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COMPARATIVE ADVANTAGE AND COMPETITIVENESS OF MAIN INDUSTRIES IN THE NORTH-EASTERN REGION OF SOUTH AFRICA: APPLICATION OF LOCATION QUOTIENT AND SHIFT-SHARE TECHNIQUES

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ABSTRACT

It is important for policy makers to know where main industries are regionally concentrated. This allows investors to take carefully calculated risks on opportunities and for development policy makers to prudently provide the right economic development direction and properly implement strategies for the regional and/or national development. The primary objective of this paper is to provide an empirical investigation of the geographic concentration of the main industries in South Africa by means of comparing four selected provinces. This paper focuses on two economic base techniques, namely the location quotient and shift-share analysis that both seek to examine industrial advantages (disadvantages), structure and competitiveness. The key findings indicate that the comparative advantage declined in different industries. A worrying industry is mining in Mpumalanga and Limpopo provinces, where there is a remarkable decline in LQs and, thus, these industries need intensive care. In terms of shift-share analysis, regional competitiveness factors were the largest positive contributor in two industries in KwaZulu Natal, three in Gauteng and Mpumalanga and four in Limpopo province. Considering the state of employment in the primary sector (agriculture and mining), the results suggest that policy makers should keep accelerating the construction of large and medium sized industrial enterprises, promoting and encouraging the development of secondary industry, and actively enhance the development of the tertiary industry in the north-eastern region of South Africa.

Key Words: Competitiveness, Location Quotient, Comparative Advantage, Shift-share Analysis, South Africa

JEL: R10, R11, R12

1. INTRODUCTION

Economic disparities across provinces and local municipalities are remarkable in developing countries such as South Africa. Economic development practitioners, policy makers, development planners, investors and business people alike have much to gain from a careful consideration of the economy. It is very important for local and foreign investors to know which industry is more concentrated in a particular region and which is non-existent. Such identification allows investors to take careful risks and for development policy makers to prudently provide the right guidance and put in place proper strategies for the future of these regions and for development nationally.

Brakman, Garretsen and Marrevijk (2001) define industrial concentration as the location of a few or many main and well-defined industrial sectors in a region. According to Mori, Nikishimi and Smith (2005), industrial concentration is due to available assets in a region such as specific resources, sufficient skilled needed labour and proximity to consumer markets. For Ferreira, Goldszmidt and Csillag (2010:346), industrial concentration is a phenomenon far more common than is usually imagined, and not just limited to classic examples like Silicon Valley and Boston's Route 128 in the United States of America. In the most recent three decades, industrial concentration and clusters have been regarded as a new and important alternative strategy for economic development. In other words, the location and concentration of industries are regarded as sources of competitive advantage, capable of leveraging the competitiveness of countries, regions and province (Boasson, Boasson, Macpherson & Shin, 2005). In addition, industry concentration serves as a proxy for understanding a region's economic base which means that the region's industries produce more goods and services than needed to satisfy local consumption. According to Froeschle (2005), the regional economic base is a group of industries that generates the greatest amount of employment and income in excess of the needs of the local community.

Regional competitiveness is and has been a topic of interest among researchers from different fields of studies such as economics, development studies, local economic development and public policy. On a country level, according to Iordan

and Chilian (2017), "competitiveness involves territorial dimension, the localisation of the competitive economic agents being usually concentrated within certain areas of the national territory." Martin (2003) defines competitiveness as "the capability to produce goods and services that meet the market requirement, at the same time maintaining high and sustainable incomes" or "the capability of regions to generate relatively high incomes and employment when facing foreign competition." Therefore, for any region to be competitive, it should be able to be attract and offer a sustainable environment for people to live and work.

This paper seeks to apply the economic base techniques using a case study of the north-eastern region of South Africa. Four provinces in this region, namely Gauteng (GP), KwaZulu-Natal (KZN), Limpopo (LP) and Mpumalanga (MP) are analysed. The paper is significant because all stakeholders have much to gain from a careful regional economic base analysis as economic conditions form the basis of nearly every decision made.

2. DATA COLLECTION AND METHODS

One of the ways used to examine a regional economy is economic base analysis. Its goal is to uncover and reveal the characteristics, strengths, weaknesses and trends that describe a regional economy (Mpumalanga Department of Economic Development and Tourism, 2017). There are a number of techniques which use economic indicators or data to reveal the characteristics that differentiate a regional economy and describe its uniqueness. Economic base analysis proves itself a useful tool in public administration, local economic policy development and the business environment. Economic base analysis techniques aim to "identify the major sources of income and employment in the local area, and to anticipate the changes in the local economic structure, both those that tend to occur naturally and those that should be encouraged in the development of the diversified industrial base" (Froeschle, 2005:1).

