

Regional Development Policy and the Spatial Distribution of Firm Entry

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Abstract

Using a unique business registration database that spans from the 1800s and data on the location of development zones, this paper examines the relationship between regional development policies and the spatial distribution of firm entry. Between 1982 and 1991 the South African government created Regional Industrial Development Zones in regions within and nearer to apartheid 'homelands'. The creation of these zones marks the introduction of Sub-Saharan Africa's first Special Economic Zones. However, little is known about the effects of such programs. Empirical results from this study show that the creation of RIDP zones increased firm entry when the policy incentives were still present, and after the removal of policy incentives, the gains were reduced, as firm entry decreased. However, these results show that in the manufacturing and services sector, the reduction of entry after the removal of RIDP zones did not completely offset the positive effect of the policy on entry. This finding is consistent with the presence of agglomeration economies in the manufacturing and services sector. Overall, results from this chapter suggests that regional policy incentives were important in encouraging private sector development in marginalised regions of the country, although the impacts were not long lasting.

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1. Introduction

Regional economic development policies have recently become an important strategy for reducing regional disparities within countries and are widespread in both developed and developing regions (Kline and Moretti, 2013; Neumark and Simpson, 2015). These policies involve a transfer of public funds to encourage the development of marginalised regions, either through tax incentives or investment in public infrastructure. In addition, they alter the institutional environment of targeted regions, for example, most regional programs include changing of labour regulations in targeted regions. The main purpose of these policies is to attract manufacturing firms in marginalised regions and kick-start agglomeration processes that will create long term positive economic effects in these regions (Neumark and Simpson, 2015).

In Sub-Saharan Africa (SSA), these regional development policies in the form of Special Economic Zones have become increasingly important. In particular, South Africa had the earliest experience of using regional development policies. From 1940-1994, the country was involved in regional development strategies that were aimed at inducing industrial development in marginalised regions such as those regions within the apartheid's '*homelands*' (Nel, 1994). During this period the South African government introduced apartheid, a system of racial segregation that led to the creation of self-governing '*homelands*', where about 3.5 million black Africans were forcefully relocated (Abel, 2015). These '*homelands*' were economically deprived.

The introduction of the Regional Industrial Development Programmes (RIDP) within the '*homelands*' and regions bordering the '*homelands*' in 1982 marked the introduction of Sub-Saharan Africa's first Special Economic Zone (Kerby, 2016). Despite the importance of regional development policies and the huge budget overlays involved, little empirical evidence is available on the impacts of these Special Economic Zones (SEZs), particularly in SSA. This has been mainly driven by data limitations, particularly, the lack of sub-national data on economic outcomes. Consequently, little is known about the effect of SEZs in SSA and whether the effects have persisted after the removal of the programs. Studying the effects of regional policies in SSA is important because regions within countries, in particular, cities, are disconnected and there are high costs of doing business, due to lack of investments in infrastructure such as transport and housing (Lall, Henderson, and Venables, 2017). This limit benefits from external economies of scale and agglomeration economies that are important for

the effectiveness of regional policies. As a result, it is expected that results from studying SSA economies will be different from those obtained from other regions.

Our study adds to the empirical literature by using a unique database of business registrations that spans from 1800 to 2011 and covers all regions in South Africa. This database provides an opportunity for us to examine the effects of a historical programme that exogenously targeted certain regions, through RIDP policy incentives, on the spatial distribution of economic activity and also look at the long-term impacts of such programs. Specifically, we aim to, (1) characterise the spatial distribution of firm entry in South Africa, (2) examine the effects of the 1982-1991 RIDP, on firm entry across local municipalities, and (3) determine the long-term effects of the 1982-1991 RIDP on firm entry across local municipalities. We rely on a difference-in-difference analysis that compares the differences in the firm entry between municipalities with RIDP zones and surrounding municipalities before and after the introduction of RIDP zones. This paper is an important contribution to the literature examining firm dynamics in SSA, since there are no studies that have used business registrations database, with a notable exception of a study on firm location in Uganda, which relies on business registry data (Lall, Schroeder, and Schmidt, 2014).

We find that the introduction of the 1982 RIDP incentives increased firm entry during the period when the incentives were active. The percentage increase in firm entry resulting from the introduction of RIDP incentives is 164 percent. We also show that the removal of geographically targeted RIDP incentives in 1991 significantly reduced firm entry. The percentage decrease in firm entry resulting from the removal of RIDP incentives is approximately 39 percent. We also show that the effect of RIDP zones is different across industrial sectors.

Understanding the effects of historical regional policy incentives on economic activity is important for the design of current policies seeking ways of reducing persistent regional inequality in the country and in other countries in the SSA region. In addition to being important for the design of economic policies, this study contributes to several academic literatures. First, there is a growing body of literature that examines the effect of historical institutions on economic activity within a country. For example, studies in other developing regions have documented quantitative evidence on the impact of historical institutions exposed to certain regions within a country on economic activity and have also shown that there are long-term effects of such institutions (Banerjee and Iyer, 2005; Dell, 2010). Fewer studies are

available examining this issue in SSA. Despite recent evidence from Bastos and Bottan (2014) showing that the apartheid system in South Africa has had long-run differential impacts on the development of communities in the country, there remains a shortage of studies examining this issue in the region. This study is a contribution to this empirical literature, by looking at a different type of a historical institution and policy. We use an industrial decentralisation policy, Regional Industrial Development Programme (RIDP), introduced in 1982 by the apartheid government in South Africa as part of its policy of encouraging the separate development of regions, to test the effect of historical institutions on the regional disparity in economic activity. The programme introduced regional policy incentives that were meant to encourage industrial development in marginalised regions of the country and enhance the economies of these regions to sustain themselves in the long-run.

Second, several studies in the developed world have examined the effects of regionally targeted policy incentives on various economic outcomes and have obtained mixed results (Hanson, 2009; Neumark and Kolko, 2010; Busso, Gregory, and Kline, 2010; Kline and Moretti, 2013; Hanson and Rohlin, 2013; von Ehrlich and Seidel, 2015)⁴. Little empirical evidence examining this issue is available in the developing regions, with the exception of studies by Wang (2009) and Alder, Shao, and Zilibotti (2015) that looks at the effect of Special Economic Zones in China. We add to this strand of literature by looking at the effects of geographically targeted policy incentives on economic activity in South Africa.

