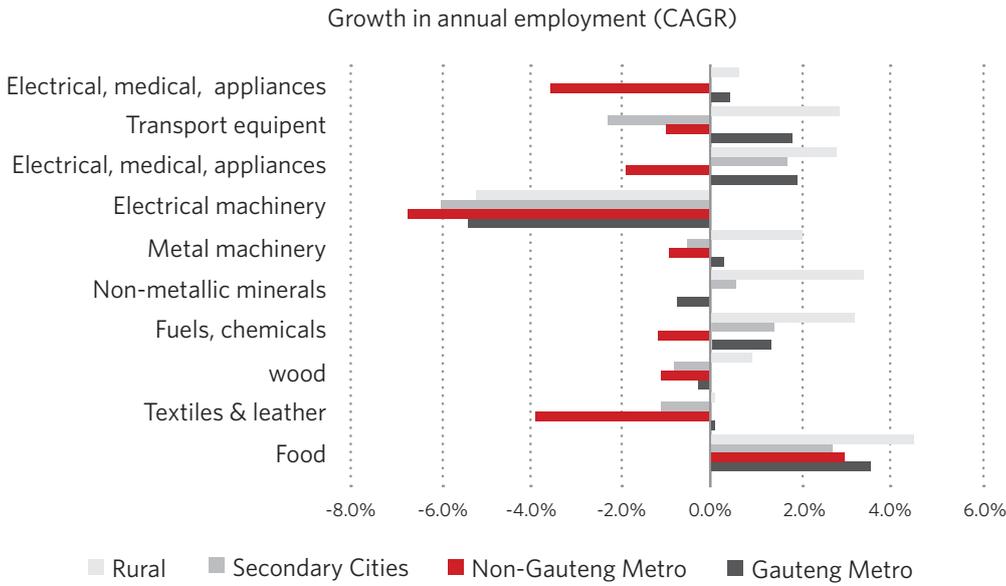
However, Figure 4 highlights that the relative performance of Gauteng metros and rural areas, on the positive side, and of non-Gauteng metros and secondary cities, on the negative side, extends across most manufacturing sectors. Over the decade, rural areas increased manufacturing employment in all sectors other than textiles and electrical machinery. By contrast non-Gauteng metros experienced falls in employment in all sectors other than food processing. So the data suggests that initial specialization is part of the story, but that the relative shift of manufacturing (to Gauteng and to non-metros) also has a territorial component.

Figure 3: Distribution of employment by location type by manufacturing sector



Data source: IHS Global Insight

Figure 4: Growth in annual employment by manufacturing sector (CAGR, 2005-15)

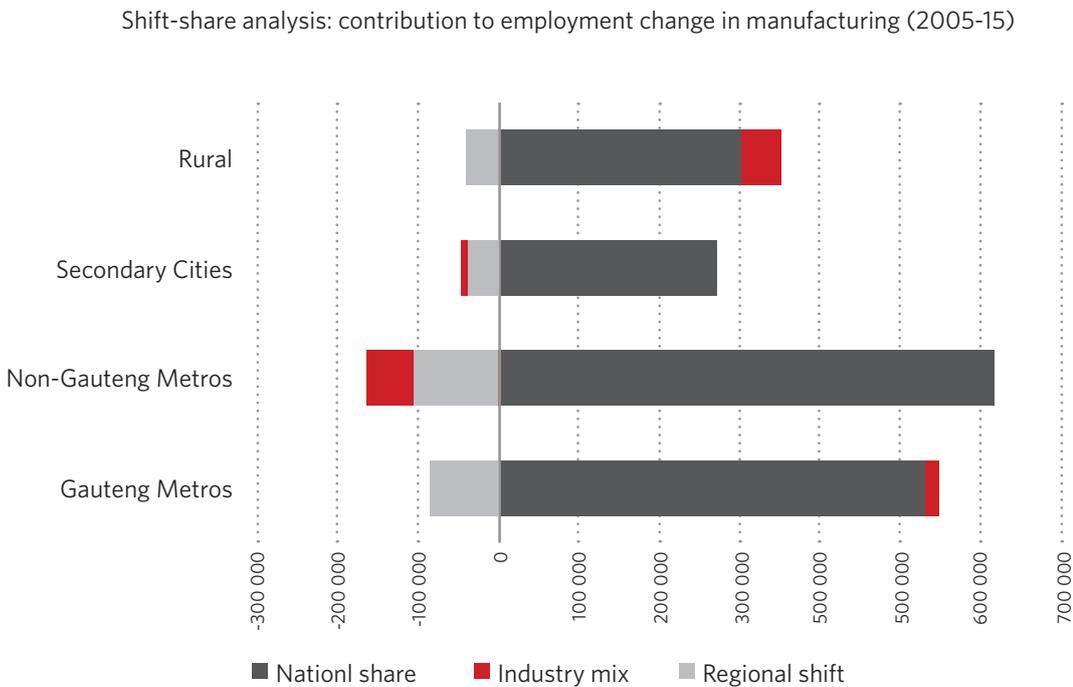


Data source: IHS Global Insight

Finally, we use a standard shift-share analysis to get a sense of how much of the relative shifts in manufacturing employment by locations is explained by regional (territorial) factors versus industry composition and broader national movements in employment. Figure 5 shows that across all regional groupings, national factors dominate, following industry composition. The territorial effect, while it exists, is small, particularly in Gauteng metros and in secondary cities. In rural areas, the regional

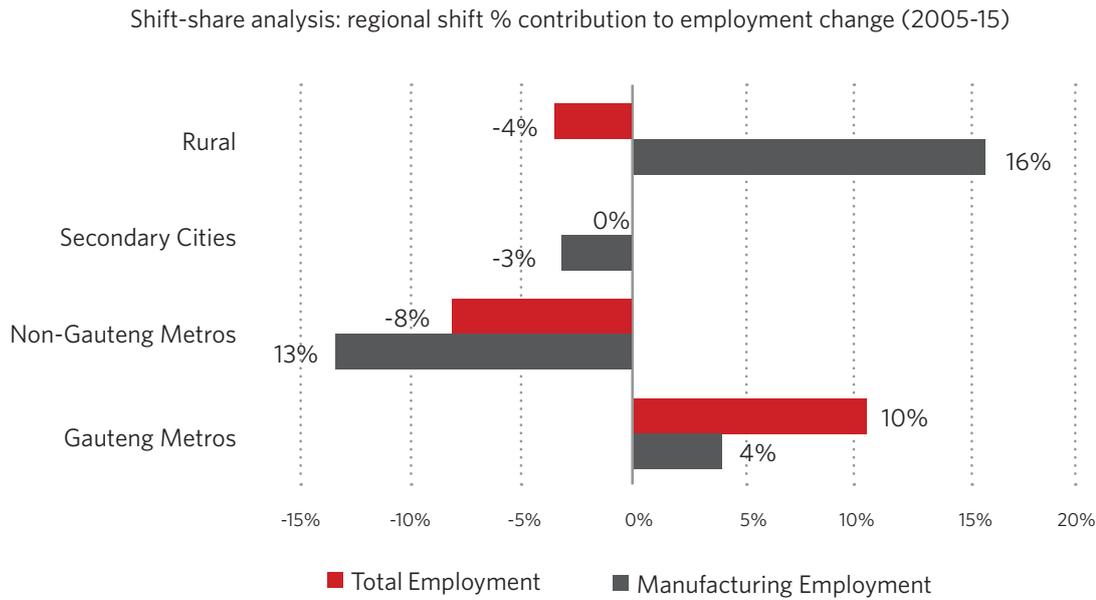
competitive effect accounts for only about 10,000 jobs over the decade (or around 16 percent of overall net job creation). It is worth noting that while non-Gauteng metros do, in fact, show significant negative impact of industry mix (as suggested above), the shift-share also indicates an even stronger negative competitiveness component, which explains around 13 percent of the decline in manufacturing employment in these regions (Figure 8).

Figure 5: Shift-share analysis: contribution to employment change in manufacturing (2005-15)



Data source: IHS Global Insight

Figure 6: Shift-share analysis: regional shift: % contribution to employment change in manufacturing (2005-15)



Data source: IHS Global Insight

Is this a function of productivity or relative shifts in capital intensity?

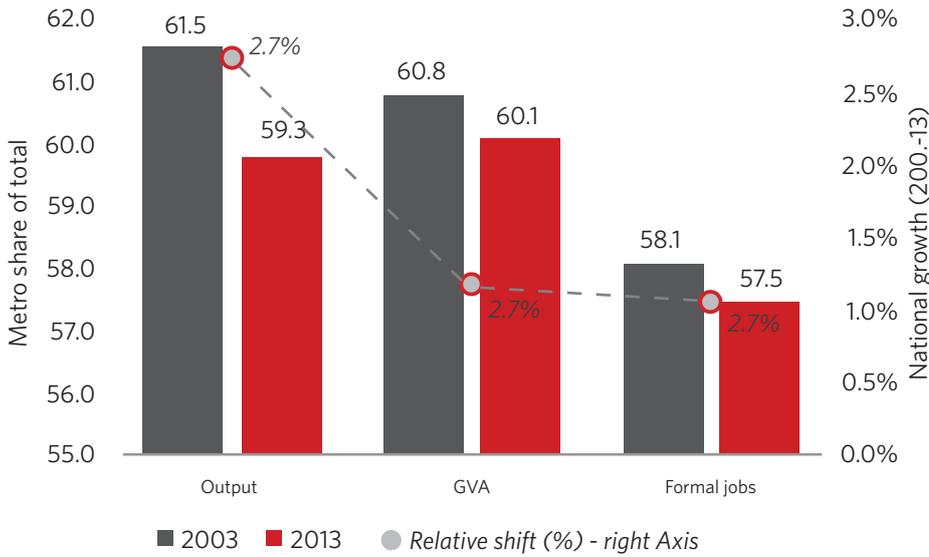
Figure 7, which uses Quantec data and only allows for a more aggregated analysis, provides a basic picture of how relative territorial changes in manufacturing employment compares to the relative changes in output and value added. A few things are apparent and unsurprising. First, that the output and value added share in metro areas is higher than the employment share (indicating higher labor productivity). Second, that the relative decline of manufacturing in metro areas is much stronger in output than in value added or employment (indicating that lower value added, or 'routine', manufacturing is shifting⁶ to non-metro areas). And third, that the changes in relative location of manufacturing jobs is happening broadly in line, although slightly slower, than changes in value added (indicating a slight relative productivity improvement in non-metro areas).

Could relative productivity changes be shaping these outcomes? Figure 8 illustrates that labor and firm characteristics are significantly different in metro and non-metro areas. Labor productivity (GVA per worker) in the manufacturing sector is some 30 percent higher in metro areas. While this is slightly higher than the wage premium in metros a few points are worth highlighting. First, the unit labor cost advantage in metro areas is relatively small - around 5 percent in 2013, according to this data⁷. Second, the labor productivity advantage of metros compared to non-metros is declining relatively quickly - from a 37 percent advantage to 30 percent over a decade (and given that this is likely to be driven significantly by specialization in firm activities, the like-for-like productivity advantage may indeed be much smaller). Third, with capital stock per worker 11 percent higher in metros, the relative capital intensity of urban-based manufacturing has increased over the past decade.

⁶ Note again that we have no evidence here that individual firms are actually shifting location. It may simply reflect relative changes in performance of incumbent firms as well as entry and exit patterns.

⁷ 1.30 productivity ratio versus a 1.24 wage ratio

Figure 7: Metro share of total manufacturing output and GVA (2003 and 2013)



Data source: Quantec

Figure 8: Ratio of metro to non-metro across selected productivity and labor indicators (2003 and 2013)



Data source: Quantec

Finally, it worth noting that the wage premium in metro areas appears high. There are numerous possible contributing factors here: i) an uneven spatial distribution of industry, occupations and trade union membership; ii) an uneven spatial sorting of workers of different abilities in South Africa; iii) agglomeration externalities which make workers more productive in cities due to, for example, better matching between workers and firms, greater knowledge spillovers between workers, etc., and iv) much higher living costs in large cities (Sharp forthcoming).

Urban wage premiums may also reflect an efficient labor market where wages adjust to unemployment conditions, thus suppressing wage growth in rural areas where unemployment is dramatically higher (von Finkel, 2015).

Conclusions and the critical importance of linkages (and services)

So the evidence on the spatial evolution of the manufacturing sector in South Africa is mixed. The overwhelming story is that manufacturing employment

is in retreat across the country. On the other hand, South Africa's largest agglomerations are performing relatively well, particular for export-based manufacturing. And non-metro locations are increasingly taking a larger share of agri-processing activities as well as some non-routine manufacturing. Thus the spatial trends in manufacturing in South Africa appear to be well in line with what theory tells us and what we see in other countries. More technology and knowledge-intensive manufacturing varieties seek agglomerations where they can benefit from suppliers, skilled labor, and knowledge spillovers, while agricultural and other natural resource-intensive processing shows greater spread.

This is partly linked to relative importance of local economic linkages across manufacturing and other sectors. Data presented in Table 1 shows the critical importance not just of manufacturing supply linkages but even more so of services linkages. Increasingly, competitiveness in manufacturing relies on access to a

diverse range of high value, competitive support services. This has shown to be even more important for South Africa's export-oriented producers operating within global value chains. In fact, recent research on South Africa's automotive sector (World Bank, 2016) shows that for every one direct job in automotive manufacturing there are three indirect jobs through backward linkages – most of them coming in services like transport, logistics, and business services.

These service providers are overwhelmingly concentrated in South Africa's largest metropolitan areas, with sector-specific technical services typically located in existing spatial clusters. Not surprisingly, the reliance of services is lower in resource intensive manufacturing – like food processing and to some extent metals – than in more labor, technology, and knowledge intensive sectors. But across all the sectors it is significant and underlines the importance of agglomerations for supporting a competitive and job creating manufacturing sector.