There are many different economic base analysis techniques, but this paper applies the most well-known, namely the location quotient analysis and shift share analysis. These two analysis techniques seek to examine the competitive advantage, comparative advantage and regional competitiveness of the four provinces in the north-eastern region of South Africa. These two techniques are used in tandem, the location quotient and the shift-share techniques provide an

economic base analysis that concentrates on industries in which the regional economy specialises as well as those which are experiencing employment growth in the region. This paper presents the findings of an economic base analysis applying location quotient and shift-share analysis over the period of 2012 to 2017. The data used was selected from the Quarterly Labour Force Survey (QLFS) conducted by Statistics SA (STATSSA).

2.1 Location quotient

Location quotient (LQ) is a metric for gauging the relative concentration or specialization of one or more industries, industry sectors or industry clusters in an area which can be a cluster, town, region or a province. Location quotient is a valuable way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region (municipality, district and/or province) as compared to the nation. A region's uniqueness vis-à-vis national average can be revealed by LQs. Location quotients are very important techniques because they indicate areas that have existing concentrations of workers with transferable skills, interconnected businesses, suppliers, and related industries, or growing industry areas where employment in that sector is weak but growing. According to the Mpumalanga Department of Economic Development and Tourism (2017:1), they are used to identify potential sources of the following:

- *Competitive advantage (that which allows a province to outperform others),*
- *Comparative advantage (the ability to produce goods/services at a lower opportunity cost than competitors),*
- *Areas of regional specialisation (strengths in relation to the national norm).*

In this case, the industry location quotient is a way of quantifying how concentrated industries are in each of the four provinces mentioned above compared to South Africa as a whole. If the LQ is less than 1.0 it may indicate that the industry in the region is weak and may indicate an opportunity to develop it in the local area. If the LQ is between 1.0 and 1.2, it indicates normal distribution of that industry with little specialization and usually suggests

proportionally more workers employed in the specific industry than in a larger comparison area. An industry with an LQ of 1.2 or higher indicates some degree of specialisation. In other words, such an industry in the region, province or local area has the potential to be classified as an exporter. Simply, LQ is a tool for assessing a region's specialisation in an industry (Blair & Carroll, 2009). Industries with these quotients generate goods and services in excess of what is required within the province.

Location quotient formula

$$LQ = \frac{\left(\frac{X}{Y}\right)}{\left(\frac{X'}{Y'}\right)} \quad (1)$$

Where, X stands for provincial employment in industry A; Y for provincial total employment, X' is South Africa employment in industry A; Y' is the South Africa total employment and LQ is the location quotient.

To simplify and make it more understandable, therefore, the equation 1 for Gauteng Province (GP) would be re-written as follows:

$$LQ = \frac{(GP\ Employment\ in\ industry\ A)/(GP\ Total\ employment)}{(SA\ Employment\ in\ industry\ A)/(SA\ Total\ employment\ )} \quad (2)$$

Therefore, "the employment LQ is the ratio of the percentage of regional employment in a particular industry to the comparable percentage in a benchmark area which is usually the country (Blair & Carroll, 2009; Leigh & Blakely, 2017). Dynamic Location Quotient (ΔLQ) is also calculated to understand what is happening in a particular industry. This is because, when interpreting LQ, the following two things should be looked at: i) a particular industry may have a high LQ with a very small number of jobs which may not be important to a province's economy; ii) a high LQ industry may be experiencing a decline in LQ over a period of time, which could suggest high risk of many jobs being lost in the province. Therefore, to confirm the dynamic changes in employment, ΔLQ is estimated as a percentage change in LQ over time and size of the industry in terms of jobs.