Third, analysis of the effects of the introduction of RIDP zones in 1982 and their removal in 1991 is related to the literature that examines the persistent effects of temporary shocks to economic activity (Davis and Weinstein, 2001; Redding, Sturm, and Wolf, 2011). Fourth, several studies have examined the effect of business environment factors such as the rules and regulations for business registration, corruption and protection of property rights, on firm dynamics across countries (Djankov, La Porta, Lopez-de-Silanes, and Shleifer, 2002; Desai, Gompers, and Lerner, 2003; Aghion, Fally, and Scarpetta, 2007; Dyck and Ovaska, 2011). This study adds to this literature by looking at the effect of variation in regional policy incentives, on firm entry across local municipalities in South Africa.

Given the low economic growth rates, high unemployment levels and persistent regional inequality in the country, South Africa is a good case to examine this issue. In addition, the history of the country provides an opportunity to study the effects of institutions and

⁴ See literature review

policies imposed by the colonial government. South Africa is likely to provide different insights because regional development policies were introduced in the presence of other institutional structures such as the apartheid policy that is likely to dampen the effects of regional policies.

Looking at the effects on firm entry is important for several reasons. The distribution of firm entry across regions in South Africa is important because entry of new firms is associated with important development indicators such as employment, growth, and income. Theoretical and empirical evidence links new business creation to growth and development. From a theoretical perspective, business creation indicates low barriers and more competition, which is often correlated with a more dynamic, innovative environment and overall economic activity (Wong, Yuen, and Autio, 2005; Romer, 1990; Grossman and Helpman, 1991a; Aghion and Howitt, 1992; Wennekers and Thurik, 1999; Audretsch and Keilbach, 2004).

Empirical studies have shown that entry of firms is important for economic growth and job creation. Cross-country evidence has associated firm entry with economic growth (Wong, Yuen, and Autio, 2005; van Stel, Carree, and Thurick, 2005). Country studies have underscored that new firms can contribute to new jobs (Haltiwanger (2012) for the United States and Klapper and Richmond (2011) for Cote d'Ivoire). Thus, understanding factors affecting the spatial distribution of firm entry is an important step in efforts meant to reduce the inequalities associated with the uneven distribution of economic activity across space and also improve overall economic growth, since the regional distribution of economic activity is often correlated with regional productivity through agglomeration externalities.

The remainder of the paper is organised as follows. Section 1.1 provides a review of historical institutions and policies that shaped the regional incentives affecting economic activity in South Africa. Section 2 provides a review of the literature that examines the relationship between regional development policies and the spatial distribution of firm entry. In section 3, we describe the methodology used. Results are discussed in section 4 and section 5 concludes the paper.

1.1 Regional Development and Institutional Environment: A Historical Perspective

The spatial organisation of economic activity in South Africa can be traced back to the colonisation period. The empirical literature has noted that historical and colonial institutions are important factors in explaining the current distribution of economic activity in South Africa

(Wilson, 2011; Mariotti and Fourie, 2014). Historical institutions and policies were important in shaping the regional distribution of infrastructure and economic institutions, and hence economic activity across regions in South Africa, by altering the costs of doing business through changes in the institutional and business environment.

South Africa's past economic and political policies impacted on the regional distribution of economic incentives, such as those affecting the costs of doing business. The development of institutions and infrastructure is historically embedded and path-dependent. Colonial policies, particularly the apartheid system, affected the regional development of institutions and infrastructure. During the apartheid period, the government created '*homelands*' and formulated legislation such as the Group Areas Act which encouraged deindustrialisation of some areas and industrialisation of other areas (Kaplan, Morris, and Martin, 2014). In regions with targeted industrialisation proper institutions and infrastructure in terms of roads, rail, telecommunication, security and electrical power were put in place to support economic activity.

By reducing transactions costs associated with transportation and information accessibility, the quality of physical infrastructure in terms of roads, telecommunication, and electricity has been noted to be important for firm activity, the mobility of workers and overall economic performance (Calderón and Servén, 2008; Morten and Oliveira, 2016). In South Africa, it is noted that private sector development across different regions is linked to local business environment and institutional factors, such as, the availability of skills, market accessibility of the region, crime rates, and infrastructure (telecommunication, roads and electricity) (Aniruth and Barnes, 1998; Hodge, 1998; Rogerson and Rogerson, 2010; World Bank, 2010).

One of the key economic policies of the apartheid government was the industrial decentralisation policy, whose main objective was to encourage the separate development of regions. Although the policy originated in the 1930s, it was formalised in 1955 by the Tomlinson Commission Report and was officially launched in 1960 as a Decentralisation Strategy (Kaplan, Morris, and Martin, 2014). The main interventions of this strategy included the establishment of industrial nodes on the borders of '*homelands*' to create jobs and improve economic activity in these regions. These policies were intended to reduce migration of inhabitants of the '*homelands*' to urban areas. However, the policies had little impact on encouraging investments in these regions because the incentives under the programmes were

not enough to compensate for the infrastructural and logistical bottlenecks that characterises the border regions of the '*homelands*'. This led to a revision of the policy with the original incentives improved and extended to nodes within the '*homelands*'. The incentives included tax breaks, elimination of minimum wages and barring of labour unions (Kaplan, Morris, and Martin, 2014).

Further changes were made when the government realised that the financial expenditure required for infrastructure to develop the industrial nodes was too much. Fewer growth points were then introduced to replace the industrial nodes. The same government incentive packages applied for industrial nodes were also applied for the growth points. In an effort to further spread development from urban areas, the government introduced the National Physical Development Plan in 1975. Previously established industrial nodes and growth points were incorporated into development areas. In this plan, differentiated incentive packages were offered to regions less attractive to investors, such as those that were distant from major cities and lacked the infrastructure to attract private sector investment. However, these policies did not achieve the objectives set out and it was only after the introduction of the Regional Industrial Development Programme (RIDP) in 1982 when firm activity increased in regions bordering '*homelands*' (Kaplan, Morris, and Martin, 2014).

Regional Industrial Development Programme (RIDP)

The 1982 RIDP comprised a set of government incentives aimed at improving industrial development in regions nearer to '*homelands*' and some nodes within the '*homelands*'. Firms registering in these regions qualified for incentives such as direct payments to scheduled labour, low wages and banned labour union activity, a transport rebate, training grants, interest/rental concession, housing subsidy, relocation allowance and electricity concessions (Kaplan, Morris, and Martin, 2014). This programme had two components that were important for the spatial distribution of economic activity in South Africa. First, it used industrial policy instruments and secondly, a spatial component, where the policy incentives were applied to certain regions of the country. Most of the areas that received the policy incentives were in the Eastern Cape, KwaZulu-Natal, Limpopo, Mpumalanga, North-West and Northern Cape provinces.