Figure 8: Ratio of metro to non-metro across selected productivity and labor indicators (2003 and 2013)

	Total	Agriculture	Mining	Manufacturing	Utilities	Construction	Services	Food processing	Wearing apparel	Metal products	Electrical equipment	Transport equipment
Agriculture	8%	75%	1%	8%	1%	1%	1%	41%	2%	1%	1%	1%
Mining	8%	3%	53%	7%	11%	8%	2%	3%	2%	10%	7%	5%
Manufacturing	28%	6%	9%	41%	12%	18%	6%	29%	58%	58%	45%	40%
Utilities	1%	0%	1%	1%	30%	0%	0%	0%	0%	1%	1%	0%
Construction	2%	0%	1%	1%	3%	48%	1%	1%	0%	1%	1%	1%
Services	53%	16%	36%	44%	45%	24%	91%	25%	37%	30%	45%	52%

Data source: Quantec

Assuming that a focus on manufacturing is indeed the most effective way to deliver sustainable jobs to South Africans and bearing in mind that spatial trends in South Africa are in line with theoretical expectations, an important question for industrial policy is whether more jobs can be created through interventions designed to spread out manufacturing investment or instead by supporting agglomeration and connecting non-metro areas into the core agglomerations. Historically, industrial decentralization efforts have failed to deliver jobs to more peripheral areas, even if they were successful in shifting some investment through incentives. This is because capital intensive investments, with less reliance on thick labor markets and access to specialized suppliers (see below), rather than labor intensive investments tend to respond to these incentives. This has been well documented from Southern Italy's *Mezzogiorno* policies in the 1950s through 1970s, in Brazil's regional development incentives in the 1980s and 1990s, and also in South Africa's own Apartheid-era industrial decentralization programs (Wellings and Black, 1986).

In the context of a strategy seeking to deliver global competitiveness, which is rightly central to industrial policy concerns, a high priority may be to improve the competitiveness of South Africa's cities by addressing the factors driving up relative wage costs (e.g. housing and transport) and negatively impacting productivity (e.g. infrastructure and skills). Evidence from South Africa and globally suggests the payoff, in terms of aggregate growth and employment, is likely to be higher than attempting to address structural barriers in peripheral locations.

The fact that spatial industrial strategy is not operating in an environment of employment growth but rather of long-term and significant decline is important. That employment is declining even in some manufacturing sectors that are experiencing relatively strong output growth, suggests that investors – domestic and international – are making a significant and sustained shift away from labor to capital. In this context, competitive manufacturing in South Africa cannot realistically be achieved through exploiting regional wage differentials.

Rather, it must rely on higher value-added, more sophisticated production. This makes it even more important to consider manufacturing sector linkages, which in turn brings us back to the critical importance of leveraging agglomeration, including both localization and urbanization economies, to achieve the objectives of job-creating industrialization.

2.2. Policy response: The Industrial Policy Action Plan

Introduction

The National Industrial Policy Framework (NIPF) adopted in 2007 provides the policy foundation for the Industrial Policy Action Plans (IPAPs), which are the DTI's are the most detailed, regularly updated industrial policy documents. This section briefly considers previous IPAPs' engagements with space, before examining IPAP 8, the latest iteration for the period 2016/2017 – 2018/2019, in light of the dynamics discussed in the previous sections.

The overall objectives of the IPAPs as set out in the NIPF (DTI 2007a p1) include the following:

1. To facilitate diversification beyond South Africa's current reliance on traditional commodities and non-tradable services.
2. The long-term intensification of South Africa's industrialisation process and movement towards a knowledge economy.
3. The promotion of a more labour-absorbing industrialisation path with a particular emphasis on tradable labor-absorbing goods and services and economic linkages that catalyse employment creation.
4. The promotion of a broader-based industrialisation path characterised by greater levels of participation of historically disadvantaged people and marginalised regions in the mainstream of the industrial economy.
5. Contributing to industrial development on the African continent with a strong emphasis on building its productive capabilities.

Therefore, with the exception of the reference to "marginalised regions", the original industrial policy framework makes no explicit consideration of economic geography, nor do subsequent iterations of IPAP (Robbins, 2016). In more recent versions of the IPAP – at least since 2012/13 – the discussion of space emerges more strongly, perhaps building on the much more in-depth the treatment of the spatial economy in the National Development Plan.

A few things are clear from the evolution of industrial policy documents in recent years. First, that

industrialization, and specifically the development of labor-intensive manufacturing, is seen as the primary means through which the South African economy can ensure more inclusive development. Second, that closely linked to this objective of large-scale employment generation is the objective of 'spreading out' economic activity across the country – i.e. bringing jobs to people. This is important, as it means policies, programs, and resources, will be engaged in active efforts to generate jobs in specific locations, rather than generating jobs wherever they can most efficiently be created and encouraging workers to move to where the jobs are (which is also not costless). Third, that the most important instruments identified to support large-scale and decentralized job creation are SEZs, as well as what is identified in IPAP as 'regional industrial clusters'

The most recent version of industrial policy (IPAP 8) is informed by the vision set out for South Africa's development provided by the National Development Plan (NDP). This latest IPAP iteration includes a commitment to achieving 'higher impact' through intensified focus on using the transversal (cross-cutting) policy levers that are already in place to fully support both the critical 'spill-over' sectors and the manufacturing sector in general, with a strong focus on labor intensive sectors and sub-sectors (DTI, 2016, p.2).⁸ Industrial decentralization is a major theme of the document. However, it is notable that for the first time, some qualifications are made:

"Industrial decentralisation, difficult under any circumstances, is particularly difficult in SA, given the deep seated structural/spatial distortions inherited from apartheid...Sustained growth of the manufacturing sector as a whole is best served by the efficiencies which stem from (i) proximity to markets and ports; (ii) efficient supply and logistics chains; (iii) agglomeration and clusters; and (iv) supportive economic infrastructure. Whilst these economic features have been historically centralized (at great human cost in terms of uneven spatial development) the plain fact is that they are structurally entrenched and cannot now be rolled back in any simplistic manner...Nevertheless, every effort is now being made in circumstances of the need for complex intra-governmental coordination to strengthen the instruments which will enable appropriate and viable economic and industrial decentralization to take firm root in previously under-served regions – connecting them into the wider national economy and discovering potential new export opportunities particularly through SEZs and regional economic clusters' (DTI, 2016, p.4-5).

As in all IPAP documents, since 2013, IPAP 8 is organized around various sectoral (vertical) and transversal (horizontal) focus areas. These are reviewed briefly below.

⁸ The labor intensive sectors and sub-sectors are principally: (i) the agro-processing sector, (ii) clothing, textiles, leather and footwear; (iii) the component manufacturing and sub-assembly sub-sectors in automotive; (iv) rail, light manufacturing and engineering in the metals sector; (v) plastics and associated sub-sectors; (vi) electro-technical assembly, sub-assembly and component manufacturing; (vii) downstream timber and pulp products, including furniture and boatbuilding (p2).

Vertical (sectoral) focus areas

It is notable that in the 75-page discussion of sectoral focus areas in the latest IPAP, there are only a handful of references to economic geography issues (including decentralization). The term 'cluster' is used regularly but often refers simply to a collection of related subsectors - as in "the metal fabrication, capital and rail transport equipment cluster" (DTI 2016, p.89). Notable exceptions include: i) the *aerospace and defense cluster*, where DTI is overseeing the development of the Centurion Aerospace Village, a supplier development park located in between Johannesburg and Pretoria; ii) the *forestry, timber, paper, pulp and furniture* subsector which is identified as important "for growth and employment creation - especially in rural areas - and for its potential to strengthen economic and industrial decentralization" (DTI 2016, p.102); and perhaps most interestingly iii) *Agriprocessing*, where the Agri-Parks Program, under management by the Department of Rural Development and Land Reform, aims to invest in infrastructure and support agricultural supply chain development in each of South Africa's rural district municipalities. This appears likely to be a significant, parallel 'industrial' infrastructure program with potentially important links (and potential overlaps) with the proposed SEZ program.

It is worth noting the juxtaposition between the stated objective of decentralization in IPAP 8 and the spatial concentration of industrial development around metropolitan areas that is implicit in IPAP 8's sectoral highlights section, which provides a list of plants and industrial initiatives that have been or are due to be set up around the country. What is striking is how many of them are in or within 20 kilometers of metropolitan cities. All plants identified as receiving investment in the automotive sector were either around Pretoria, Port Elizabeth, or eThekweni. Likewise, all the plants receiving investment in the clothing, textile, leather, and footwear industry are located either around Cape Town or Durban (DTI, 2016, p.23). Similarly, most aerospace investment came in Gauteng, especially in Pretoria and Johannesburg (see also Kraemer-Mbula, 2008). All of this suggests there is a natural clustering of these industries around metropolitan areas which may be difficult to shift through policy.

Transversal Focus Areas

Transversal focus areas cover a wide range of non-spatial interventions, including:

- **Science, Technology and Innovation (STI):** STI investments are seen as key to the country's transformation to a knowledge economy (DTI, 2016, p.8). Falling under STI policy, advanced manufacturing receives special attention in the latest IPAP⁹, including advanced electronics, affordable and smart automation, aerostructures, advanced photonics and additive manufacturing (3D printing) (p71). More generally, IPAP highlights as a priority

the need to improve linkages between knowledge production and its utilization. Overall, IPAP 8 does not consider STI policy in relation to economic geography issues, however it might be useful to consider more explicitly the requirements to facilitate the urban environment for research as well as the geographic proximity between the technology station and existing concentrations of industry in advanced manufacturing.

- **Public Procurement and the National Industrial Participation Program:** IPAP 8 explains how the DTI sees public procurement as a powerful industrial policy tool for promoting economic growth, industrial development, innovation and export-capacity (DTI 2016, p.39). With the Medium Term Strategic Framework, the government has set itself a target of 75 percent for local procurement. In moving forward with the public procurement and National Industrial Participation programs, the government may wish to consider how it could support the clustering of industry.
- **Industrial financing and development trade policy:** Industrial financing seems to serve a broad range of industrial objectives. In terms of the subsectors that will be focused on, there is an opportunity here to pursue mining and agroprocessing in more peripheral areas. However, if a major aim of this program is to increase the productivity of firms, the peripheral areas chosen still need to be geographically competitive and the government might need to invest in infrastructure connecting these areas to major agglomerations. With respect to developmental trade policy, it would be useful to understand better the relative access and barriers to exporting for SMMEs in different locations in South Africa, and whether clusters confer any benefits to SMMEs to overcome barriers to export entry.

In addition, IPAP 8 also identifies transversal programs with an explicit spatial emphasis. All of these are focused, to a large extent, on industrial decentralization. They include the SEZ program as well as interrelated programs to revitalize old industrial parks and develop economic clusters.

- **Special Economic Zones:** The SEZ program aims specifically at industrial decentralization: "(the SEZ program) ... specifically used to promote the creation of a regionally diversified industrial economy by establishing new industrial hubs in underdeveloped regions of the country" (IPAP 2012/2013, p.48). In pursuit of these goals, the SEZs will try to anchor the development of key industrial clusters.

See section 3 for a more detailed discussion of the SEZ program.

⁹ As described in IPAP 8, advanced manufacturing differs from conventional manufacturing in that it is knowledge and technology-intensive. Advanced manufacturing companies typically make high-value products, participate in global supply chains, exhibit a high proportion of export sales, pay higher wages and are globally competitive (p71)

- **Industrial Parks Revitalization Program:** The program aims to upgrade industrial parks located in 'old industrial areas' - i.e. townships and former homelands - across the country. The focus of the program is on both the physical infrastructure and other support requirements, with the aim to promote investment and job creation in lagging regions. The

hope is that these parks will serve as catalysts for broader economic development. 10 state-owned industrial parks have been identified and approval has been granted to roll out the first phase covering six industrial parks to the value of R189m (DTI presentation, 12 April 2016).

Table 2: Approved locations for Industrial Parks Revitalization Program

List of approved industrial parks and value				
Province	Industrial park	Total approved budget	Approved budget 2015/16	Approved budget 2016/17
Eastern Cape	Vulindlela Eastern Cape Development Corporation	R 22 723 571	R 9 170 000	R 11 424 213
Eastern Cape	Queenindustria Chris Hani Development Agency	R 22 500 000	R 22 500 000	R 0
Kwa-Zulu Natal	Isithebe Ithala Park	R 49 580 020	R 20 000 000	R 29 580 020
Free State	Botshabelo Free State Development Corporation (FDC)	R 24 462 780	R 24 462 780	R 0
North West	Babelegi North West Development Agency (NWDA)	R 49 341 028	R 20 000 000	R 29 341 028
Limpopo	Seshego Limpopo Development Agency (LEDA)	R 21 069 308	R 21 069 308	R 0

Source: DTI presentation 12 April 2016

- **Cluster Development Program (CDP):** The Cluster Parks pilot project was started in 2015 and the DTI wishes to scale up the project soon using the Cluster Development Framework which has just been finalized. Again the emphasis is on decentralization: the latest IPAP notes that clusters will be supported "in certain (currently) lagging potential with the highest economic potential" (DTI, 2016, p.62). While the CDP seems to operate as a separate program from the Industrial Parks Revitalization Program above, it seems that CDP funds will be used initially to incentivize firms to relocate to old industrial parks (DTI website). The CDP involves giving out cost-sharing grants capped at R10 million for a cluster project that would typically involve five or more member companies linked together within one or more value chains. Key action programs covered: inter-firm collaboration support; support for shared infrastructure; enterprise and supplier development; support for platforms and forums for knowledge-sharing; benchmarking for productivity enhancement (p63).

support industrialization, including non-existent or weak education and training, and a lack of basic infrastructure and R&D institutions (DTI 2016, p61) - are real. While it is important these constraints are recognized, it also raises some concerns about the potential to deliver on the spatial interventions in lagging and non-core areas of the country - precisely the stated objectives of the program. In the case of SEZs (see Section 3), most are being developed in relatively strategic locations in or near ports or airports. Some of the more rural SEZs also provide proximity to mining and agricultural supply chains (DTI, 2016, p33), although even here challenges are likely to be significant. However, most of the old industrial parks have been completely abandoned by business, which raises questions over the competitiveness of the locations and whether infrastructure upgrades, without considering wider aspects of the local business environment.