By combining dynamic location quotient (employment growth) and LQ, industries in a province can be grouped into four categories:

- *Competitive industries:* the industries with an LQ of 1.0 or greater with a positive ΔLQ or employment growth. These industries hold a comparative advantage over the industry in the base region, and are also expanding the advantage over time. These industries are "*standouts*" that distinguish the provincial economy and will increasingly do so. Therefore, they are also known as growing base industries.
- *Emerging industries:* the industries with an LQ less than 1.0 but with a positive ΔLQ or employment growth. These industries do not yet have a comparative advantage, but are becoming more competitive. If these industries continue this trend, they will move over the horizontal cut-off into the upper right quadrant (Refer to Table 3). They can be called "*pre-emergent*" industries, having the potential to contribute more to the region's economy in future.
- *At-Risk industries:* the industries with an LQ of 1.0 or greater with a negative ΔLQ or employment loss. These industries hold a comparative advantage over other industries in the base region, but this advantage is declining. If a medium or large industry is in this category, it is an important warning that the province is losing a major part of its economy and should reappraise planning and investment priorities accordingly. In other words, this industry requires "*intensive care*". Such industries are also regarded as transforming industries (Mpumalanga Department of Economic Development and Tourism, 2017).
- *Declining industries:* the industries with an LQ of less than 1.0 with a negative ΔLQ or employment loss. These industries hold "*little promise*" in terms of relative employment size and labour growth. However, the province needs to attract more businesses in those industries in order to maintain an economy that is sufficiently balanced and diversified in comparison to the national economy.

It is not always a case that the location quotient is sufficient and enough of a method to understand and forecast the regional economic growth (Blair & Carroll, 2009). This is why this paper intends to support LQ techniques with the shift-share analysis method.

2.2 Shift-share analysis technique

Shift-share analysis is intended to express the factors that cause differences in growth between the regions and the analytical possibilities that it offers are numerous (Esteban-Maquillas, 1972: 249; Blair & Carroll, 2009; Leigh & Blakely, 2017).

Formula

Change in employment in a certain industry
= employment in that industry in the most recent year
− employment in that industry in the first year

It can also be expressed as follows:

Change in employment in a certain industry
= changes due to national trends + change due to provincial shift
+ change due to industrial Mix

Mathematically it is expressed in the form of the following equation:

$$\Delta e_i = e_{it} - e_{it-1} = NS_i + RS_i + MI_i \quad (3)$$

Where *"e"* stands for regional employment in industry *i,* "NS" for change due to national trends, "RS" for change due to regional shift and "MI" for change due to industrial mix, while *"i"* is for industry and *"t"* for time.

The national growth effect explains how much of the provincial industry's growth is accounted for by the overall health of the national economy, meaning that, regardless of the industry, the overall growth or decline has an impact on local employment (Leigh & Blakely, 2017). The industrial mix effect represents the share of provincial industry employment growth explained by the employment growth of the industry at the national level. In other words, it is employment growth in a particular industry that differs from the national average because of the initial employment composition of a region (Blair & Carroll, 2009). The regional competitiveness effect is the most important of the three indicators, as it explains how much of the labour change in a given industry is due to some unique competitive advantage that the province possesses. Therefore, according to Leigh and Blakely (2017), the three components can also be expressed as follows:

$$NS_i = e_{it-1} * \frac{(E_t - E_{t-1})}{E_{t-1}} \quad (4)$$

National growth effect = local industry employment in base year x national average growth rate.

$$RS_i = e_{it-1} * (\frac{e_{it} - e_{it-1}}{e_{it-1}} - \frac{E_{it} - E_{it-1}}{E_{it-1}}) \quad (5)$$

Local share effect = local industry employment in base year x local industry growth rate – national industry growth rate.

$$MI_i = e_{it-1} * (\frac{E_{it-}E_{it-1}}{E_{it-1}} - \frac{E_t - E_{t-1}}{E_{t-1}}) \quad (6)$$

Industry mix effect = local industry employment in base year x (national industry growth rate – national average growth rate); where

E_i = Reference area employment in industry *i* and *t* is the time.

E = Total reference area employment.

3. RESULTS ANALYSIS AND DISCUSSION

The results show that Mpumalanga Province had a comparative advantage in agriculture, mining, utilities, construction, trade and private households in both 2012 and 2017. Limpopo Province held a comparative advantage over national industries in five industries, namely agriculture, utilities, construction, trade and community services in both 2012 and 2017. KwaZulu-Natal Province held a comparative advantage in manufacturing, construction, transport and private households while three industries in Gauteng had LQs of 1 or higher in both 2012 and 2017. Furthermore, some industries' comparative advantage declined remarkably between 2012 and 2017 such as agriculture and mining in Mpumalanga and mining in Limpopo despite these two provinces being among the top producers in these sectors. This is in line with Barker (2015) who confirms that agriculture and mining sectors' contribution to GDP has been decreasing and both have suffered huge employment losses in recent years.