Figure 1 shows the borders of the former '*homelands*' areas and the location of RIDP development and deconcentration zones. Development zones comprised of growth points in peripheral areas, especially in '*homelands*' areas, whereas deconcentration points were distant from the '*homelands*' and were established on the outskirts of metropolitan regions to absorb spillovers from the core regions (Tomlinson and Hyslop, 1986; Nel, 1994). Firms registering in development zones qualified for higher incentives, compared to those registering in deconcentration zones. For example, firms in development zones would qualify for a rebate of about 40-60 percent on the costs of railing manufactured goods, whereas most deconcentration zones received a rebate of 20 percent, except for Atlantis in the Western Cape province that received 40 percent (Kerby, 2016). Some deconcentration points in the Gauteng province such as Brits, Bronkhorstspuit, Babelegi and Ga'rankuwa received no rebate on rail costs but received some incentives at lower percentages.

Figure 2 shows a closer look at municipalities that had RIDP development and deconcentration zones and '*homeland*' borders in the Eastern Cape province. This province received highest levels of incentives because it was considered as a least developed area (Nel, 1994). Studies have shown that the introduction of this programme led to a significant increase in industrial activity in regions such as the Transkei/Ciskei and bordering regions in the Eastern Cape (Kaplan, Morris, and Martin, 2014). In other provinces, Richards Bay in KwaZulu-Natal also benefited significantly from these incentives (Aniruth and Barnes, 1998).

In 1991 the RIDP was revised and this led to a significant reduction in industrial activity in the targeted regions. In the 1990s the government replaced state-led development policies with market led policies and thus there was widespread liberalisation of markets in the economy, such as removal of protective tariffs. All of 1982 RIDP incentives were removed over a two-year period from 1991-1993 and replaced with incentives designed to improve output and productivity in the economy (Aniruth and Barnes, 1998). The incentives under the 1991 RIDP were not aimed at promoting location-specific investment but to improve national industrial development (Aniruth and Barnes, 1998). Incentives included tax-free allowances based on establishment costs and profits of the enterprise, and the reimbursement of relocation cost of foreign companies (Drewes and Bos, 1995).

All regions in the country except the major metropolitan regions qualified for some degree of financial incentives. Firms registering in the Gauteng and Durban core area received no incentives, whereas firms registering in the Cape Peninsula,

Durban/Pinetown/Pietermaritzburg and the area surrounding the Gauteng and Durban core region were granted 60 per cent allowance of calculated establishment costs (Drewes and Bos, 1995). The rest of the regions in the country were granted a 100 per cent allowance on establishment costs for five years. It was expected that these policy incentives will improve the long-term development of these regions. The phasing out of 1982 geographically targeted policy incentives and their replacement with policies that cover a wide area provides an opportunity to analyse whether the 1982 RIDP incentives that specifically targeted certain regions created an environment that encouraged agglomeration processes and whether the effect of such policies persisted after their removal.

Post-Apartheid Policies

In 1994, the end of the apartheid regime brought a new era in the economic and political landscape. Due to the unequal distribution of economic activity across regions, the new democratic government introduced several policies to address the inequalities and increase the number of jobs in lagging regions (Krugell, 2005). Early policies, although not region specific include; Reconstruction and Development Plan (RDP), and a macroeconomic strategy (Growth, Employment, and Redistribution (GEAR)). Most important spatial policies, were the Spatial Development Initiatives (SDI) introduced by the Department of Trade and Industry (DTI) and these initiatives had a large impact in the setting up of infrastructure in certain regions earmarked for industrial development in the country, since the main objective was to remove constraints to investment in a region designated as an SDI (Jourdan, 1998; Lewis and Bloch, 1998).

The SDIs include; The Maputo Development Corridor which involves development of infrastructure linking South Africa to Maputo and covering municipalities in Mpumalanga, Fish River SDI in Eastern Cape that covers municipalities in Buffalo City and Nelson Mandela metropolitan areas, Lubombo SDI which involved three countries covering municipalities in eastern KwaZulu-Natal, West Coast SDI covering municipalities in the Vredenburg-Saldanha area, in the Western Cape province, Richards Bay SDI in KwaZulu-Natal and SADC SDI. In the empirical analysis, we use district fixed effects to control for the introduction of such spatial development policies.

This review of historical policies and institutions highlight the importance of regional economic incentives in shaping the spatial distribution of economic activity in South Africa.

These incentives affect the cost of doing business across regions and this, in turn, will alter private sector investment decisions.

2. Regional Development Policies and the Spatial Distribution of Economic Activity: Empirical Review

There is a growing body of literature that examines the impact of regional characteristics, particularly, the effect of geographically targeted policy incentives, within a country. For example, Nyström (2007) show that regional policy environment, agglomeration, and size structure in specific industries attract firm entry and reduce exit in Sweden. Related evidence on the effect of other place-based or geographically targeted policies such as the creation of enterprise zones or special economic zones (SEZs) has produced mixed results. To promote the development of economically disadvantaged areas, in terms of more jobs and higher wages, the United States of America (U.S) introduced policy incentives targeting certain regions of the country (Neumark and Simpson, 2015). These include enterprise zone programs, providing tax and other incentives that reduce the costs of doing business, to attract industrial establishment in the designated zones. Several studies have evaluated the impact of these programs.

For example, Hanson (2009) evaluates the federal empowerment zone program, a system of tax incentives targeted to certain areas of selected cities, by comparing regions that received the incentives to regions that applied and qualified but were rejected. Using census data and two different empirical strategies, the study obtained contrasting results, casting doubt on the validity of the estimated effects. Results from ordinary least squares method show that the program had a positive and statistically significant effect on employment and poverty, whereas instrument variables estimates, to control for the endogeneity of program designation show no effect on employment and poverty, but a large and significant positive effect on property values. Neumark and Kolko (2010), improves on this by using establishment-level data and focusing on California's enterprise zone programs. The study compared the difference in employment levels between targeted regions and those regions surrounding the zones or regions that were later added to enterprise zones. In addition, they controlled for the effect of other regional policies targeting the regions under analysis. Their results show that enterprise zones do not increase employment.

One concern raised about the studies above is their failure to consider economy wide effects of enterprise zone programs such as the possibility of program benefits to accrue to other regions or for targeted areas to benefit at the expense of other regions. If benefits of the program accrue to other neighbouring regions or changes in factor prices induces changes in labour supply, the estimated effects of the programme will not be measured precisely. Busso, Gregory, and Kline (2010) account for these effects by using a general equilibrium framework to analyse the effects of federal empowerment programs. Using rejected and future applicants as controls, their results show that empowerment zones increase employment for zone residents and increase wages of workers from zone neighbourhoods. Related to this, Hanson and Rohlin (2011a) show that empowerment zones attract new business establishments, after accounting for spillover effects. Results from Busso, Gregory, and Kline (2010) and Hanson and Rohlin (2011a) suggests the importance of accounting for spillover effects when evaluating geographically targeted policy programs. Empirical evidence also in the U.S has shown that empowerment zones create spillover effects and these spillovers more than offset positive program effects (Hanson and Rohlin, 2013).