Perhaps more importantly, the analysis finds that the sectoral and transversal components of industrial policy may be working directly against each other when it comes to achieving the spatial objectives of industrial policy. Specifically, while the spatial intentions of transversal policies are intended to support lagging and peripheral areas, sectoral policies appear to reinforce the core agglomerations. This lack of alignment has implications for both efficiency and effectiveness. On the latter, while the SEZ program is significant, incentives provided under the program are substantially below what is available

Conclusions

This brief review of IPAP 8 highlights that what explicit spatial considerations exist in the policies focus primarily on lagging regions. Yet the potential constraints identified in IPAP8 to implement these interventions outside metropolitan regions - including weak systems to

through the sectoral initiatives – for the three fiscal years from 2015/18, the budget allocated for sectoral incentives is close to 50 percent higher; over the three previous fiscal years it was more than 3 times the level of spending on spatial initiatives. This is not to say that more should be spent on SEZs or on spatial policy more broadly, but rather that misalignment of objectives is, at best, likely to result in wasteful spending. At worst it may be undermining the objectives of industrial policy.

Such a misalignment between spatial and industrial policies is not unique to South Africa. It has been identified in the post-war industrial policies of the US, Brazil, Korea, and Japan (Markusen, 1996) and more recently in the tendency of the “counter-regional” policies in the UK to outweigh the effects of explicitly spatial policies (Martin et al, 2015).

At the moment, the evidence suggests that alignment of spatial and industrial policy objectives and actions is not being considered explicitly in South Africa. Clearly it is not being measured and monitored, as evidence by the fact that industrial policy incentives given to firms are not tracked below the provincial level. Indeed, measuring sectoral and spatial incentives at a disaggregated spatial level may be a simple and practical starting point to strengthen this alignment.

3. An in-depth look at spatial-industrial policy: focus on Special Economic Zones

3.1. Introduction – context, objective, and locations of SEZs

Given the strong emphasis on SEZs as the key spatial industrial policy instrument to support job creation and industrial decentralization in South Africa, this section provides a more in-depth look at the design and implementation of SEZ policy in the context of international experiences. The focus will be on the link between SEZs and spatial dynamics, in particular their role vis-à-vis cities. Thus, this section is not intended to provide an analysis of the suitability of SEZs in general for South Africa or to comment on aspects of SEZ design – such as institutional arrangements, incentive regimes, regulation, investment facilitation, etc. – except where they are related specifically to spatial implications.

The SEZ program was developed starting from 2007 in an effort to broaden the potential of the existing Industrial Development Zones (IDZ) program and address a number

of significant weaknesses that were seen to have limited success of the program. An SEZ Policy was introduced in 2012 and the SEZ Act gazetted in 2014. The SEZ Act identified a wide range of objectives for the program – as shown below – which include a number of specific spatial objectives:

- Facilitating the creation of an industrial complex, having strategic national economic advantage for targeted investments and industries in the manufacturing sector and tradable services;
- Developing infrastructure to support the development of targeted industrial activities;
- Attracting foreign and domestic direct investment;
- Providing locations for the establishment of targeted investments;
- Enabling the beneficiation of mineral and natural resources;
- Taking advantage of existing industrial and technological capacity, promoting integration with local industry and increasing value-added production;
- Promoting regional development;
- Creating decent work and other economic and social benefits in the region in which it is located, including the broadening of economic participation by promoting small, micro and medium enterprises and co-operatives, and promoting skills and technology transfer; and
- The generation of new and innovative economic activities

Among the key incentives offered are a reduced corporate tax rate (15 percent) for qualifying investments in SEZs, accelerated depreciation, and the extension of the ‘youth employment subsidy’ to all qualifying workers (regardless of age) (DTI, 2016, p.60).

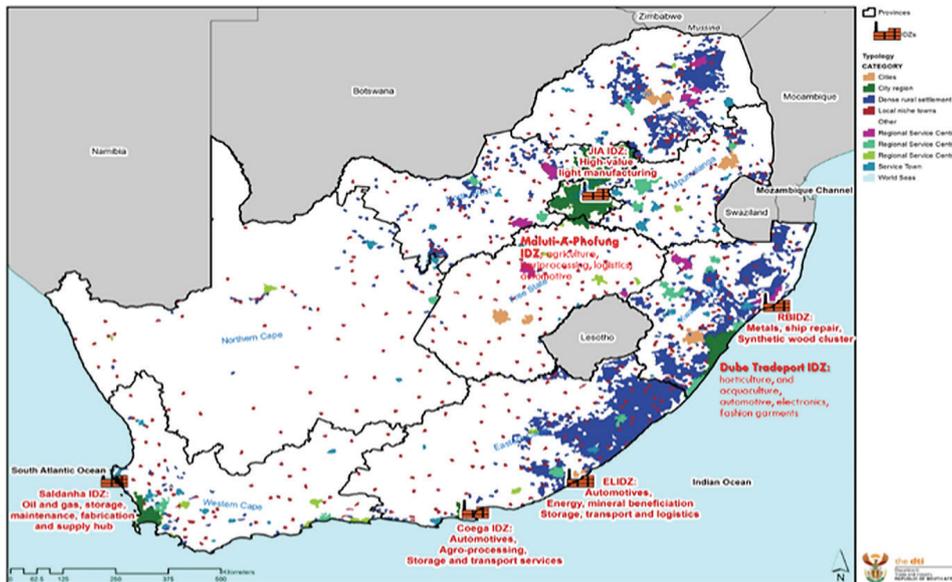
At present seven locations have been designated as IDZs (Figure 9), including: COEGA, which became operational the end of the 1990s; East London IDZ (ELIDZ), and Richards Bay which became operational in the mid-2000s; Dube Tradeport (DTP) which launched in 2012; the Gauteng IDZ (at OR Tambo International Airport) which was established with the initial set of IDZs but is only now under development; and the IDZs at Saldhana Bay and Harrismith (Maluti-A-Phofung), which recently received IDZ status to enable them to move into implementation without having to wait for all details of the SEZ regime to be finalized. With the exception of the recent approval of Maluti-A-Phofung, the IDZs are notable for being located at the primary ports of the country (seaports plus the main international airport). This was as per the design of the IDZ program. The regulations for implementation of the SEZ program allow for the locations established as IDZs to transition into SEZs over a three-year period.

In addition to the IDZs, another set of locations have been proposed for SEZs (Figure 10), which to a large degree cover parts of the country that are not already locations

for IDZs, so that all provinces will have at least one zone. These proposed SEZs include¹⁰:

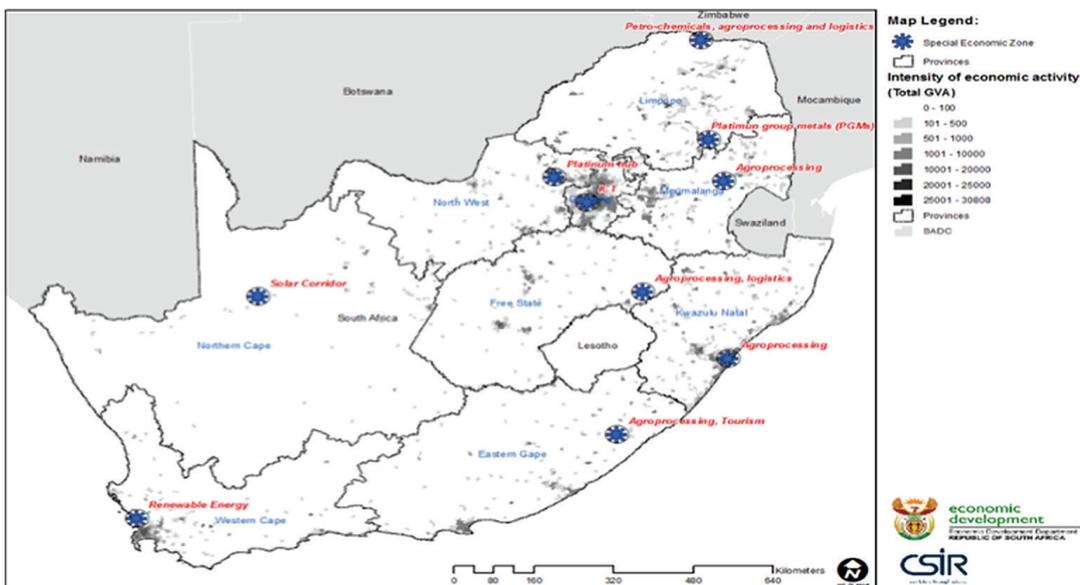
- Atlantis (Western Cape) – focused on renewable energy
- Bojanala (Northwest) – focused on platinum group metals (PGMs)
- Johannesburg (Gauteng) – focused on ICT and electronics
- Mthata (Eastern Cape) – focused on agriprocessing
- Musina (Limpopo) – focused on logistics, petrochemicals, and trade
- Nkomazi (Mpumalanga) – focused on logistics
- Tubatse (Limpopo) – focused on PGMs
- Uptington (Northern Cape) – focused on solar power

Figure 9: Location and focus of existing IDZs



Source: DTI presentation 12 April 2016

Figure 10: Location and focus of proposed SEZs



Source: DTI presentation 12 April 2016

¹⁰ Source: DTI (2015). 2015/16 SEZ Performance Analysis Bulletin. Report #2 July, 2015

If all proposed zones are implemented, South Africa will have 15 operational SEZs within the next few years. This is a relatively large number of zones for an economy South Africa's size, but not exceptional. To put it into perspective, Russia has 16 zones and Brazil around 22 (at different operational stages) – so they use SEZs in a similar scale to South Africa, although their economies are 4 to 5 times larger. China has an estimated 295 national zones (and close to 1,500 provincial and local ones) and India almost 200¹¹. Turkey is an even more prolific user of zones – with an economy about 3 times that of South Africa, 276 Organized Industrial Zones (OIZs) have been approved. But one difference in South Africa, certainly in contrast to places like Turkey and India but even China, is that these countries have much less involvement of the central government in launching and funding (directly and through incentives) the zones. Rather, they rely more on local governments and private sector investors, which allows for relatively rapid expansion with lower fiscal risk.

While the overall costs and benefits of the zones program in South Africa is not the direct focus of this paper, an important question to be addressed is the degree to which the SEZ instrument, deployed in the way it is being proposed in South Africa, has the potential to deliver efficiently on the core objective of large-scale job creation. The second question for consideration is whether the program has the realistic potential to deliver on the objective of spatial rebalancing – that is can the program not only attract investment but also create jobs in the periphery? Or would a more effective strategy be to use the SEZs as instruments to raise the global competitiveness of South Africa's metropolitan areas as locations for job creation?

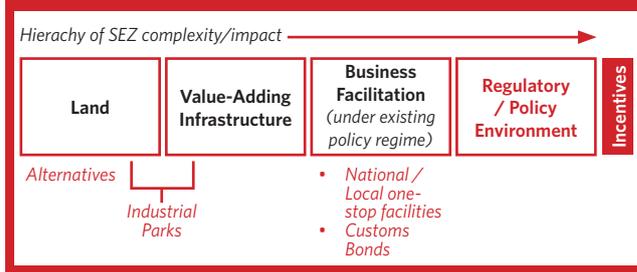
It is worth noting that while three of the four operational IDZs are based in metropolitan areas, just three of the remaining 12 IDZ or proposed SEZ locations are metropolitan-based, which is directly in line with the decentralization aim of the SEZs. On the other hand, with some exceptions, most of these non-metropolitan zones are based in 'regional service centers' – essentially secondary cities.

Box 2: What problems are South Africa's SEZs seeking to solve?

SEZs should be designed to address specific barriers that lead to underinvestment in a specific location by national and/or international sources. As such, the starting point in the design of any SEZ program is to determine what are the main constraints to investment that for fiscal, implementation, or political economy reasons are unable to be addressed at the national level. Then the SEZ program should focus explicitly on overcoming these constraints. In fact, depending on the nature of the constraint, solutions other than an SEZ program may be more appropriate.

The figure below provides a basic hierarchy of the package of amenities that may exist in an SEZ program. Starting with the most basic aspects of an SEZ program, – land and value-adding infrastructure – where the policy environment is attractive for investors but land and industrial infrastructure access is binding, a standard industrial park model is normally sufficient. If land is accessible and infrastructure is of good quality, but business facilitation is problematic, the establishment of an effective one-stop-shop may obviate the need for an SEZ. If broader regulatory constraints exist that cannot be addressed at a national level, then a specialized regime such as an SEZ, may be an appropriate instrument, and policy experimentation can be considered. On top of all of this may be (but not necessarily) a set of fiscal and non-fiscal incentives designed to facilitate investors.

In the South African context, the evidence suggests that the design of the SEZ program has eschewed policy experimentation in favor of a model that is largely about infrastructure and fiscal incentives. Yet, land and industrial infrastructure seldom appear to be binding constraints identified in surveys of current and potential investors. While skills, the regulatory environment, electricity, and trade infrastructure regularly appear as top constraints. While the latter two of these have some potential to be addressed in the SEZs, they do not appear to be central to the program; it is not clear what is being considered to address the first two



3.2. Assessing the potential of SEZs to deliver large-scale, decentralized job creation

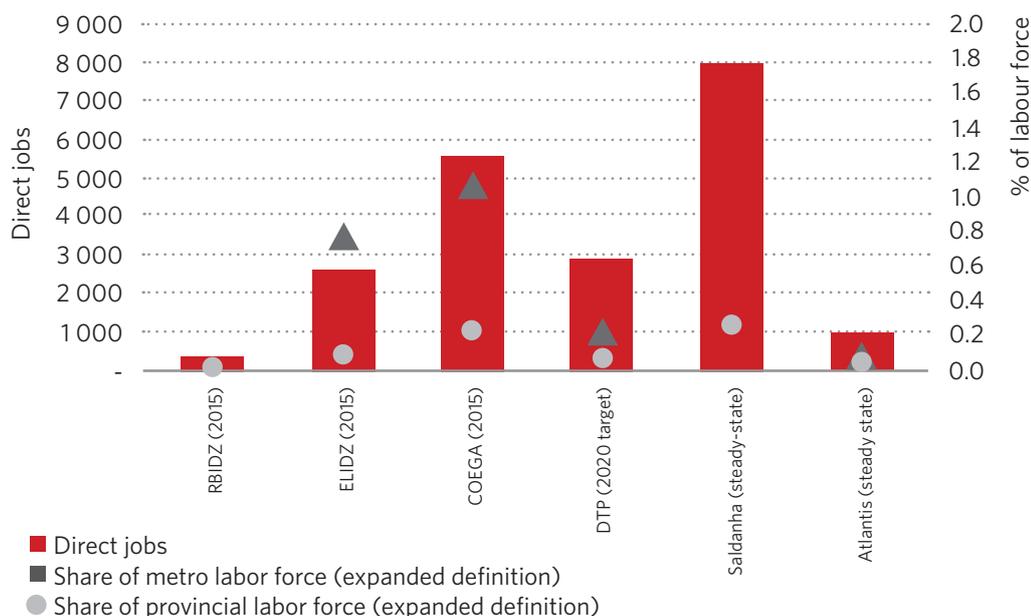
A starting point to consider the potential of SEZs to deliver on their objectives in South Africa is to look at the international experience of SEZs as job creators (first) and then the degree to which they have been effective in creating jobs in more peripheral areas (second). Overall the evidence is mixed. There is no doubt that in some countries SEZs have been responsible for substantial job creation: in the Dominican Republic, the EPZ program is estimated to be responsible for 100,000 jobs; in Bangladesh, the program is said to have generated close to 300,000 jobs between 1983 and 2008; and Vietnam's zones generated well over 1 million jobs in its first 15 years of operation (Farole, 2011). China's SEZs are credited with having generated 40 million jobs, but this is within a labor

¹¹ Source: Bell, T.W. (2017) "Your Next Government: From Nation State to Stateless Association" Appendix 1 (Cambridge University Press 2017), available at: goo.gl/ju7lfQ.

force of some 800 million. So despite the high profile of the SEZs in China, they account for not much more than 5 percent of jobs. In fact, it has been mainly in small countries without an established industrial base – like Dominican Republic, Honduras, and Lesotho – that zones have been successful in delivering transformational job creation. In larger countries, with the possible exception of Vietnam which experienced large-scale industrial transformation in the 1990s during a period of intensive SEZ development (along with unprecedented economic liberalization), SEZs have seldom contributed, at least directly, to more than 5 percent of employment. This is likely to be the case for South Africa as well.