Besides Gauteng Province, other provinces held a comparative disadvantage in the finance industry. KwaZulu-Natal Province held a comparative disadvantage in

agriculture, mining and utilities. The results further indicate that the Gauteng Province is weak in terms of agriculture, mining, utilities, construction, trade and community service. For the Limpopo Province, the comparative disadvantages appear in manufacturing and transport while in the Mpumalanga Province these are in manufacturing and community services. When considering the number of people employed in these industries with comparative disadvantage, these findings are not hopeful. It should be noted, however, that a direct effect of the generalised slump, for example, in commodity demand and prices, has been a sharp downturn in mining, and a prolonged and severe drought in many parts of the country has had a severe impact. Table 1 presents the LQs for the main industries for the four provinces the paper focuses on.

Table 1. Location quotient of industries, 2012Q2-2017Q2

	KZN		GP		MP		LP	
INDUSTRY	**2012**	**2017**	**2012**	**2017**	**2012**	**2017**	**2012**	**2017**
Agriculture	0,79	0,92	0,36	0,13	1,89	1,50	2,01	2,02
Mining	0,29	0,13	0,28	0,63	2,56	1,65	2,47	0,27
Manufacturing	1,23	1,02	1,15	1,18	0,62	0,83	0,51	0,68
Utilities	0,69	0,42	0,75	0,86	3,62	3,77	1,42	1,13
Construction	1,12	1,06	0,87	0,88	1,05	1,00	1,22	1,08
Trade	0,98	1,04	0,95	0,94	1,20	1,04	1,17	1,04
Transport	1,32	1,10	1,05	1,24	1,03	0,76	0,87	0,71
Finance	0,86	0,90	1,44	1,39	0,68	0,78	0,41	0,49
Community services	0,98	1,08	0,97	0,96	0,70	0,91	1,04	1,04
Private households	1,05	1,10	1,01	0,94	1,06	1,12	0,92	1,06

Source: Own compilation

Tables 2 and 3 present dynamic LQs and the classification of main industries (four-quadrant table) respectively. According to the results of the dynamic LQ and LQs, standout industries are manufacturing (GP), transport (GP), utilities (MP), agriculture (LP) and private households (KZN, LP, MP). These industries are especially important if they are also large in terms of job numbers. These are

found in the upper right quadrant ($LQ \geq 1.0$ and $\Delta LQ \geq 0$) in table 3 and are both important and high-performing, which means they should increasingly demand a large workforce. Small industries in this quadrant are emerging and should be developed further. In the same period rising industries which are regarded as pre-emergent are found in the lower right quadrant ($LQ < 1.0$ and $\Delta LQ \geq 0$) in table 3. These industries are manufacturing (MP, LP), agriculture (KZN), mining (GP), utilities (GP), construction (GP), finance (KZN, LP, MP) and community services (KZN, MP).

Table 2. Dynamic location quotient of industries, 2012Q2-2017Q2

INDUSTRY	KZN	GP	MP	LP
Agriculture	16,1	-64,3	-20,4	0,3
Mining	-56,3	127,6	-35,6	-89,1
Manufacturing	-16,8	2,6	33,3	33,6
Utilities	-38,7	14,1	4,3	-20,5
Construction	-5,5	1,8	-5,4	-11,8
Trade	6,3	-0,5	-13,4	-11,0
Transport	-16,6	18,5	-25,7	-18,4
Finance	5,2	-3,2	14,3	21,3
Community services	10,8	-1,1	29,9	-0,2
Private households	5,2	-7,4	6,1	15,9
Source: Own compilation				

The upper left quadrant ($LQ \geq 1.0$ and $\Delta LQ < 0$) in the table 3 contains industries that hold a comparative advantage over the industry in the base region, but with a declining advantage and require "intensive care". These industries are agriculture (MP), manufacturing (KZN), construction (KZN, LP, MP), transport (KZN, MP), finance (GP), trade (LP, MP), mining (MP, L) and utilities (LP). If a medium or large industry is in this quadrant it is an important warning that the province is losing a major part of its economy and should undertake planning and investment priorities accordingly. The industries found in the lower left quadrant ($LQ \leq 1.0$ and $\Delta LQ < 0$) are less important regionally than nationally and are also declining in employment. These industries are agriculture (GP), community services (GP), mining (KZN), trade (GP), transport (LP) and utilities (KZN).