The main rationale for geographically targeted policies is based on the hypothesis that such policies will help kick-start agglomeration processes and that will persist after the ending of the policy, and in turn, it will create self-sustaining economic regions (Neumark and Simpson, 2015). Kline and Moretti (2013) examined the long run effects of Tennessee Valley Authority program, one of the regional development programs introduced in the U.S in 1933, targeting infrastructure improvement. They found out that the program led to large increases in agricultural employment that were reversed when program incentives were removed, however, gains in manufacturing employment continued to intensify even after the ending of program subsidies. This finding is consistent with theoretical evidence suggesting that the manufacturing sector is subject to agglomeration economies or localised increasing returns to scale (Duranton and Puga, 2003). Empirical evidence also highlights that, compared to manufacturing, agriculture exhibit little agglomeration economies (Hornbeck and Naidu, 2012). In another study that seeks to examine the persistent effects of place based policies in Germany, von Ehrlich and Seidel (2015) show that a zone created adjacent to the Iron Curtain generated persistent effects on economic density.

Studies in the developing regions have also evaluated the impact of Special Economic Zones (SEZs), another form of geographically targeted policies similar to enterprise or empowerment zones. For example, Wang (2009) show that SEZs increases per capita foreign

direct investment and total factor productivity growth rate by 58 percent and 0.6 percentage points respectively, in Chinese municipalities. Using a panel of Chinese cities from 1988 to 2010 and a difference-in-difference estimation procedure, Alder, Shao, and Zilibotti (2015) show that SEZs are associated with 18 percent increase in per capita GDP. Similar evidence from India using both secondary and survey data has shown that SEZs contributes to human development and poverty reduction through employment generation (Aggarwal, 2007).

Little is known about the effect of economic zones on firm entry in Sub-Saharan Africa. This is surprising given the growing importance of SEZs as an industrial policy tool in the region, particularly driven by China's investment in these zones. Evidence from mostly descriptive studies has shown that the introduction of SEZs in Tanzania had a little impact on the local economy due to several problems (Kinyondo, Newman, and Tarp, 2016). Most important was the lack of agglomeration economies as firms within the zones face limited interaction and there is no better matching of workers.

In South Africa, there are few studies that have examined whether geographically targeted policy incentives, such as the RIDP, affect economic activity. For example, Drewes and Bos (1995) argued that the 1982-1991 RIDP resulted in a lack of concentration of regional industrial establishments and there was a lack of self-sustaining industrial development in the development nodes. However, Bell (1997) noted that the 1982-1991 RIDP had strong employment effects and attracted firms to locate in RIDP zones. Nel (1994), noted that since the introduction of RIDP zones in 1982 was driven by political forces other than by economic motives, the policy created unsustainable development points with uneconomic firms receiving excessive assistance and was unable to kick start the process of agglomeration in the host regions. Recently, Kaplan, Morris, and Martin (2014) provided descriptive evidence showing that the introduction of RIDP in 1982 resulted in more industries establishing in '*homelands*' and peripheral areas. The study also showed that after the RIDP was revised in 1991, there was a reduction in industrial activity in the regions previously targeted by the 1982 RIDP incentives. Overall, results from the above studies based on descriptive evidence and a critical review of literature have proved to be mixed. There is a need for quantitative studies that examine the effects of such regional policies. Kerby (2016) provide both quantitative and qualitative evidence showing that the creation of 1982 RIDP zones attracted Taiwanese manufacturing foreign direct investment. Using a database of 306 Taiwanese firms that moved to South Africa's RIDP zones between 1975 and 1995, the study showed that the process of

agglomeration was started through the establishment of transnational production networks and this helped to create a self sustaining economic linkages.

In this study, we contribute to this literature by using a new database of firm registrations that covers the whole of South Africa and stretches from 1800 to 2011, and data on the location of RIDP zones to examine the effects of 1982-1991 RIDP zones on firm entry and whether the effects have persisted over time. This database allows the study to carry out an empirical exercise that compares firm entry between RIDP zones and areas surrounding these zones using a difference-in-difference analysis.

The analysis is also related to the literature showing that regional characteristics, such as the ease of access to finance, increases firm formation across local regions in South Africa (Naudé, Gries, Wood, and Meintjies, 2008). Using survey data from Global Entrepreneurship Monitor (GEM), their study found that in agglomerated areas, the formation of firms is very low. This finding may imply that agglomeration in South Africa has led to decreasing returns of size due to urban congestion. This thesis will provide further evidence on the potential effect of one of the factors associated with urban congestion, that is, crime rates, on the entry of firms across local municipalities in the country.

Empirically, our study estimates the effects of 1982-1991 RIDP on firm entry, by specifying firm entry as a function of an indicator variable showing whether a region was exposed to the policy shock during the 1982-1991 period and other control variables that are related to a region being designated for RIDP incentives and also changes in firm entry. Instead, the study relies on municipality fixed effects, as well as district by time fixed effects to control for such factors. These factors may include the exposure of regions to other spatial development policies, such as the SDIs, that may confound the results. The study compares the differences in firm entry before and after the policy shock between treated regions and regions similar to treated regions. Robustness checks are performed to check the sensitivity of the results to using various control groups.

3. Methodology

We answer three questions related to the effect of regional development policies on spatial distribution of firm entry in South Africa. First, we characterise the spatial distribution of firm entry. Second, the study examines the effects of the 1982-1991 RIDP on economic activity across local municipalities and main places. Finally, we ask whether the creation of the

1982-1991 RIDP zones had a persistent effect on economic activity. These questions are addressed by relying on the number of firm registrations observed in a region, as a measure of economic activity. The main reason for using firm registrations is because of data availability. It is also argued that firm entry indicates low barriers to entry and more competition, which is often correlated with a more dynamic, innovative environment and overall economic activity (Romer, 1990; Grossman and Helpman, 1991a; Aghion and Howitt, 1992; Wennekers and Thurik, 1999; Audretsch and Keilbach, 2004). The following sections discuss the data sources and the empirical strategies used.