Although it is too early to assess outcomes from the program and recent evidence indicates significant recent momentum in investment and job creation, data shown in Figure 11 – which shows direct employment generated in the well-established IDZs (Richard’s Bay, East London, and COEGA) as well as the plans in a few select new zones – suggests the zones are only likely to generate jobs on the order of a few percent of the labor force in their immediate metro areas or no more than one percent of the labor force of the province.

Figure 11: Direct job creation and share of metro and provincial labor forces in select IDZ/SEZs



Source: DTI SEZ Bulletin (July, 2015); various IDZ/SEZ reports; Note as of June 2017, there is no later edition of the SEZ bulletin published.

Note that the Saldanha and Atlantis ‘steady-state’ estimates are projections for development of the respective zones when they hit full development, which is estimated in the early 2020s according to current plans.

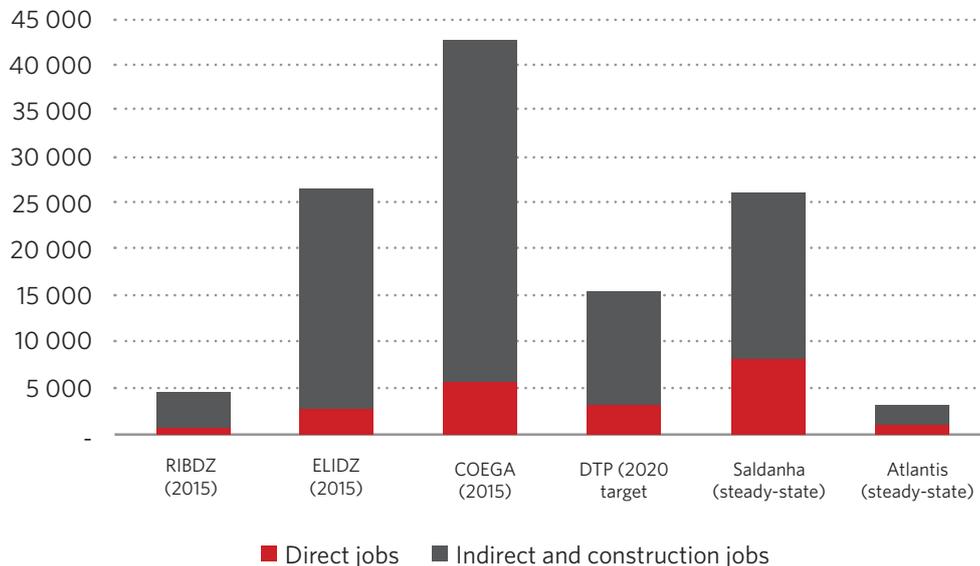
Also in line with both theory and international experience, the initial evidence suggests SEZs are likely to have the biggest impact on job creation in South Africa through employment spillovers- i.e. through the backward supply chain linkages that arise from the newly-established investments (and secondarily from induced effects from workers using wages for consumption and investment in the domestic economy). Assessments of international experiences emphasize the critical importance of supply linkages in driving SEZ success (Kingombe and te Velde, 2013; Farole, 2011). Such linkages ensure local market integration and facilitate knowledge transfer thus supporting upgrading and sustainability of zones; they also contribute substantially to job creation.

In fact, the presence of linkages is the fundamental difference between SEZ programs (even ones that have succeeded in attracting investments) that rely on low-wage labor and subsidies for short-term job creation and those that achieve ongoing value chain upgrading for

sustainable manufacturing employment. In the former case, common throughout the classic low value-added, export processing models seen across Central America (e.g. Nicaragua, Honduras, and the Dominican Republic) and Africa (Lesotho, Madagascar, Kenya), virtually all job creation takes place within the SEZs while supply chain links to the local economy are virtually non-existent. Recent research on apparel investments in SEZs in Africa (Farole and Winkler, 2015) shows that up to 95 percent of non-labor and utility inputs were imported, with local supply linkages limited to low value services like security, catering, and some basic transport. By contrast, countries like China, Republic of Korea, Malaysia, and Costa Rica, succeeded in using their complementing the SEZ instrument with concerted efforts to build local supply linkages. As a result, indirect jobs in the supply chain account for the majority of job creation through SEZs in these models. Overall, empirical studies find a broad range of employment multipliers arising from zones

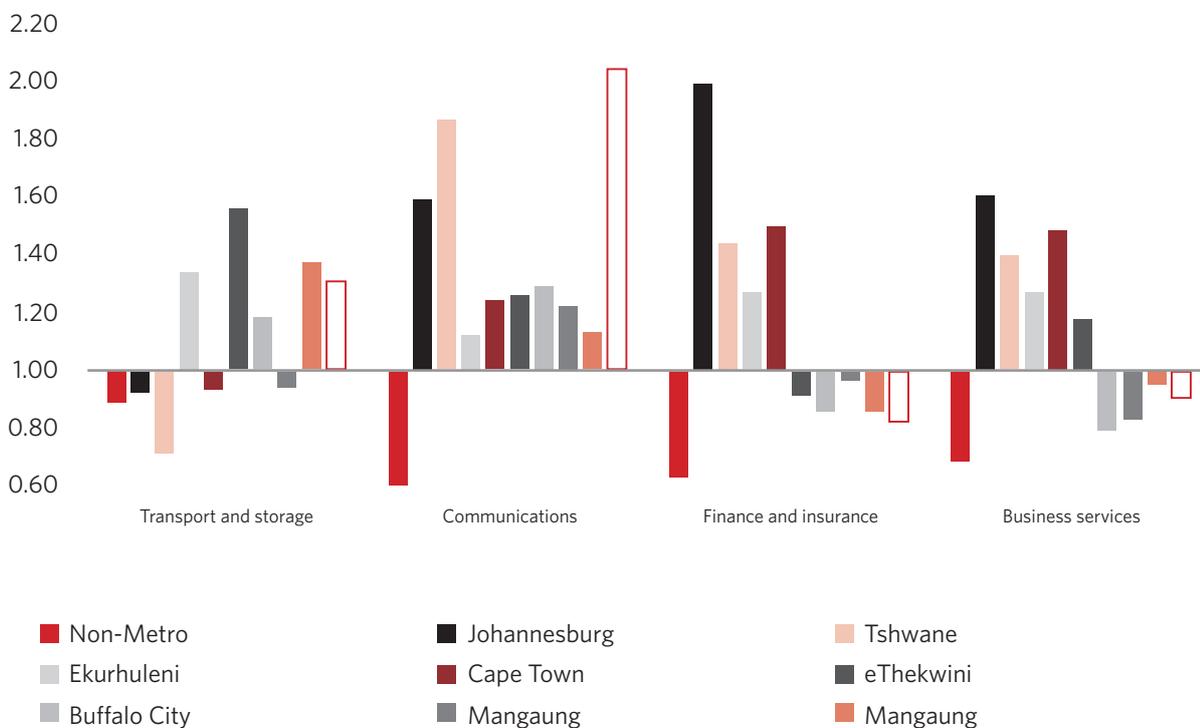
- generally ranging from as little as 0.25 indirect jobs per zone-based job to around two jobs in more integrated environments (Farole, 2011). Again, the current evidence and projections for South Africa's SEZs indicate that indirect jobs¹² are expected to be the key channel through which the zones deliver large-scale job creation.

Figure 12: Direct and indirect job creation in select IDZ/SEZs (current and projected)



Source: DTI SEZ Bulletin (July, 2015); various IDZ/SEZ reports; Note that the Saldanha and Atlantis 'steady-state' estimates are projections for development of the respective zones when they hit full development, which is estimated in the early 2020s according to current plans.

Figure 13: Specialization (location quotient) of metros in high value services



Data Source: Quantec

¹² In the data presented in Figure 12 it is, unfortunately, not possible to separate indirect jobs arising through supply chain linkages from indirect jobs coming from construction in the SEZs. This is important particularly because supply chain jobs are permanent while construction jobs are temporary.

The importance of supply chain linkages in generating employment may have important spatial implications for SEZs in South Africa. Supply chain spillovers in the manufacturing sector tend to be concentrated in two types of linkages – first, strong intra-industry linkages exist in key goods input supplies; second, are links to strategic services. As discussed earlier in this paper, intra-industry linkages tend, in most sectors, to exhibit substantial spatial concentration. As these agglomerations emerge through localization externalities, they need not be concentrated in metropolitan areas. The reality in South Africa, as in most economies, is that these clusters are concentrated in cities, with potential exceptions in certain mineral supply chains. The critical role of support services in generating employment spillovers amplifies further the importance of cities, where higher value services are highly concentrated – Figure 13 shows that metros overall are highly specialized in support services – this is particularly true in communications and finance and business services, where services are even more strongly concentrated in Gauteng metros and Cape Town (and to a lesser degree eThekweni).

Box 3: The geography of SEZs - theory and international experience

Cities offer a number of factors which tend to be critical for the success of large-scale, labor intensive SEZs, including access to deep and specialized labor pools, access to specialized suppliers and business services, connectivity to national and global markets, as well as access to quality social infrastructure (e.g. health and education) and cultural amenities. International experience supports theory, with SEZs typically flourishing in core areas and around key gateway infrastructure (seaports, airports). While few zones have managed to succeed in peripheral locations, counterexamples do exist. Examples include:

- **Bangladesh:** The country has eight SEZs, of which three are located in remote areas. While those in near the urban centers of Dhaka and Chittagong reached capacity quickly, those in remote areas remained largely vacant for anywhere from two to five years and never reached large-scale employment.
- **Thailand:** Of 47 industrial parks, those in rural areas have lagged far behind in attracting investment and creating jobs.
- **Indonesia:** Almost all Indonesia's operating EPZs are located in and around the two largest cities and main ports on Java (the main island) – Jakarta and Surabaya – and on the island of Batam located nearby Singapore. In the 1990s Indonesia launched the concept of "potential zones" and Integrated Economic Development Zones to target more outlying areas, without success.

- **Philippines:** Of almost 250 zones, well over half are located around Manila or in Luzon (the second major region, located in the south).
- **Turkey:** 20 FTZs, but 74% of the jobs were created through the free zones in Marmara (Istanbul and wider region) and Izmir; Similarly, most of the Organized Industrial Zones (OIZs) that have generated substantial investment and jobs are located in these same areas or around major ports (e.g. Gaziantep).

The cases of successful zones in peripheral areas are few and somewhat heterogeneous:

- **China:** With more than 1,500 locally-developed industrial zones, China has had a number of successful zones emerge in previously peripheral, inland locations. These zones tend to feature strong local leadership with innovative approaches to zone development and investment attraction. Several focus on highly specialized industry clusters (with large zones even focusing on specific stages within a vertical supply chain). On the other hand, the scale and density of development in China, even in relatively peripheral locations, makes it difficult to generalize from Chinese cases, as does the fact that there may well be many undocumented, counterfactual cases of failure within the huge zone program.
- **Poland:** A number of successful free zones emerged in lagging regions of Poland just prior to and following accession to the EU. These zones tended to be located in or near the main urban agglomerations in the peripheral regions. They also benefited from large subsidies and incentives, which were allowed by the EU on a transitional basis and which gave Polish zones an advantage over existing EU locations.
- **Turkey:** While the majority of successful OIZs are in the core (see above) several emerged in previously lagging internal regions, most notably in the "Anatolian Tigers" (including Kayseri and Eskişehir). These areas were notable for having strong entrepreneurial and manufacturing cultures, providing domestic investors with access to capital and business networks that allowed them to exploit the advantages offered by the OIZs.

Source: Derived from Farole, Kilroy, and Norman (2014)

So the concern about the current location strategy for SEZs in South Africa is two-fold. First, that the majority of zones are being targeted for locations that are not likely to be attractive for large-scale, labor intensive activities. This means that even if they are successful in attracting investment, job creation may be limited. Indeed, a number of the zones being targeted in more peripheral, inland

locations identify 'logistics' as their primary focus. This is a sector that relies on derived demand¹³ and is not particularly employment-intensive (at least 20 percent less labor intensive than most manufacturing sectors in South Africa¹⁴). Similarly, zones targeting mining supply chains, while they may be strategic for South African industrial policy, are likely to be highly capital intensive and may generate few jobs. Moreover, the dynamics of their economic geography are highly value chain specific – while beneficiation in some mineral value chains may take place economically near the mines, in other mineral value chains it may make more sense to locate near markets or export gateways (which will more likely be around metropolitan areas)¹⁵.

The second, and perhaps more important, concern is that the supply chain linkages that are critical to job creation (and indeed to making locations attractive in the first place) are unlikely to emerge effectively outside the core locations, due to the tendency toward metropolitan concentration of inputs and services suppliers.