One may argue that the agriculture industry is not doing well in terms of jobs, probably due to the recent drought the country has experienced. Therefore, climate change has had an impact on employment. Another reason might be that potential employees are losing interest in being farm workers and are moving to other types of employment such as working in the manufacturing industry. This argument is in line with Lewis's theory of economic growth that states the industrial sector might attract more labour due to high wages (Jain & Sandhu, 2016). It can also be argued that a decrease in the number of jobs in agriculture is due to mechanisation or the introduction of new technology. Issue of wages in the mining industry may also be one of the factors that has caused this industry to do well in terms of attracting labour but it could also be the cause of many losing their jobs.

Table 3. Classification of main industries in GP, KZN, LP and MP, 2012Q2-2017Q2

High LQ and negative ΔLQ *"Intensive care" also known as transforming industries*	**High LQ and positive ΔLQ** *"Standouts" also known as growing base industries*
Agriculture (MP) Construction (KZN, LP, MP) Finance (GP) Manufacturing (KZN) Mining (MP, LP) Trade (LP, MP) Transport (KZN, MP) Utilities (LP)	Agriculture (LP) Manufacturing (GP) Private households (KZN, LP, MP) Transport (GP) Utilities (MP)
Low LQ and negative ΔLQ *"Little promise" also regarded as declining industries*	**Low LQ and positive ΔLQ** *"Pre-emergent" industries*
Agriculture (GP) Community services (GP) Mining (KZN) Trade (GP) Transport (LP) Utilities (KZN)	Agriculture (KZN) Community services (KZN, MP) Construction (GP) Finance (KZN, LP, MP) Manufacturing (MP, LP) Mining (GP) Utilities (GP)

Source: Own compilation

Table 4 presents results for KwaZulu Natal using the shift-share technique. It shows that jobs in Kwazulu-Natal's manufacturing industry declined by 76 297

over the 5-year period. Shift-share analysis reveals that the industrial mix and regional factors were the main reasons for the declining numbers. Agriculture job numbers increased by 33 622 over the 5-year period in the KwaZulu-Natal Province. It is evident from table 4 that the provincial agriculture industry was responsible for the largest part of the increase. Furthermore, the shift-share analysis indicates that jobs in construction, trade, finance, community service and private households increased between 2012 and 2017.

Table 4. Job changes in main industries according to shift share analysis in KwaZulu-Natal Province, 2012Q2-2017Q2

INDUSTRY	NS	IM	RS	∆e
Agriculture	11516	10314	11791	33622
Mining	2394	107	-12581	-10079
Manufacturing	47185	-44589	-78894	-76297
Utilities	1521	3620	-7182	-2040
Construction	25826	36541	-26957	35409
Trade	65660	-41563	5964	30062
Transport	23771	3755	-44835	-17307
Finance	34168	46131	334	80634
Community services	67589	-10786	32124	88926
Private households	28337	-17834	111	10614
Source: Own compilation				

Job numbers in Gauteng's mining industry increased by 51 627 between 2012 and 2017 as indicated in table 5. The majority (47 069) of this was due to specific factors in the province (regional competitiveness), followed by expected change due to general national growth (4 361) and industry effects (196). Similarly, jobs in Gauteng's transport industry increased by 89 627 over the 5-year period. No other industry displayed greater regional competitiveness than transport. The job changes in the provincial construction and finance industries were mainly due to industry-specific factors, whereas the community services industry achieved job growth primarily due to general national growth.

Table 5. Job changes in main industries according to shift-share analysis in Gauteng Province, 2012Q2-2017Q2

INDUSTRY	NS	IM	RS	∆e
Agriculture	10054	9004	-64870	-45812
Mining	4361	196	47069	51627
Manufacturing	84974	-80298	-5634	-958
Utilities	3190	7595	3717	14502
Construction	38089	53891	-6458	85522
Trade	121939	-77187	-39051	5701
Transport	36058	5697	47872	89627
Finance	109994	148502	-72589	185906
Community services	128615	-20526	-50273	57816
Private households	52223	-32867	-45408	-26052
Source: Own compilation				

Table 6 displays the results of the shift-share analysis for industry in the Limpopo Province. Regional competitiveness factors were the largest positive contributor in five industries, namely agriculture, manufacturing, finance, community services and private households. The positive job change in the provincial construction and utilities industries was mainly due to industry specific factors, whereas the transport industry achieved job growth primarily due to general national growth.