3.1 Data Sources

Business Register

This study uses Business Registration database from the Companies and Intellectual Property Commission (CIPC) of South Africa. Analysis of CIPC data constitutes an important contribution to the literature on private sector growth in South Africa since this is the first time the dataset is used to analyse firm dynamics in the country. The registration database has information on enterprise name, a unique enterprise registration number, company status (e.g. in business, deregistered, dissolved, etc.), date of registration, Standard Industrial Classification at both the one digit and three-digit level, physical and postal address as well as the postal code. This database was obtained from CIPC during the first quarter of 2012 and reflects the most up-to-date information on the enterprise at the time of download. It provides a rich set of information on business entities in South Africa and is extensive⁵. It contains data for over 3 million enterprises and registration dates going as far back as the year 1801.

The major limitation of this data is that it is available at the enterprise level and not at the subsidiary plant level, and this is a major issue for most of the major supermarket chains. The address provided generally refers to the location of the head-office. Most head-offices are in one of the metropolitan municipalities and often within certain main places (for example, Sandton in Johannesburg is the location of many of the head-office of many of services companies). No information is provided on the number and location of the subsidiary plants. For example, the supermarket chains are mostly registered as being in the Gauteng area, despite having stores distributed across the country. The implication of this for our study is that it may

⁵ Business entities can be registered as companies, close corporations (new registrations discontinued from 1 May 2011) and cooperatives.

distort the regional concentration of industry. However, these problems are common in most firm level databases of emerging economies. The main advantage of head office data is that it may reflect the activities of small and medium enterprises (SMEs) since most small and medium enterprises have only one establishment. Results from this study will be important since most policymakers are interested in factors constraining the development of the SME sector. In addition, the fact that the study uses head office is not a serious concern, since results from this study still show that creation of RIDP zones in the 1982-1991 increased firm registrations in municipalities with RIDP zones and the removal of the policy led to a decline in firm entry.

A considerable effort was spent on ‘cleaning’ and preparing the data. The register data provide details on the enterprise address and postal code. These postal codes were used to map each enterprise to different spatial units. Unfortunately, the spatial units of the postal codes do not perfectly correspond with those of the Census⁶. Where possible, postal code areas were mapped to the 497 spatial units using place name of each postal code obtained from the South African Postal Office and main place names of spatial units in the Population Census⁷. However, many postal codes areas overlap provincial, municipal and main place boundaries. It was therefore not possible to uniquely map each postal code to the 497 spatial units. An aggregated panel data set of 343 spatial units observed over the period 1950-2011 was then constructed for empirical analysis.

To create maps showing the spatial distribution of firm entry, the study geocoded some addresses to get geographic coordinates for each firm. These coordinates were then used to match firm registrations to various census local municipalities, for which GIS shape files are available. Since the firm register database has information on addresses for each firm, the study used Google Geocoding API to get coordinates for firms registering in selected years. For example, to get a sense of the spatial distribution of firm entry before the introduction of spatial segregation policies, years 1910 and 1911 were selected. These years are associated with the introduction of the Land Act in the country that highlighted the introduction of first spatial segregation policies of the colonial government, before the apartheid policies that created the homelands in the 1950s were introduced. To examine the distribution of firm entry prior to the

⁶ See Lombard, M. (2005) “South African Postcode Geography” Paper presented at the seventh Africa GIS conference, CSIR International Convention Centre, Tshwane (Pretoria), South Africa, 31 October to 4 November 2005.

⁷ 497 spatial units follow Quantec’s Standardized Regional Database. It includes 252 local municipalities and 245 main places in the metropolitan municipalities.

introduction of apartheid, we also selected data for 1947. The period between 1980 and 1994 is chosen because of the creation of 1982- 1991 RIDP zones. Data for 2001 and 2011 was also chosen to look at the post-apartheid period and these years also coincide with census years. Geographic coordinates obtained from this exercise were then used to assign each firm to each of the local municipalities and then show the distribution of firm entry in a map using GIS software⁸.

We restrict the study period to 1950 to 2011. The 1950s marked the beginning of apartheid policies that forcefully relocated about 3.5 million black South Africans to rural '*homelands*'. In addition, since most policies and institutions with the objective of improving the performance of firms in the country were introduced in the 1960s, it is argued that this period will provide a good opportunity to exploit their potential role on the spatial distribution of firm entry. This period will provide an opportunity to examine the evolution of industrial policies and their relationship with the spatial distribution of firm entry. For example, industrial decentralisation policy incentives were formalised in 1955 with the Tomlinson Commission Report (Kaplan, Morris, and Martin, 2014). The evolution of such a policy, including the introduction of the RIDP in 1982 and its revision in 1991 makes the 1950-2011 period a perfect fit for analysis.

Although the removal of apartheid was one of the biggest shocks in the history of South Africa, our study only concentrated on policies that were directly targeted towards influencing industrial activity across space. In addition, the data on firm registration from the CIPC used in this study provides an opportunity to analyse the relationship of RIDP policy incentives and firm entry across regions. However, it is acknowledged that the firm registration data from CIPC may not have considered or underrepresented firm registrations in '*homeland*' areas during the period before 1994 since these regions were considered independent states outside South Africa, hence this may affect the analysis in this study. Although this may be a problem to our analysis, it is argued that these effects will be minor. It is believed that firm formation within the '*homelands*' was low since these regions were made up of crowded and economically deprived communities. It is also noted that in the dataset, firm registration in regions within the former '*homelands*' areas is observed, implying that this concern is not a serious threat.

⁸ Figure A1 in the appendix

RIDP Zones

Data on RIDP development and deconcentration points was obtained from various sources. These include data on RIDP points compiled by Kerby (2016). This study recorded the names of all RIDP points in the country, digitised from Regional Industrial Development Programme maps obtained from The National Archive, Pretoria. This data is checked with information on RIDP zones from other studies such as Nel (1994) and Kaplan, Morris, and Martin (2014). Using the names and the provinces provided, we geocoded their address using Google Geocoding API to get geographic coordinates of the RIDP zones. The location of these zones is shown in figure 1

3.2 Empirical Approach

To examine the spatial distribution of firm entry and its evolution over time, the study relied on measures of geographic concentration such as Herfindahl-Hirschman Index and a difference-in-difference analysis.