3.3. The micro-geography of SEZs – the location of zones within metropolitan areas

A recent paper (World Bank, 2017) based on an analysis of 237 SEZs in 19 countries finds that while SEZs exhibit strong spillovers, the effects decay rapidly across space. Specifically, positive spillovers from SEZs were found to be significant only within a 10km radius from the zone. This not only provides further support to the argument that zones are likely to perform better in denser environments, but also raises important questions about the location of SEZs within a metropolitan context.

While industrial parks and industrial estates (including broad land use specialization, such as zoning industrial areas) traditionally were integrated into the core of metropolitan areas and played a key role as locations for medium and large-scale manufacturing, changes in technology, globalization, and production strategies have impacted significantly the approach to industrial land in cities (Robbins et al, forthcoming). The decline of large-scale, integrated manufacturing in many middle and high income countries, the emergence of global markets, including production organized around global value chains, and the shift toward technology and services intensive activities has changed the nature of demand for industrial land. The emergence of SEZs in part reflects some of these trends, including the increased demand for clustering, environmental concerns, and the emphasis on locations connected to global markets. Along with the (perceived, at least) need to establish SEZs as enclave environments with dedicated infrastructure and

regulatory environments, this has contributed to a focus on developments that are large in scale and greenfield in nature.

This has obvious spatial implications – most commonly, it has meant that SEZs are developed on the outskirts of large cities, where land is cheaper, where substantial tracts of land can be assembled and where connectivity to the wider domestic market and (especially) international gateways can be most efficient. These locations are often well beyond the 10km spillover range identified in the World Bank (2017) research. One result is that successful SEZs, often contribute to the suburbanization of jobs and the emergence of new 'edge cities', as suppliers seek to co-locate, and as workers seek housing and locations for consumption (retail and commercial). Recent research covering 120 SEZs in eight Chinese cities (Zheng et al, 2015) document the strong development of housing (and of house prices), commercial activities, and employment (as well as productivity) in close proximity to the zones, which were, on average, 25km from the corresponding city CBD. Thus, while this example highlights the significant catalytic development impact that is possible from zones, it also underscores once again the localization of SEZ benefits.

In South Africa, the locations of the metropolitan zones vary considerably (see Figure 14 through Figure 18). COEGA (located 20km outside the center of Port Elizabeth) and Dube Tradeport (close to 40km outside the center of Durban) appear to fit the mold of an 'edge city' development. In both cases, however, location choice for the zone was in part derivative of the siting for the major infrastructural investment around which the zones were to be developed – Ngqura Port and the King Shaka International Airport in Nelson Mandela Bay and eThekweni respectively. The Gauteng IDZ is based on a similar location strategy (but on a much smaller scale), the difference being that the areas linking the zone to Johannesburg and Tshwane are already dense with commercial, industrial, and residential activity. ELIDZ has some similarities to COEGA and DTP in that it is developed as a greenfield project on the outskirts of the city, with several important differences: i) it is located in closer proximity to the CBD; ii) it is smaller in scale overall and located in a denser area, making it unlikely to catalyze an 'edge city'; and perhaps most importantly, iii) its location is specifically targeted for its proximity with the existing automotive industrial cluster. Finally, Atlantis represents yet another model. While it is located at considerable distance from the Cape Town CBD (around 40km), it is a somewhat smaller-scale development including both greenfield and brownfield land.

These different location models highlight the important fact that within the metropolitan environment, even if

¹³ For highly strategic locations that have the potential to attract international traffic (mostly seaports) logistics can generate new demand, but in most cases it is serving existing domestic demand.

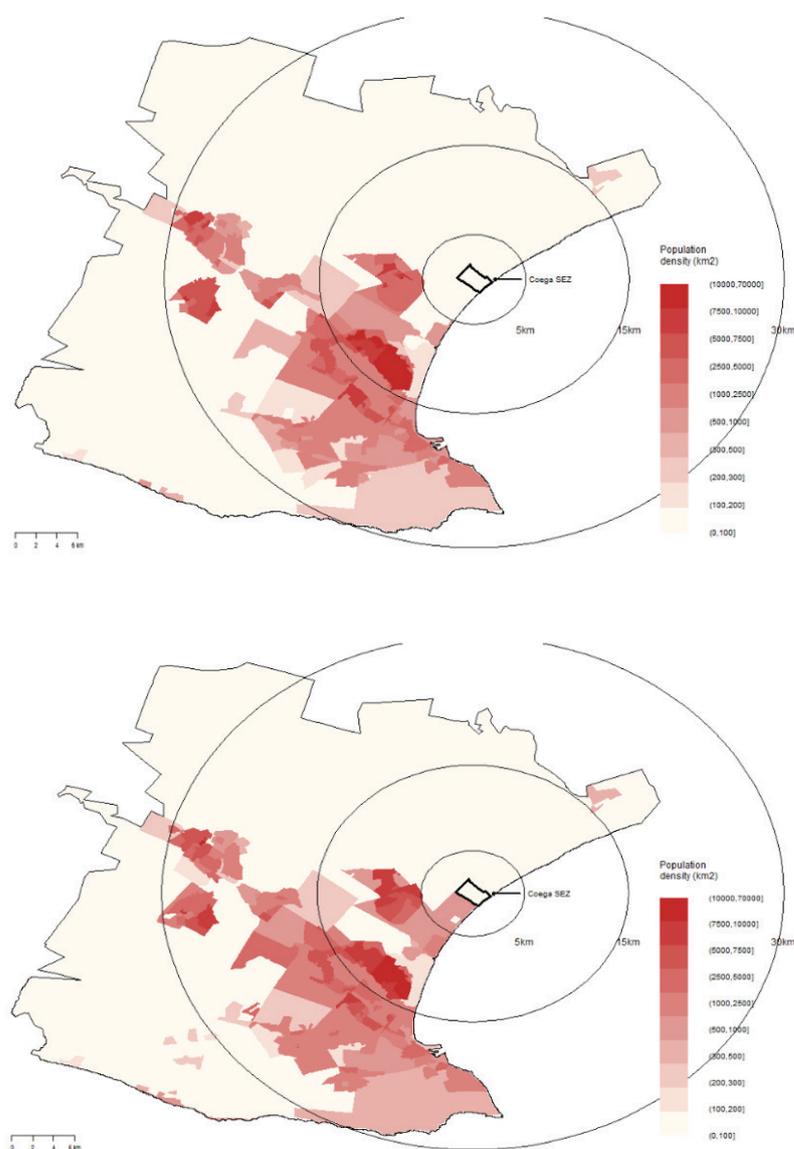
¹⁴ Source: Quantec

¹⁵ Investment location decisions will depend on the relative transport costs of unprocessed inputs versus processed outputs and the relative market locations of inputs and outputs.

there is a 'correct' *ex ante* location model for SEZs, in practice the location will depend on existing and planned infrastructure and the availability of suitable land. So the issue is not so much about *where* to locate the zones within metropolitan regions but rather how these zones can be integrated into the spatial and economic development planning environment to ensure that they have the best possible impact on inclusive¹⁶ job creation through ensuring effective connectivity to product and labor markets (which will in any case be crucial to the success of the zones). The map of COEGA IDZ in Figure 14 (2001) and Figure 15 (2011) highlights significant increases in population density in some areas in close proximity to the zone, suggesting some spillovers have occurred over the decade. However, overall the map

suggests development is concentrating more strongly at the opposite end of the city from COEGA. More generally, the examples shown in Figure 14 through Figure 18 indicate that South Africa's metropolitan SEZs, even if located well outside city centers, are often in proximity to residential areas with large labor forces and high levels of unemployment. This is to some degree a legacy of apartheid spatial policies that established townships far from the CBDs (Box 4). At the same time, the majority of the city populations in these examples are located at considerable distance from the influence area of the SEZs - meaning that without increasing mobility (through transport access or housing), the potential benefits of SEZs will confer to only a small set of market participants, limiting their potential for both scale and inclusivity.

Figure 14: COEGA location and population density: 2001 (top) and 2011 (bottom)



¹⁶ We refer to 'inclusive' job creation here to refer to access to jobs for the individuals and communities most in need.

Figure 15: COEGA - location and income levels in surrounding communities (2011)

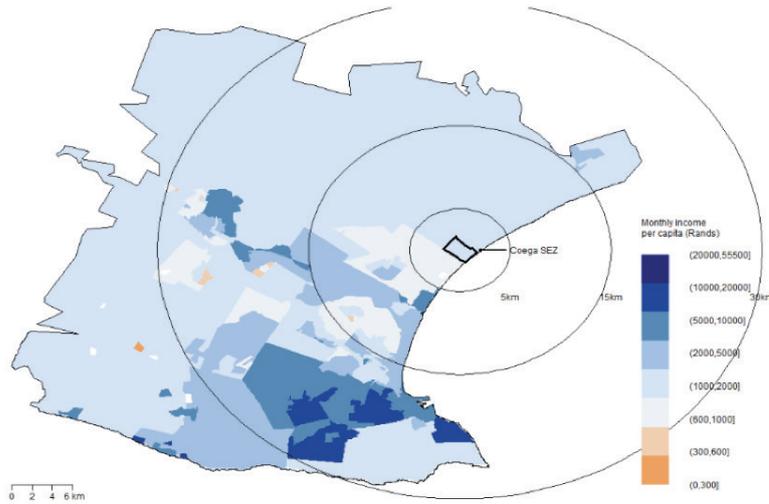


Figure 16: East London IDZ - location and population density / income levels of surrounding communities (2011)

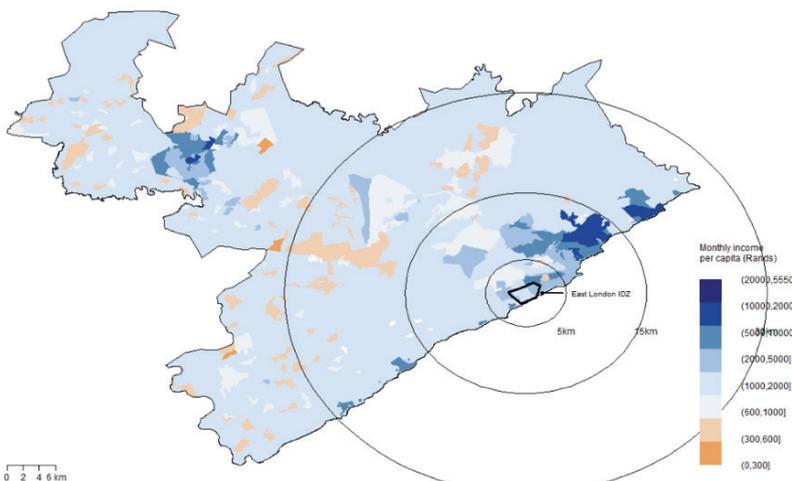
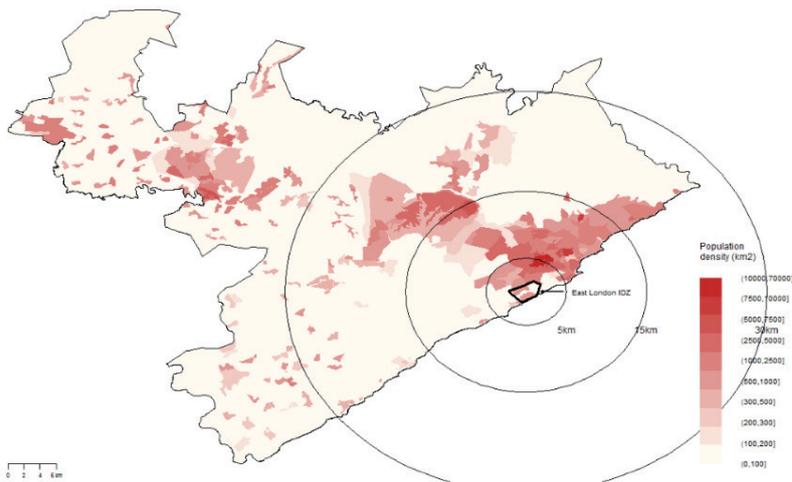


Figure 17: Dube Tradeport - location and population density / income levels of surrounding communities (2011)