Table 6. Job changes in main industries according to shift-share analysis in Limpopo Province, 2012Q2-2017Q2

INDUSTRY	NS	IM	RS	∆e
Agriculture	12740	11410	21659	45809
Mining	8806	395	-69104	-59903
Manufacturing	8579	-8107	38661	39133
Utilities	1363	3244	-1081	3526
Construction	12267	17356	4026	33650
Trade	34449	-21806	11620	24263
Transport	6837	1080	-2866	5052
Finance	7100	9586	30632	47318
Community services	31412	-5013	46295	72694
Private households	10780	-6784	31878	35873

Source: Own compilation

Table 7 shows the results from shift-share analysis for the Mpumalanga Province. It reveals that jobs in mining, trade and transport declined over the 5 year period. Job numbers in Mpumalanga's manufacturing, finance and community services industries increased significantly between 2012 and 2017 due to specific factors in the province (regional competitiveness). Jobs in utilities and finance industries increased because of the expected change due to the industry effects while the increase in jobs in private households was due to general national growth.

Table 7. Job changes in main industries according to shift-share analysis in Mpumalanga Province, 2012Q2-2017Q2

INDUSTRY	NS	IM	RS	∆e
Agriculture	11958	10710	-22426	241
Mining	9142	410	-28377	-18824
Manufacturing	10458	-9883	29842	30417
Utilities	3486	8300	2402	14189
Construction	10571	14957	-4082	21446
Trade	35173	-22264	-34866	-21957
Transport	8067	1275	-17930	-8589
Finance	11834	15977	19836	47646
Community services	21214	-3386	59935	77763
Private households	12453	-7837	8228	12843
Source: Own compilation				

As regional economic growth and changes entail complex interactions between different economic activities which can also be called a regional business ecosystem, it is not reasonable to expect that a single cause of such change can be identified (Hoover & Giarratani, 1984). Through the findings presented in this paper, the comparative advantage (or disadvantage) and regional competitiveness are identified and might be caused by different reasons, such as self-reinforcing and self-limiting effects and demand and supply as determinants of regional development. The two techniques applied in this paper are useful in determining whether current interventions are directed at industries regarded as “standouts” or perhaps those with “little promise”. Therefore, a clear vision, objectives and appropriate policies at provincial level should be set up by public authorities in order to stimulate regional economic development, attract foreign direct investors (FDIs) and enhance the potential of small, micro and medium enterprises (SMMEs). Clearly, a differentiated approach is required to identify the right combination of measures (Constantin, Bodea, Pauna, Goschin, Dragusin & Stancu, 2010).

4. CONCLUDING REMARKS

Using data from the Quarterly Labour Force Survey (QLFS) by Statistics South Africa (STATSSA) the paper reports the findings over the period of 2012 to 2017. The results from the LQ and shift-share techniques indicate which industries in the north-eastern region of South Africa have comparative advantage and regional competitiveness. The key findings indicate that the comparative advantage declined in different industries, namely Agriculture (MP), Manufacturing (KZN), Construction (KZN, LP, MP), Transport (KZN, MP), Finance (GP), Trade (LP, MP), Mining (MP, LP), and Utilities (LP) between 2012 and 2017. In all four provinces, only five industries are classified as "standout" - also known as growing base industries. This means that these industries are significant employers in the four provinces and hold an expanding comparative advantage. Their employment growth was predominantly a result of regional competitiveness factors, especially employment in the primary sector (agriculture and mining), construction of large and medium sized industrial enterprises, promoting the development of secondary industry and actively enhancing development of the tertiary industry in the region and in South Africa as whole.

A worrying industry is mining in Mpumalanga and Limpopo provinces, where there is a remarkable decline in LQs and, thus, these industries need intensive care. From the results, five industries, namely Manufacturing (GP), Transport (GP), Utilities (MP), Agriculture (LP) and Private households (KZN, LP, and MP) are classified as standout. In addition, in terms of the dynamic location quotient Manufacturing (MP, LP), Agriculture (KZN), Mining (GP), Utilities (GP), Construction (GP), Finance (KZN, LP, MP) and Community services (KZN, MP) can be regarded as "pre-emergent" industries. Regional competitiveness factors further made the second largest positive/second largest negative contribution in three industries in KwaZulu-Natal, two in Gauteng and one in Mpumalanga between 2012 and 2017. Accordingly, further research is required to understand each industry concentration countrywide, in large cities, in small cities and, if possible, without regard to city size so that prophylaxis and therapy aspects of development policies can be sharpened for more right direction. Therefore, regional economic development and workforce initiatives are continually evolving and this requires policies that will keep up with regional objectives. However, it

should be noted that there are no specific long-proven or tested approaches which policy makers can follow to achieve regional economic aims.

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