Herfindahl-Hirschman Index

To characterise the spatial distribution of firm entry, we first constructed the Herfindahl-Hirschman Index (HHI) as a measure of geographic concentration. It measures the extent to which a region, in this instance, a municipality, accounts for a large proportion of firm entry, in a province. This is an absolute measure of geographic concentration and it measures how uneven is the spatial distribution of firm entry in an industry, compared to a uniform distribution. The HHI is calculated as

$$HHI_{st} = \sum_{i=1}^r \left(\frac{y_{ist}}{y_{st}} \right)^2 \quad (1)$$

Where, y_{ist} is the count of firms registering in municipality i , sector s , and year t . y_{st} is the total count of registering firms in sector s in the province and year t . r is the total number of municipalities in a province. Thus, HHI_{st} is the sum of squares of the share of new firm registration of each municipality. The index is normalised to ensure that it takes values that range from 0 to 1. The normalised HHI is given as;

$$NHHI_{st} = \frac{(HHI - 1)}{(1 - 1/r)} \quad (2)$$

A value of NHHI close to 0 indicates that firm entry is evenly distributed across municipalities, whereas an NHHI close to 1 indicates that firm entry is geographically concentrated in one municipality. The index is calculated at the province level, to analyse how concentrated is firm entry across municipalities within a province. Documenting the pattern of geographical concentration of firm entry is important for policies aimed at reducing regional economic disparities. It is expected that regional policies such as RIDP may lead to a reduction in geographical concentration, since firms will be attracted to other marginalised municipalities due to policy incentives, thereby spreading out the distribution of firm entry across regions.

Difference-in-Differences Estimation

To examine the relative changes in firm entry over time in regions exposed to RIDP incentives relative to other regions, we rely on a difference-in-difference type of analysis. The idea behind differences-in-differences methodology is that to study the impact of a policy or some exposure to treatment, there is need to compare outcomes of both the treatment and control group before and after exposure to a policy or treatment. The differences in outcomes of the treatment and control group pre- and post-treatment are then differenced out. The control group acts as a counterfactual that show what would have happened to a treatment group in the absence of a policy shock.

To examine the effect of the creation of RIDP zones in 1982 and their removal in 1991, on the spatial distribution of firm entry, we study the relative changes in firm entry before and after the implementation of the policy shock. The RIDP was one of the main policies introduced by the apartheid government to achieve its goals of separate development. The aim of the policy was to encourage the development of homelands by establishing industrial nodes nearer to the homeland borders (Kaplan, Morris, and Martin, 2014).

The imposition of the RIDP in South Africa provides a particularly good opportunity to study the effect of this exogenous shock on outcomes such as firm entry across regions. This study argues that the creation of RIDP zones in 1982 and their removal in 1991 can be regarded as a ‘natural experiment’ that exogenously set policy incentives targeting certain regions. As discussed earlier, the RIDP incentives were part of the apartheid government’s spatial segregation policies that created the ‘homelands’ and forcefully relocated about 3.5 million

blacks to these regions (Abel, 2015). RIDP zones were established in regions bordering or inside the 'homelands' to attract manufacturing industries and enhance job creation in these areas to curb migration of blacks to metropolitan areas. These programs were put in place without paying attention to the prevailing economic and regional strengths and weaknesses (Tomlinson and Hyslop, 1986; Nel, 1994). It is thus assumed that RIDP designation was not correlated with expected changes in economic outcomes such as firm entry. This is also in line with other studies that have considered the creation of RIDP zones (Kerby, 2016), and policies forming part of the grand apartheid system (Abel, 2015), as natural experiments.

We define the treatment group as a municipality where at least an RIDP zone was located and a control group as municipal region bordering municipalities with RIDP zones. An RIDP zone includes both development and deconcentration points as discussed earlier. The RIDP zones were located in about 39 municipalities across the country, which represents about 26.4 percent of the municipalities considered in the study as shown in Table 2 below. About 73.6 percent of the municipalities are municipal regions surrounding municipalities with RIDP zones. Table A4 in the appendix shows the list of municipalities by RIDP designation. The difference-in-difference analysis, in this case, will compare changes in firm entry in municipalities with RIDP zones relative to control regions. This strategy will compare relative changes in the treatment group and other regions, before and after exposure to a shock. Considering a two-period setting, $post=0$ is the pre-1982 period and post-1991 period, and $post=1$ is the period between 1982 and 1991. $treat=1$ indicates that a region is in a treatment group, that is, those municipalities with RIDP zones, whereas $treat=0$ if in control group. To examine the relative changes in firm entry in treatment groups relative to other regions, the following difference-in-difference regression model is specified;

$$Y_{it} = \beta_0 + \beta_1 treat_i * post_i + \beta_2 treat_i + \beta_3 post_i + \varepsilon_{it} \quad (3)$$

where Y_{it} is the log of firm entry in municipality i and period t . The coefficient, β_1 on the interaction variable between treatment and a post dummy that indexes the pre-shock and post-shock period, provides a measure of relative changes in firm entry in treated regions relative to other regions because of exposure to policy shocks. Equation (3) also includes $post_i$ and $treat_i$ separately to capture the average effects of time, as well as time-invariant differences in outcomes between the treatment and control groups. The precision of the estimate of β_1

depends on the assumption that $E(treat_i * post_i | \varepsilon_{it} = 0)$ and this assumption is likely to be plausible when the treatment and control groups are very similar in economic characteristics. In this study, control regions include municipalities surrounding regions with RIDP zones. Studies in the literature have also used similar approaches in selecting control groups. For example, studies on enterprise zones in the United States such as, Lynch and Zax (2008) use all regions in a state that are not part of enterprise zones targeting some regions in that state, Neumark and Kolko (2010) used regions just outside enterprise zones as the main control group. Some studies use regions that were proposed, but not approved for development programs (Kline and Morreti, 2013), regions that were rejected and future applicants as controls (Busso, Gregory, and Kline, 2010). However, this current study is not able to use such controls because of the lack of information on regions that applied and were rejected or future applicants for RIDP designation.

Although the procedure for selecting a counterfactual adopted in this study will mitigate the concern that the treatment and control groups are different, it is acknowledged that it will not eliminate the concern. For example, if it is believed that there was some systematic reason for why certain RIDP zones were put in ‘homelands’ and certain RIDP zones were not put in ‘homelands’, then this may confound results reported in this study. To check the robustness of the results to such factors, the study restricted the sample to municipalities in former ‘homelands’ and perform the analysis by comparing the difference in firm entry between municipalities with RIDP zones and those without but in ‘homelands’. In addition, the sample is also restricted to municipalities outside ‘homelands’ only and it compared differences in firm entry between municipalities with RIDP zones to surrounding municipalities outside ‘homelands’ before and after the shock. Another concern is that since incentives received by deconcentration zones were lower than those received by development zones, aggregating these zones into one may reduce the estimated effects. To check this, the study estimated models that controlled for the presence of deconcentration zones.