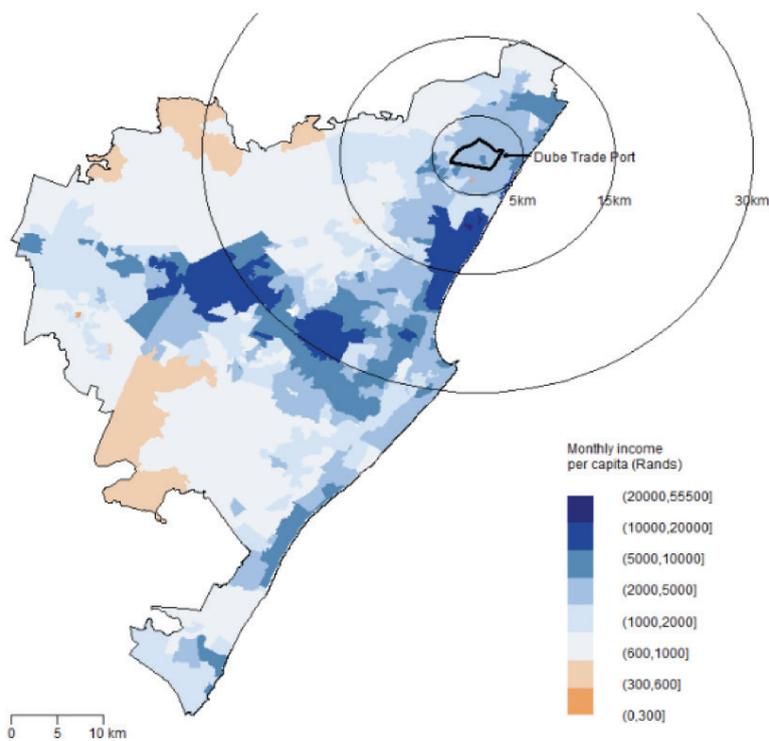
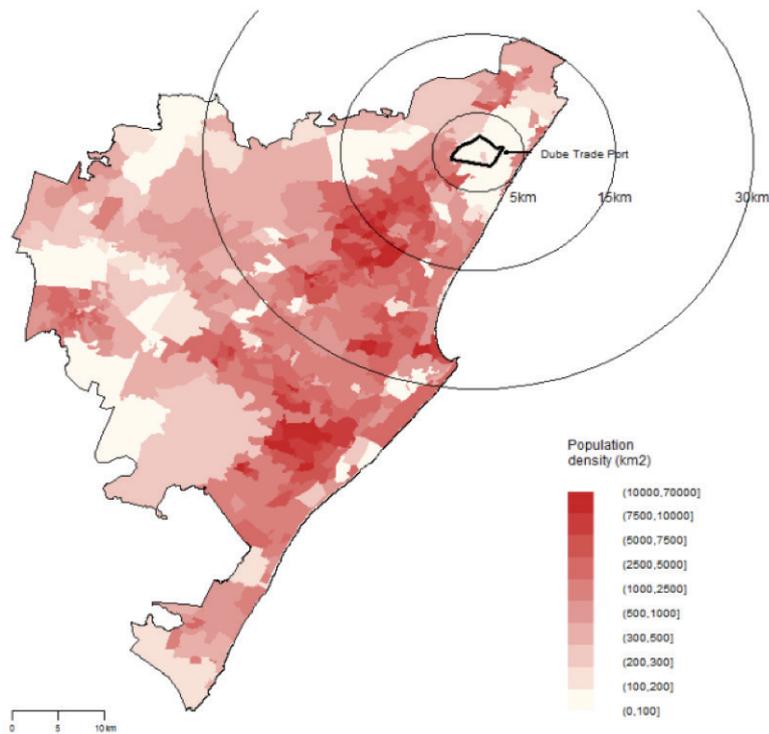
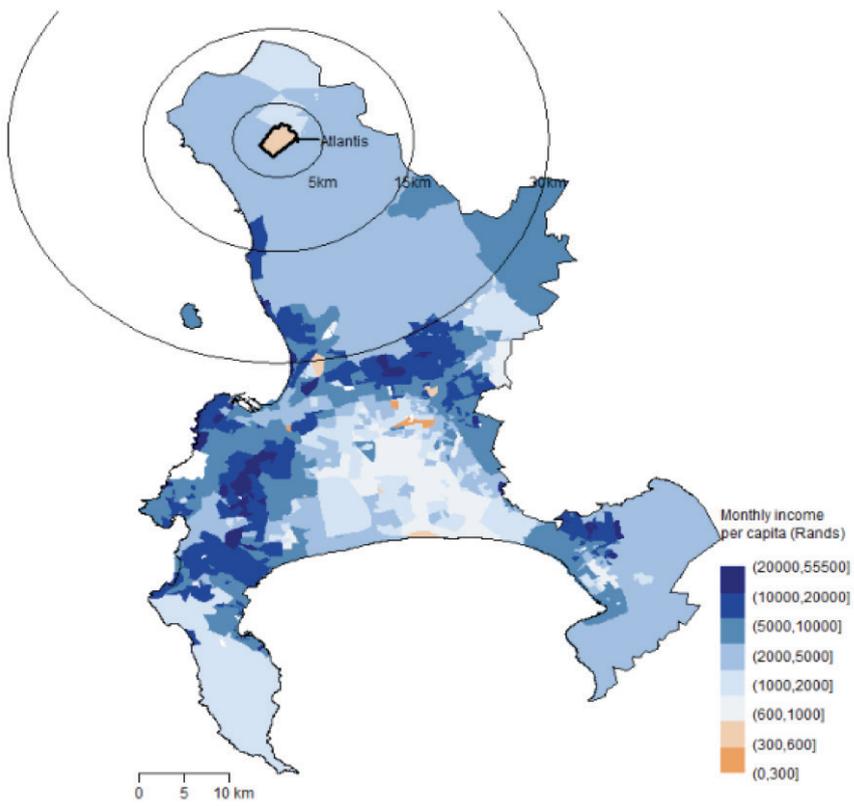
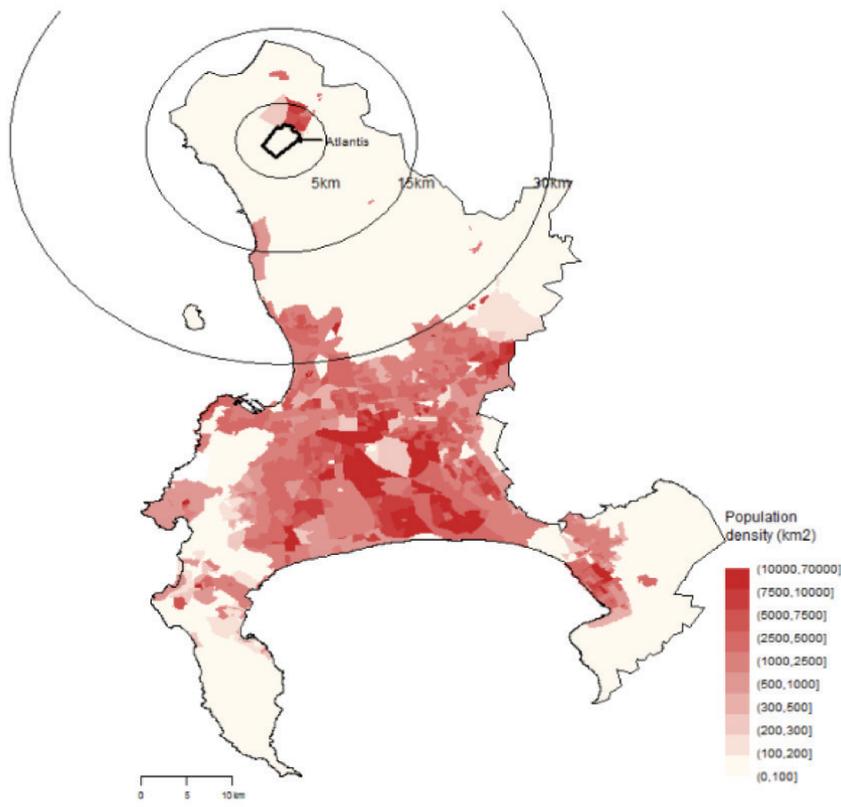


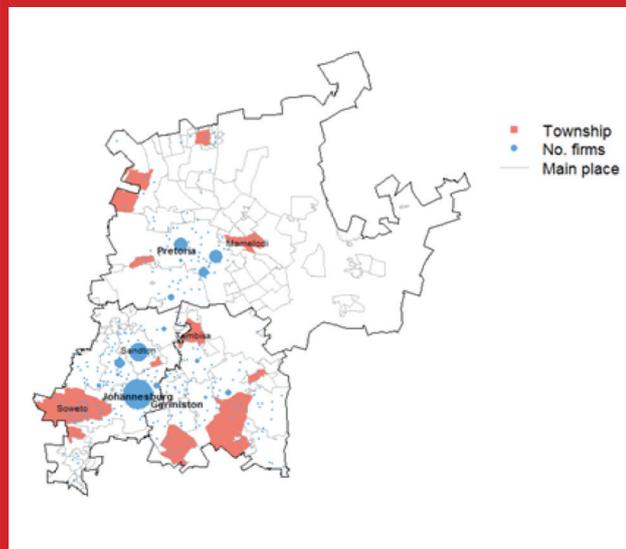
Figure 18: Atlantis (proposed) - location and population density / income levels of surrounding communities (2011)



Box 4: Is there an opportunity to use SEZ 'Edge Cities' to ameliorate South Africa's legacy of spatial mismatch in cities?

The term 'edge cities' (Garreau, 1991) typically characterizes former rural or residential areas on the periphery of large cities that emerge as new 'downtowns' or concentrations of business, residential, and commercial investment. In the US (where the concept was developed) and most other countries, edge cities reflect a process of suburbanizing investment and jobs, and as such can contribute to spatial mismatches, particularly acting as barriers to poor, inner city residents accessing job opportunities. But in the unique, distorted spatial structure of South African cities, could they have the opposite effect?

One legacy of apartheid spatial planning is that South Africa's cities lack density and exhibit polycentricity, with large metropolitan areas typically including several far-flung townships, disconnected from the city center, with large concentrations of population and poverty. This can be seen, in the case of Johannesburg, in the figure below. One well-accepted solution to improving the integration of labor markets in South African cities and raising productivity involves densification, including infilling. The development of an SEZ on the edge of the metropolitan area hardly seems in line with these objectives. Yet, if SEZs can instigate the development of edge cities in areas that encompass one or more townships, they have the potential to deliver integration benefits. For example, while COEGA's location raises challenges of integration with the Port Elizabeth CBD, it is located at the doorstep of a township – Motherwell – with around 150,000 residents and characterized by high unemployment and poverty. Dube Tradeport – located nearby an arguably already-existing 'edge city' in La Lucia – Umhlanga Ridge (Michel and Scott, 2005), has the potential to improve access to jobs for residents of KwaMashu, a township with a population of at least 175,000.



3.4. Intergovernmental coordination and locally embedding zones

It should go without saying that successful implementation of a large-scale program like SEZs, and indeed any spatially targeted intervention designed to deliver on both national and local economic development objectives, will depend on close government coordination. One of the principal shortcomings identified in the 2012 review of the IDZ program was the failure of effective government coordination to deliver on critical components of the program, for example in customs, in the business regulatory environment (one-stop services), and in the implementation of fiscal incentives. But while the focus of this review was on horizontal interactions across central government departments, vertical coordination of national, provincial, and local authorities is equally critical. This is particularly the case for ensuring the zones are embedded in their local economies and can, therefore, deliver the spillovers needed to contribute to the job creation objectives of the program.

Specifically, to ensure effective embedding of SEZs in the local and regional economy requires planning to ensure appropriate connection to and/or coordination with key municipal and regional infrastructure. Most importantly, this includes three types of infrastructure:

- *Transport:* Integration of transport planning is critical to facilitate (the flow of workers (and goods) between the SEZ and residential (and port/industrial) locations. While transport planning often involves coordination at various (including local, provincial / state, and national) levels and may be technically complicated, it is in often the least contentious aspect of the coordination process between SEZs and municipal authorities.
- *Electricity:* Depending on the scale of the zone and the nature of the activities taking place there, investment in electricity substations may require more or less coordination – in many zones this is an investment taken on fully by the zone developer.
- *Water and wastewater:* Many zones require large-scale investments in water and wastewater infrastructure that will not be for exclusive use within the zone, but will also serve nearby communities. Thus it often remains one of the most important areas of coordination between zone and municipal authorities, and can have significant fiscal implications

Outside of infrastructure, SEZs and local and regional authorities may coordinate on job creation strategies, including coordination for strategic planning of sector / cluster support strategies, and of skills development strategies. They may also coordinate on place marketing and investment promotion strategies.

In South Africa, neither the SEZ Act nor its enabling regulations make any explicit reference to 'cities', 'urban areas', or 'metropolitan areas', and as such there exist no provisions that either support or preclude a formal relationship between SEZs and the municipalities in which they are located. This relates not only to the linking of development strategies but also in terms of spatial planning. While this is not unusual in international SEZ experience, many programs make explicit efforts to link zones institutionally with local governments. In China, for example, local mayors are key actors in the establishment of industrial parks, and city governments share directly in the tax revenues that accrue, even from nationally-established SEZs. In Turkey, the Organized Industrial Zones are implemented (often in partnership with private sector investors) at the provincial level – roughly akin to the district municipality level in South Africa. In the new SEZ program being launched in Mexico, national, state, and local governments are required to enter into 'coordination agreements' after the designation of an SEZ to define their individual and mutual responsibilities. The Mexican SEZ Law also places specific responsibilities on the zone developers to undertake actions to promote integration (labor and supply chains) in the 'area of influence' of the zone.

In practice, coordination of spatial and economic development planning of SEZs with metropolitan counterparts varies considerably across the zones. For example, in eThekweni, planning coordination between the city and DTP was relatively limited until recently. In part this is for political and institutional reasons – the zone is a provincial-led project in which eThekweni Municipality has neither ownership nor Board representation.¹⁷ But it was also because zone was to be located beyond the 'edge' defined in the municipality's spatial plan and so, beyond where the city would provide services. Over time, the city obviously had to adapt and indeed it has shifted out the 'edge' to encompass the SEZ and works closely (if in an ad hoc manner) with the zone on key planning issues, most notably the development of a new wastewater treatment plant. But the lack of any formalized relationship or mechanism for cooperation from the start has had implications on integration of DTP with the city. For example, public transport links between the city and the SEZ are still lacking and the first phases of the city's bus rapid transit system (BRT) focus primarily on connecting the CBD and communities to the south and west, which represent the highest priorities to ensure access of populations to existing jobs and services. Indeed, much of the city-driven economic development planning focuses on revitalization of older industrial areas in the south and west (e.g. Pinetown). However, the city has also recently entered into a joint venture with Tongaat-Hulett (which is also a major player in the development of DTP) to build a new industrial park around Umhlanga Ridge (near DTP), as well as a large (25,000 unit) development of mixed-income housing. Such a development offers scope for

deepening labor market and supply links between DTP and the local economy.

Yet significantly more may be possible with a more integrated approach to spatial and development planning. This may include targeted efforts to facilitate transport accessibility between communities and the SEZ as well as programs for skills development. It could also, for example, include explicit efforts to ensure the city provides a facilitative environment – including through provision of industrial land and estates and upgrading of older estates, as well through regulatory simplification and service provision – to support investment in key supply chains linked to lead investments within the SEZ.

The experience in eThekweni is not unique. Similar challenges and limitations in coordination exist across most of the SEZ environments. For example in COEGA, while strong informal arrangements support spatial planning coordination, weaker formal political relationships and the power of private development in the city can lead to a disconnect – examples include the spatial bifurcation of the city (with COEGA in the east and most new developments taking place in the west), the weak transport links between COEGA and the rest of the metropolitan area, including the nearby suburb of Motherwell, which should provide the main source of lower skilled workers, and challenges over the revenue models for key services like water, electricity, and emergency services.

But while coordination is often problematic, there are also examples of very effective partnerships among local and regional actors that could serve as models for other municipalities. One good example here is the partnership between the Atlantis SEZ, the City of Cape Town, and the Western Cape provincial government. Importantly, the SEZ emerged as one plank of a strategy proposed as part of the 2010/11 'Atlantis Revitalization Plan', which involved an existing partnership program starting from a private sector partnership – the 'Atlantis Industrial Initiative'. This plan established a coordinated framework to align planning across stakeholders, including the province (provincial government and specifically Wesgro), the city of Cape Town, and Greencape, which is the project management office for the SEZ and plays a critical role as the coordinator of the partnership. Supporting the core partner members are a number of other stakeholders including national government (particularly the DTI), academic and training institutions, NGOs, and others. This partnership helped facilitate the development of the Atlantis SEZ and the wider 'greentech' initiative, including facilitating access to land, streamlining regulatory approval processes, improving transport access to workers, and supporting training and skills development (Box 5). This has had important implications not only for facilitating the development of the SEZ but also helping to ensure the zone would be integrated into the local

¹⁷ In fact, the city originally lobbied for an SEZ to be located not at the current DTP site but rather to link the back-of-port development at the old airport toward the South of Durban to Cato Ridge (N3 corridor)

and regional economy. Beyond the practical institutional partnerships, it is also worth noting that an important contributing factor to the effectiveness of the initial development in Atlantis has been the alignment of the zone with national, provincial, and local development strategies – this includes, for example, national policy around renewables and local procurement in the renewables supply chain, as well as provincial and metro strategies for the green economy (Ryan, 2015).

Box 5: The payoff from institutional coordination for SEZs: examples from Atlantis

The formal partnership arrangements put in place for the development of Atlantis SEZ have resulted in a number of practical, positive outcomes. Among these are the following:

- *Rapid approval of land for development:* Investors in renewables tend to require large tracts of land and the ability to move very quickly into operations. With the normal process for land disposals taking 20 to 30 months, this would have undermined the value proposition in Atlantis. As a result, it was agreed to establish a special land disposal board for Atlantis (including Wesgro, Greencape, the City of Cape Town [CoCT], and the province), and CoCT agreed to devolve power to this board. The result was land is able to be disposed within a period of 2 weeks.
- *Streamlined regulatory environment:* Beyond land disposals, the CoCT and Greencape worked together to establish a targeted investment support program with streamlined and accelerated regulatory approvals. For example, building plan approvals in Atlantis take just 5 days.
- *Integrated infrastructure planning:* Close coordination with CoCT has contributed, for example, to the CoCT extending electricity access to the Atlantis site through a new substation investment. In addition, it was agreed to extend Cape Town's BRT to facilitate labor access to Atlantis. Notably, factory owners also coordinated their shift schedules so that public transport services could be most effective.
- *Targeted skills audits, training, and support for supply chain linkage:* Working through a range of existing local, provincial, and national institutions, Atlantis has put in place a program for incubation of location SMMEs in the renewable energy, with the aim of facilitating upstream and downstream business opportunities in the SEZ. In addition, a targeted skills intervention is being implemented to upskill the existing workforce in the wider industrial area around the SEZ.

Source: Derived from Ryan, 2015

Similarly, development of the Gauteng SEZ suggests a collaborative approach to integrate city, province, and SEZ. The zone is being developed by the province (Gauteng Development Agency) but the city of Ekurhuleni is closely involved and is likely to end up as a license holder (along with the province) of the SEZ. The zone strategy is well integrated with the city and provincial economic development strategy – including the Urban Renewal Strategy and the 13-point Manufacturing Revitalization program. This strategic intervention has been helped by the fact that the SEZ has been granted the right to develop in non-contiguous precincts (which enables the SEZ instrument to be deployed as a tool to support existing spatial and sectoral strategies). Unlike many of the SEZs, the Gauteng zone at ORTIA benefits from an integrated transport plan, including access to a large labor force (in Tembisa, a township with a population of some 250,000) through a BRT line.

3.5. Fiscal risk

As noted previously, it is not the intention of this paper to comment on the cost-benefit of the SEZ program overall. For one, doing so would require a detailed assessment of capital and operating costs across a number of zones as well as costs inherent in the various fiscal incentives made available.¹⁸ An effective assessment would also require some counterfactual or at least an equivalent cost-benefit assessment of alternative policies that are currently being implemented for similar objectives. Perhaps more importantly, it is too early to assess the performance of the SEZ program. Any analysis of outcomes to date will arguably be relevant only to indicate the performance of the previous IDZ program and say little about performance of the new regime. However, in considering the implications of the SEZ program for cities (and more broadly for local and regional government) it is important to highlight the potential fiscal risks that may come with the program.

These risks come through two channels. First, there is the risk that provinces (especially) and cities could end up on the hook for continuing to fund potentially large operational losses in the SEZs. Leaving aside the large capital investments required for the zones, operational sustainability remains a problem. The business model of SEZs worldwide relies primarily on revenues from leasing land and facilities (factory shells, warehouses, offices), with value-added services (ICT, maintenance, security, etc.) adding a secondary revenue stream¹⁹. The problem with this model, particularly in government developed and operated zones, is that land and facility rental often becomes yet another source of fiscal incentive provided to potential investors. So major international investors that are trumpeted as proving the success of an SEZ often end up paying little or nothing for land, contributing

¹⁸ Moreover, it would be necessary to disentangle subsidies that might be available to investors outside the specific context of the SEZ regime

¹⁹ Note that a number of SEZs have achieved significant revenues through providing value-added services to tenants including labor brokering, training, logistics services, and even accounting and other back-office business services. However, for most SEZs such services remain a small share of revenues.

to the unsustainability of the zone. Looking at recent financial statements from existing IDZs indicates that they remain some way from being sustainable. COEGA, which interestingly has a large share of revenue coming from services such as consulting, training, and a travel agency (indeed, income from rental revenues account for just 23 percent of revenues over the last two published fiscal years) relied on government grants for one-third of income over this period. In ELIDZ, government grants released over the past two published financial years accounted for 70 percent of income. DTP, still in the early stages of development, relies heavily on provincial transfers to cover operating expenses. While these zones may be seen as still in 'start-up' mode, the reality is that many zones rely heavily on government transfers or cross-subsidization (e.g. in port-linked SEZs). For example, at Iskandar Malaysia, often highlighted as leading global free zone, 80 percent of income comes from government transfers.

Reliance on grants to close the operational funding gaps will impose a fiscal liability on the shareholders (license holders) of the zones. This may have some implications for municipalities but will mainly be the responsibility of provinces. The amounts could be significant. In the case of COEGA, for example, the operational deficit in the last published fiscal year was about R150m. Adding in costs of financing capital investments will raise the risks substantially.

The second concern also relates to capital investment and is likely to have a bigger impact on cities and other local municipalities. This is the potential for municipalities to take on substantial liabilities in financing bulk and related infrastructure investment linked to the zones. Under the SEZ program, DTI is providing substantial funding for basic infrastructure development in and around the zones (the so-called 'SEZ Fund'). However, this funding from national government is to be provided on a declining basis over a 3-5-year period. After this, provinces and municipalities will be expected to pick up investment costs, although it is likely that some of these can be covered through grants from the Critical Infrastructure Fund and other national sources. But even grant-funded infrastructure brings with it significant liabilities in terms of maintenance and future upgrading. In Buffalo City, for example, the metro now sits with responsibility for R250m of roads, electricity substations and wastewater infrastructure for ELIDZ. Of course, the city also earns revenues from utilities service provision, so in theory the incentives should be aligned. But the location and scale of some of the SEZs may alter this alignment. When SEZs are located outside the existing urban edge, it may not be possible to amortize the costs of investments in electricity substations and wastewater treatment through sharing with other users.²⁰ Similarly with public transport, where SEZs are in peripheral locations, there will likely be few

connections to other parts of the network, raising the relative costs of the investment.

4. Conclusions on SEZs and wider considerations for spatial industrial policy

Under the funding allocations for the Economic Competitiveness Support Package (ECSP), SEZs are allocated almost R4b over the three-year period covering 2015/16 through 2017/18. This accounts for 26 percent of all spending in the ECSP and 36 percent of spending in the Industrial Competitiveness segment of the package. While it has not been the intention of this paper to analyze the cost effectiveness of SEZ policy (and it would be far too early to do so in any case) it is worth considering the relative prominence and positioning of the SEZs as a policy instrument. First, consider the question: *how many jobs could be expected to come from the program?* At the current rate²¹, which admittedly reflects more on the IDZ than the SEZ regime, little more than 3,500 additional direct jobs could be expected from the public resources invested. If highly successful, up to 150,000 total jobs (including indirect and induced) may be possible²². This is significant, but still not sufficient to make more than a moderate contribution to South Africa's job creation needs. The analysis in Section 3.2 shows that this also holds true when looking at the level of individual cities and provinces.

A second way of considering the issue may be as follows: the amount of public resources that will go to the SEZs, including for planning, development of the zones, supporting infrastructure, and fiscal incentives, is large - more than just about any other single industrial policy initiative. In this context: are there aspects of the design and delivery that should be changed to ensure the program delivers more on jobs? *Are there alternative or complementary policies that could support this objective?*

The findings of this paper highlight several issues:

- *Place-based policies require choices to be made.* In an environment of constrained resources, this is even more critical, otherwise the impact of public investment is likely to be diluted. Targeting spatial industrial policies to raise industrial competitiveness and job creation potential of a small set of urban

²⁰ The scale of infrastructure investments tends to be large. For example, investing in an industrial wastewater treatment plant for use by investors in COEGA will end up having far greater capacity than COEGA needs, but there will be no other nearby users.

²¹ As of July, 2015 the cost per direct job created through the IDZs was R1.19m (around US\$81,000) at prevailing exchange rates as of 1 September, 2016 (ZAR14.68: USD1).

²² Using a benchmark of US\$5,000 per direct job and a multiplier of 2.5 jobs per direct job

agglomerations is likely to deliver significantly higher job creation on aggregate than policies aimed at industrial decentralization. This does not mean that there will not be specific non-urban locations where targeted spatial policies, such as SEZs, may be effective in attracting investment (for example, natural resource-specific locations, like platinum in Rustenburg). But international experience indicates that investments in non-urban locations is unlikely to be jobs-intensive.

- *More broadly, the objectives of large-scale manufacturing job creation and of reducing regional disparities are difficult to argue with, all the evidence suggests they are not compatible.* This does not mean both objectives should not be pursued in some form, but pursuing them with the same instrument – SEZs – may be problematic. SEZs are an instrument to help South African firms compete on a global scale; they are much less effective in reducing regional inequalities or promoting developing in ‘lagging regions’. SEZs have been most successful where they have been able to leverage intrinsic advantages of leading areas and cities to give a further boost to growth and job creation.
- *One of the biggest risks of using SEZs as the key spatial industrial policy instrument is that they tend to function as enclaves, isolated from the economy and development strategies of the local region in which they are based.* One solution to the challenge of enclaves is to reconsider the spatial limitations of zones. Adopting a non-contiguous model for SEZs, as is the case in the Gauteng SEZ, offers a model that could better integrate the SEZ instrument across a metropolitan area, so that it can effectively support multiple sectoral and spatial strategies. More broadly, putting greater attention on locally embedding the SEZs, in particular through support for local supply chain development, will be critical to generating large-scale job creation. Again, this is likely to require interventions targeted in urban areas.
- *SEZs should be considered just one instrument of a wider set of comprehensive interventions that target specific areas.* Without a competitive supply chain (as above), targeted training and skills development (linked to SEZ sectors), connective infrastructure, regulatory reforms / streamlining, etc., the SEZs are unlikely to deliver. Such comprehensive support must also be maintained over time and monitored on a regular basis.
- *At a more practical implementation level, efforts to deepen partnerships and coordination among key stakeholders – particularly between SEZs and cities but also between cities and the national government – based on successful models being implemented in South Africa and globally, will be critical to success of the program.* The flipside of this is that cities might benefit from leveraging the convening power of SEZs – their ability to mobilize all stakeholders to work within a common timeframe – to achieve broader development goals. This may, in fact, be the most useful role for SEZs to support locally-design, place-based development.

The bottom line is that SEZs a national program, but thus far they are not being designed and delivered systematically in collaboration with city (municipal) governments.

- *Cities need to establish a greater voice on spatial and industrial policy issues:* This paper highlights the importance of cities in the success of South Africa’s industrial policy as well as in supporting the objectives of spatial development. At the moment, cities are still sitting largely on the sidelines. It will, therefore, be critical for cities to establish a stronger voice to push for greater alignment and coordination of industrial and spatial policies.

In thinking about alternative and complementary policies for a more effective approach to spatial industrial policy, one consideration would be to look at more extensive and creative use of industrial infrastructure and broader land use policy. This could not only provide more flexibility in designing solutions that meet the needs of specific cities (and areas of cities) but also more flexibility to reach a wider range of locations that would be practical under an SEZ program. Potential channels for this could include:

- *Investing more heavily in smaller-scale, urban industrial estates (greenfield and revitalization), potentially linking with SEZs:* One downside of SEZs, even in a non-contiguous model, is that they are burdened with a legal and regulatory regime that differs from the surrounding economy. This limits its practical mobility. But cities already have legal powers, assets, and experience in managing industrial land and developing industrial estates. Making greater resources available to ensure quality industrial facilities are available to SME manufacturers may have a significant impact on industrial competitiveness and job creation. These could be linked explicitly with existing SEZs – for example in facilitating SME supplier linkages to SEZ-based investors.

Box 6: The importance of land for industrial development

Cities always face the challenge of balancing competing uses for land. Manufacturing, in particular, requires large amounts of land for production and warehousing. It also confers negative externalities including pollution. At the same time, manufacturing has traditionally been a critical driver of economic growth and employment as economies grow through middle income ranks. So land use regulation is a critical strategic tool in economic development planning.

The way cities manage their industrial land will determine to a large extent their industry mix. In order to enhance the productivity of industry, governments may want to set aside and/or subsidize land in good locations for industrial use. The protection of industrial land may involve: making city-owned land available for industrial use; providing assistance to developers of industrial rental space; and reducing real estate tax reduction for

new, renewal and expansion leases in industrial zones (Bloomberg, 2005).