Since available data span from 1950 to 2011, this study generalised the two-period model specified above to a multiple period panel fixed effects model as

$$Y_{it} = \beta_0 + \beta_1 treat_i * post_i + \delta_i + \rho_d * \gamma_t + \varepsilon_{it} \quad (4)$$

This study period is divided into two parts, that is, 1950-1991, and 1982-2011, to enable analysis of contemporaneous and long run effects of RIDP zones respectively⁹. One of the main identification strategies of β_1 in this study is that RIDP designation is randomly assigned since the creation of RIDP zones was a result of political considerations under the apartheid system, with no regard to economic fundamentals of the region. This implies that expected changes in economic outcomes are not likely to be correlated with RIDP designation. However, although the creation of RIDP zones was exogenous, there is need to control for other variables that are related to the outcome of interest to increase the precision of the estimate. These variables should also be exogenous to avoid introducing another bias. This study lacks data on other variables that are exogenous.

Instead, the study relies on a range of fixed effects. These include municipality fixed effects (δ_i) to capture the unobserved time-invariant regional factors that may be correlated with both firm entry and RIDP designation such as distance to markets. Municipality fixed effects also capture the differences in outcomes between treated and control regions. District by time fixed effect, $\rho_d * \gamma_t$ are included to capture the effect of time varying economic shocks that differ by district and may affect RIDP designation and firm entry jointly¹⁰. These may include rules and regulations and infrastructural expenditures at the district level that vary over time. This specification will also account for the location of municipalities in homelands. In addition, it helps to reduce the bias associated with potential spillovers associated with comparing regions that are geographically close and similar in economic terms, since the effect of RIDP in a municipality is averaged out by other municipalities that are not part of the RIDP in the district. Although this study is not able to fully account for other omitted variables that vary by municipality, the above fixed effects and the fact that RIDP designation is exogenously assigned will limit the bias emanating from omitted variables.

To analyse the persistent effects of RIDP zones, that is, examining whether the effect of RIDP incentives is still evident years after its removal, we performed a difference-in-difference analysis of the effect of the removal of RIDP zones in 1991 on firm entry during the

⁹ Some municipalities report zero entry of firms in certain years (about 70 percent of the sample). In addition, the dependent variable is the count of firms entering, implying that Poisson models should be adopted. However, this chapter transformed the data to natural logarithm, to reduce the skewness of the data and relies on OLS estimation for the main result. The robustness of this result is checked by running a Poisson model and the results are presented in table A1 in the appendix.

¹⁰ Also, including municipality by time fixed effects in this framework is not ideal, since the coefficient of interest will not be identified.

1982-2011 period. Such an analysis is relevant for South Africa and other Sub-Saharan African countries in general, that are currently involved in policies on SEZs. In 1991 the government introduced the revised RIDP programme, which abolished all incentives targeted to certain regions and introduced the uniform application of policy incentives across all regions of the country. This provides an opportunity to analyse whether the effects of previously created RIDP zones had a lasting effect on firm entry, even after their removal in 1991. This specification also includes municipality and district by time fixed effects. District by time fixed effects will also capture the effects of other geographically targeted policies introduced during the study period such as the SDIs discussed in section 2.1 above.

4. Results

The Spatial Distribution of Firm Entry

Figure 3 displays the concentration of firm entry across municipalities within a province and over time using the Normalised Herfindahl-Hirschman Index as a measure of the geographical concentration of firm entry. Results show that geographical concentration of firm entry was high in Western Cape, followed by KwaZulu-Natal and lowest in predominantly rural provinces such as North West, Mpumalanga, and Limpopo. The high geographical concentration of firm entry in the Western Cape Province is driven by the fact that most firms were registering in the City of Cape Town metropolitan municipality. These results also suggest that firm registration is evenly spread across municipalities in provinces that are predominantly rural as compared to provinces with large metros, where firms are concentrated in the metros. In Gauteng, firm entry is also evenly spread across municipalities relative to other provinces and this may also be driven by the size of the province.

Over time the geographical concentration of firm entry was declining in most of the provinces, except in the Eastern Cape, Western Cape, and Mpumalanga where the geographical concentration increased between 1950 and 1960 but started to decline thereafter. Western Cape experienced a sharp decline in geographical concentration after 1960 compared to other provinces. These reductions over time suggest that several factors were responsible for this trend and regional development policies are a potential candidate. Between 1940 and 1994, the country introduced several regional development strategies to promote industrial development in marginalised regions. Most importantly, was the RIDP policy introduced in 1982 and revised in 1991.

Looking at the results displayed in figure 3, the decline in geographical concentration between the 1980 and 1990 in provinces such as Eastern Cape, Free State, Limpopo, Mpumalanga, Gauteng and North West is associated with the creation of RIDP zones between 1982-1991. RIDP policy incentives may have attracted industry to other regions resulting in an even spread in the distribution of firm entry. The removal of these zones in 1991 is associated with an increase in geographical concentration in Eastern Cape, Limpopo and Mpumalanga. These results suggest that regional development policies such as RIDP may have influenced the distribution of firm entry across regions, particularly in provinces that were considered less developed and depended more on these policy incentives.

Behind these trends in geographic concentration within provinces, lie important dynamics at the sector level. Results presented in Table 2 (last column) shows that geographic concentration is high in the manufacturing sector in most provinces except for Gauteng. Firm registration in the services sector shows low levels of geographical concentration implying that firm entry is evenly spread across municipalities within a province in most provinces. Since most firms in the manufacturing sector produce tradable goods like cars, for example, that can be transported easily to customers, it is expected that geographic concentration is high. On the other hand, firms in the services sector need to be located closer to customers, hence little geographic concentration, since they need to be spread out in a similar way population is distributed across space.

The trends over time show that all sectors experienced a decline in geographic concentration over the study period, corroborating earlier findings in figure 3. This implies that factors such as regional development policies may have influenced this pattern in geographic concentration. These results suggest that policies such as the RIDP may be associated with the geographical concentration of firm entry across municipalities and this relationship was different across sectors. During the 1980s and 1990s, when RIDP zones were created, most sectors experienced a decline in geographical concentration. The next section discusses the results of an econometric analysis of the effects of RIDP policy on the distribution of firm entry across local municipalities in the country.