A frequent challenge in urban areas of middle and high income economies is that the combination of increasingly stringent environmental regulation and pressure from more profitable commercial and residential uses, is making industrial land scarce, raising costs for manufacturers and accelerating the flight of manufacturing (and manufacturing jobs) from cities. A number of initiatives around the world, at local, regional and national levels, have attempted to ensure continued access to industrial land. Examples of initiatives taken in US cities include (Wolf-Powers, 2010):

- **New York:** In 2005, the city government established 16 Industrial Business Zones (IBZs) to safeguard manufacturing employment. It opened city-owned land to industrial development, prohibited residential rezoning, and provided income tax credits to firms relocating to IBZs.
 - **Seattle:** Statewide initiative to promote manufacturing through identification of Manufacturing / Industrial Centers in areas with good access to road / rail / air / waterways; protected heavy industrial areas while opening up range of uses in light industrial zoned areas
- Expanding the use of urban development zones / enterprise zones: The UDZ model has had some qualified success in South Africa's major cities (see Box 6). While it is designed currently for a commercial application, it is a simple instrument that could be adapted (potentially linked with the strategy noted above) to support facilitation to industrial land and upgrading of industrial facilities.

Box 7: Urban Development Zones and Enterprise Zones

UDZ incentives were launched in South Africa in 2003 for 16 designated inner cities, and an evaluation in 2008 concluded that the incentives had already been successful in making marginal developments viable. In particular, the tax incentives have: attracted previously unviable investments; brought forward investment in refurbishments and upgrades (especially because a deadline was set for the tax benefit); and extended the scale of property developments by increasing the future return on equity. The land area covered by UDZs is very substantial: for instance, in City of Johannesburg, the UDZ covers approximately 20km² of almost the entire inner city (including the CBD, Braamfontein, Hillbrow, Yeoville, Newtown, and other areas).

South Africa's UDZ initiative is rather narrower in focus than many 'enterprise zone' initiatives in North America and Western Europe, since its criteria for incentives focus on real estate redevelopment (i.e. erection, extension, addition, or improvement) rather than to business investment or creation. Enterprise Zones in those countries have explicitly promoted

investment and job creation into economically lagging cities or, more commonly 'economically distressed' parts of cities.

Could there be some gains to adapting a UDZ program in South African cities with a stronger focus on jobs and industrial development (rather than commercial real estate development)? On one hand, urban enterprise zones carry a risk, since they serve the same logic and suffer from the same weaknesses as SEZs designed to attract investment to remote regions. On the other hand, in lagging neighborhoods, deep labor pools, suppliers, services, infrastructure, and social amenities are more likely to be only a short journey away in a different part of the same city—hence 'urban enterprise zones' stand a better chance of success than SEZs in lagging and distant regions of the country.

Evidence on economic outcomes of urban enterprise zones (Neumark and Simpson, 2014) globally is decidedly mixed; in some cases, they have led either to no significant positive outcomes, or alternatively to positive outcomes within the zone that are neutralized by negative outcomes outside the zone (i.e. businesses move into the zone, and/or better qualified workers are drawn in from other areas of the city, but no new jobs are created overall, especially for local residents). These results beg the question about which zones are more successful than others, and why those zones are successful when others are not. Evidence on this question is thinner, but it seems likely that policies need to be addressed tightly to real economic constraints in order to generate results. For instance, several studies indicate that enterprise zones are unlikely to employ local residents unless they also include parallel skills support and linkages policies, and/or harness social networks. In other words, as with SEZs, fiscal incentives alone may not be sufficient.

Source: Farole, Kilroy, and Norman (2014)

Of course, the above assumes that access to quality industrial land and infrastructure is a key factor that will unlock job-creating manufacturing investment in South Africa. In fact, while there is no doubt that many locations lack quality industrial facilities, no solid evidence exists to suggest this is a binding constraint in South Africa. On the other hand, survey after survey highlights factors like labor costs / regulations / productivity, mid-level management and technical skills, electricity and transport infrastructure, and the business regulatory environment. While these issues need not be resolved (and indeed are not best resolved) through the instrument of SEZs, they should be at the forefront of government efforts. Yet, these issues are largely absent from the current industrial policy. In this context, alternative approaches might involve:

- *Rebalancing industrial policy toward 'unlocking agglomeration' through place-based approaches to addressing productivity, core infrastructure, and regulatory constraints:* While this is perhaps the most direct route to shaping competitiveness, job creation,

and industrial location, it is also the least likely to move forward as, overall, this set of policies face the biggest political constraints. Horizontal industrial policy in South Africa, as in most of the world, tends to be designed and implemented at the national level, with a 'one-size-fits-all' approach when it comes to places. However, targeting specific locations may actually be a more effective way of achieving horizontal industrial policy objectives Nathan and Overman (2013). There are two reasons for this: first, policy implementation may be more manageable at the local (for example, city) level; second, different places can support industrial development in different ways. Adopting a spatial approach to horizontal interventions, one that focuses on explicit spatial-targeting with the objective of maximizing the productivity benefits of agglomeration and reducing the congestion costs of cities (Nathan and Overman, 2013), suggests a potential framework for a spatially-attentive, and urban-oriented, industrial policy. One important implication of such an approach would be the need to embed industrial policy more fully in local contexts.

In seeking to address the misalignment and lack of coordination between spatial and industrial policy, approaches to be considered include:

- *Devolving power for industrial (economic development) policy:* This could involve explicit planning processes and funding to support bottom-up (place-based) development strategies, as is done in Korea. Another model, used in the US and Philippines, involves mechanisms to encourage competition among localities in the design of and implementation of local economic development strategies and in the delivery of economic and social services. In the Netherlands, the local development approach to economic and industrial planning is linked anchored in a city-region approach and built around regional comparative advantage, helping to ensure a realistic strategy that leverages agglomeration potential.
- *Linking regional and industrial strategies explicitly:* The corridor development approach, used extensively in Malaysia, is one mechanism that forces industrial policies to have an explicit spatial focus. In Korea, strategic industrial strategies are designed to be delivered around different spatial scales.

Finally, going back to the very beginning of this paper, it is important to acknowledge that South Africa does have very real problem of spatial inequality that deserves considered efforts to address. It is also important to state that while this paper argues for leveraging agglomeration and putting greater emphasis on cities to drive growth and job creation, this is not an 'either or' question. Rather, the focus should very much be on leveraging the potential of cities – as markets and as supply chain leads – to support lagging parts of the country. Potential areas of focus here include:

- *Corridor developments:* The above example from Malaysia is also relevant for reaching into rural

areas and connecting them to developments in core agglomerations.

- *Agricultural value chains:* Spatial industrial policies that target the agricultural sector can help raise rural incomes and support rural job creation through linkages with urban markets and processing centers. South Africa's Agriparks program is one model that may be relevant for consideration.
- *Rural-urban connectivity:* Finally, improving connectivity by addressing infrastructure constraints that prevent effective rural-urban links are central to the spatial industrial policy agenda in South Africa.

References

- Aghion, P., Dewatripont M., Du L., Harrison A., Legros P. 2012 Industrial Policy and Competition. National Bureau of Economic Research Working Paper Series No. 18048, Cambridge, MA, NBER.
- Barca, F. 2009. An Agenda for a Reformed Cohesion Policy: A Place-Based Approach to Meeting European Union Challenges and Expectations. Brussels: European Commission, DG-REGIO.
- Bell, T.W. 2017. Your Next Government: From Nation State to Stateless Association. Appendix 1, Cambridge University Press 2017, available at: goo.gl/ju7lfQ
- Bloomberg, M. 2005. Protecting and Growing New York City's Industrial Job Base. New York City Industrial Policy.
- Chauvin, J. P., Glaesar, E., Yueran, M. and Tobio, K. 2016. What is Different about Urbanization in Rich and Poor Countries? Cities in Brazil, China, India and the United States. Journal of Urban Economics, doi:10.1016/j.jue.2016.05.003
- DRDLR. 2016. Agri-parks Presentation: CPI and Traditional Leadership Workshop. Available at: <http://www.ruraldevelopment.gov.za> (Access 19/07/2016)
- DTI (Department of Trade and Industry). 2013. The National Industrial Participation Program Revised Guidelines 2013. Available at www.thedti.gov.za/industrial_development (Accessed 19/07/2016)
- DTI. 2016. Industrial Parks Revitalization Program: Presented to the Portfolio Committee on Trade and Industry. Available at www.thedti.gov.za/parliament/2016 (Accessed 18/07/2016)
- DTI website. 'Financial Assistance: Cluster Development Program'. Available at https://www.thedti.gov.za/financial_assistance (Access 18/07/2016)
- Duranton, G. and Puga, D. 2004. "Micro-Foundations of Urban Agglomeration Economies." In Handbook of Urban and Regional Economies, vol. 4, ed. J. Vernon Henderson and Jacques Thisse. Amsterdam: North-Holland.
- Duranton, G. and Puga, D. 2013. The Growth of Cities. CEPR Discussion Paper 9590.
- Duranton, G. 2011. California Dreamin': The Feeble Case for Cluster Policies. Review of Economic Analysis 3: 3-45.
- Duranton, G., Martin, P., Mayer, T. and Mayneris, F. 2010. The Economics of Clusters: Lessons from the French Experience. CEPREMAP Studies of Policy Reform.

Farole, T. 2011. *Special Economic Zones in Africa*. Washington, DC: The World Bank.

Farole, T. Kilroy, A., and Norman, M. 2014. *Special Economic Zones (SEZs) and Cities: Opportunities for mutual benefit in South Africa*. The World Bank, Washington, DC.

Farole, T. and Winkler, D. 2014. *Making Foreign Direct Investment Work for Sub-Saharan Africa: Local Spillovers and Competitiveness in Global Value Chains*. Washington, DC: The World Bank.

Garreau, J. 1991. *Edge City: Life on the New Frontier*. New York, NY: Doubleday.

Glaeser, E. and Gottlieb, J. 2008. *The Economics of Place-Making Policies*. Brookings Papers on Economic Activities, Spring 2008.

Glaeser, E. and Joshi-Ghani, A. 2013. *Rethinking Cities: Toward Shared Prosperity*. The World Bank Economic Premise Number 126.

Glaeser, E. 2011. *Triumph of the City*. London: Macmillan.

Kingombe, T. and te Velde, D.W. 2013. *Structural Transformation and Employment Creation: The Role of Growth Facilitation Processes in Sub-Saharan Africa*. ODI for the World Bank, Washington, DC.

Kraemer-Mbula. 2008. *Sectoral Analysis of the Aerospace Industry in South Africa*. Institute for Economic Research on Innovation. Available at <http://www.labour.gov.za/>

Krugell, W. and Naude, W. 2005. *The Geographical Economy of South Africa*, *Journal of Development Perspectives*, 1: 85-128.

Krugman, P. 1991. *Geography and Trade*. Cambridge, MA: MIT Press

Makgetla, N. 2010. *Rural Development: Synthesis paper*. Development Bank of Southern Africa, Midrand

Markusen, A. 1996. *Interaction Between Regional and Industrial Policies: Evidence from Four Countries*. *International Regional Science Review*. 19(1): 49-77.

Marshall, A. 1890. *The Principles of Economics*.

Martin, R., Pike, A., Tyler, P., and Gardiner, B. *Spatially Rebalancing the UK Economy: The Need for a New Policy Model*. Regional Studies Association, March 2015.

Michel, D.P. and Scott, D. 2005. *The La Lucia and Umhlanga Ridge as an Emerging 'Edge City'*. *South African Geographical Journal*. 8(2): 104-114.

Moretti, E. 2010. Chapter 14: *Local Labour markets*. *Handbook of Labour Economics*, Vol. 4b.

Nathan, M and Overman, H. 2013. *Agglomeration, clusters and industrial policy*. *Oxford Review of Economic Policy*, Vol. 29, No. 2: 383-404.

Naude, W. and Krugell, W. 2003. *An Inquiry into Cities and Their Role in Sub-National Economic Growth in South Africa*, *Journal of African Economies*, 12: 476-499

Neumark, D. and Simpson, H. 2014. *Place-based Policies*. NBER Working Paper 20049, National Bureau of Economic Research.

OECD. 2009. *How Regions Grow: Trends and Analysis*. Paris:

OECD.

Overman, H. G. and Venables, A. J. 2005. *Cities in the Developing World*. Centre for Economic Performance Discussion Paper No 695.

Page, J. 2012. *Can Africa Industrialise?* *Journal of African Economics*. Vol 21, No 2: 86-123.

Robbins, G. 2015. *Searching for Space in South Africa's Post-Apartheid Industrial Policy*. Presentation to Economies of Regions Learning Network Conference. Pretoria, October, 2015.

Rosenthal, S and Strange, W. 2004. "Evidence on the Nature and Sources of Agglomeration Economies." In *Handbook of Regional and Urban Economics*, vol. IV, ed. J. Vernon Henderson and Jacques Thisse. Amsterdam: North-Holland.

Ryan, G. 2015. *Lessons from The Regional Development Approach in Atlantis, Western Cape*. Paper presented to Economies of Regions Learning Network Conference. Pretoria, October, 2015.

Smith, A. 1776. *The Wealth of Nations*.

Todes, A. 2013. *Spatial Targeting: Lessons from South African Experience*. Background Report for the Workshop on Spatial Targeting, 3-4 October 2013.

Todes, A. and Turok, I. 2015. *The Role of Place-based Policies in Economic Development*. Paper presented at the Economics Region Learning Network Conference on Economies of Regions, Pretoria, October, 2015.

Turok, I. 2012. *Urbanisation and Development in South Africa: Economic Imperatives, Spatial Distortions and Strategic Responses*. IIED Urbanisation and Emerging Population Issues Working Paper 8.

Wellings, P. and Black, A. 1986. *Industrial Decentralisation in South Africa: Tool of Apartheid or Spontaneous Restructuring?* *GeoJournal* (1986) 12:137.

World Bank. 2017. *Special Economic Zones: An Operational Review of Their Impacts*. Washington, DC.

World Bank, 2016. *Factory Southern Africa? SACU in Global Value Chains*. Washington, DC: The World Bank.

World Bank, 2015. *Competitive Cities for Jobs and Growth: What, Who, and How*. Washington, DC: The World Bank.

World Bank. 2009. *The World Bank Development Report: Reshaping Economic Geography*. Washington, D.C.: The World Bank.

World Urbanization Prospects. 2014. Department of Economic and Social Affairs. Population Division. New York: United Nations.

Zheng, S., Sun, W., Wu, J., and Kahn, M. 2015. *The Birth of Edge Cities in China: Measuring the Spillover Effects of Industrial Parks*. NBER Working Paper No. 21378, National Bureau of Economic Research.

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