RIDP and the Spatial Distribution of Firm Entry

Figure 4 shows first descriptive evidence of the effects of RIDP on firm entry. The map shows the spatial distribution of the change in the average firm entry between the five-year period before and after the introduction of RIDP in the Eastern Cape province, one of the regions that received highest incentives. Darker regions show a large change in firm entry. A visual inspection of the spatial distribution of firm entry, with variation in and around the former apartheid 'homelands' shows that municipalities with RIDP zones such as King Sabata Dalindyebo, Mnquma, and Buffalo City experienced a large increase in firm entry after the introduction of policy incentives. There are some municipalities in the former Transkei and Ciskei regions that experienced an increase in firm registrations in this period but were not part of the RIDP. These municipalities include Elundini and Nkonkobe. In contrast, Lukanji local municipality received RIDP incentives but experienced a large decline in the firm entry. This suggests that, besides RIDP policy incentives, there were some important factors driving firm entry in these regions. Table 3 shows average firm entry in municipalities with RIDP zones and surrounding municipalities, before and after the introduction of RIDP policies. There are two rows and columns in the table, while the margins show the differences between treated and control groups in each period and the changes over time in each group and the differences-in-differences. In both periods, firm entry in the treatment group (column 1) is higher than in the control group (column 2). The differences-in-differences is positive (8.93) and statistically significant, suggesting that the creation of RIDP zones increased firm entry. It is, however, argued that this positive effect masks a lot of issues since it does not consider other sources of variation in the firm entry.

The key identifying assumption in difference-in-difference estimation is that trends in firm entry should be parallel in regions exposed to RIDP and those surrounding regions, prior to the introduction of the RIDP policy. Looking at the trends in the firm entry using the business registration data available suggests that this assumption is plausible in this case. If treated and control regions follow the same parallel trend before the introduction of the policy, this suggests that treated regions are not undergoing changes unrelated to the RIDP policy that also changes the firm entry. The introduction of the RIDP policy should induce a deviation from this common trend. Figure 5 plots firm entry in the years before and after the introduction of the RIDP, in municipalities with RIDP zones and control municipalities. The vertical line indicates the years when the RIDP was introduced and removed. The figure shows that treated regions and control regions follow a reasonable parallel linear trend in the thirty-two years prior

to the introduction of the policy. After the introduction of the policy, there is a deviation in the common trend. In addition to this, the study report results testing that treated and control regions were not trending differently before the introduction of the policy. Table 4 shows results of an analysis, where firm entry between 1950 and 1981 is regressed on time trend and the interaction of time trend with future treatment dummy. Since the period 1950-1981 is prior to the creation of RIDP zones, the finding of an insignificant effect on the interaction variable suggest that treated and control regions were not trending differently and evidence that there is no selection bias.

Main empirical results from the difference-in-difference estimation of equation (4) are presented in table 5, where RIDP zones are the treated regions and municipalities bordering regions with RIDP zones are used as a control group. Municipality fixed effects, as well as district by time fixed effects to capture time-invariant effects of being exposed to the RIDP and location in ‘homelands’ respectively, are controlled for. In addition, district by time fixed effects are also used to absorb the effects of time varying economic shocks that affect districts in each year. Since deconcentration zones received fewer incentives compared to development zones, results presented are conditioned on the interaction of a dummy indicating municipalities with RIDP deconcentration points and time dummy for 1982-1991. Standard errors are clustered at the municipality level to account for issues such as spatial dependence within municipalities and serial correlation (Conley, 1999; Bertrand, Duflo, and Mullainathan, 2002). In column (1) results for all sectors are presented and columns (2) to (4) report estimates by sector. First block present results for the period 1950-1991, whereas second block present results for the period 1982-2011 and examines the effects of the RIDP after its removal in 1991.

Estimated results show that, after controlling for time-invariant unobserved effects, as well as district by time fixed effects and controlling for deconcentration points, the introduction of the 1982 RIDP incentives increased firm entry during the period when the incentives were active. The percentage increase in firm entry resulting from the introduction of RIDP incentives is 164 percent¹¹. This result is statistically significant. This implies that regions exposed to RIDP incentives experienced a large increase in the entry of firms, relative to other regions that were not exposed to the policies. These results are consistent with earlier findings in the literature that suggest that the introduction of RIDP incentives increased firm formation in

¹¹ Since the dependent variable is in natural logs and the explanatory variable is a dummy variable, percentage difference in outcome variable as a result of a change in dummy explanatory variable from 0 to 1 is given by $(\exp(\beta)-1) * 100$.

regions bordering *'homelands'* during the 1982-1991 period (Nel, 1994; Kaplan, Morris, and Martin, 2014; Kerby, 2016).

Results for coefficient estimates in different sectors show that the effect is stronger for firms in wholesale and retail, followed by services, and then manufacturing. The introduction of RIDP increased firm entry in the wholesale and retail sector by 187 percent, 170 percent in services, and 161 percent in manufacturing. These results point to the differential relationship between the introduction of regional industrial policy incentives and firm entry across sectors of the economy.

Since the RIDP policy incentives were not discriminating by industrial sectors, these differences in estimates are suggesting that some factors were important in driving these results. It is expected that firm entry in the manufacturing sector will be high because of the RIDP incentives. Although the incentives were not discriminatory by sector, manufacturing firms tend to benefit more from the incentives. For example, incentives such as a rebate on the costs of railway transport of manufactured goods, subsidies on electricity, ten-year rental and interest subsidy on capital expenses, and relocation allowance of moving factories, tend to benefit manufacturing firms more because they use more of electricity and are capital intensive. It is not clear why the effect is high in wholesale and retail and other services sectors. Maybe an increase in manufacturing activity led to an increase in the demand for services such as transport, storage and communication, and finance, insurance, and real estate. This increased demand for such services, coupled with a reduction in costs of registering and doing business due to incentives, led to a large increase in firm formation in these sectors.

Results presented in the second block of table 5 show the effects of the removal of RIDP incentives in 1991 on firm entry. Results in column (1) show that the removal of RIDP incentives significantly reduced firm entry. The percentage decrease in firm entry resulting from the removal of RIDP incentives is approximately 39 percent. This finding corroborates existing evidence suggesting that the removal of RIDP incentives led to a reduction in industrial activity in former RIDP regions (Nel, 1994; Drewes and Bos, 1995; Aniruth and Barnes, 1998; Kaplan, Morris, and Martin, 2014). Since these programs were motivated by political considerations with no regard to the prevailing economic and spatial strength that are important for agglomeration processes, it is expected that these programs are likely to have no long-term effects on economic activity.

Looking at the effects of the removal of RIDP incentives on firm entry by sector, results show that the effects are different. The decrease in firm entry because of the removal of RIDP incentives is 56 percent in wholesale and retail, 23 percent in manufacturing, and 10 percent in services. These results by sector suggest that reduction in firm entry was low in the manufacturing sector, and the services sector was not affected. This low reduction in firm entry in manufacturing and the finding of no effect in the services sector as compared to other sectors is consistent with theoretical and empirical literature highlighting that manufacturing and services sector are subject to agglomeration economies due to economies of scale (Duranton and Puga, 2003; Kline and Moretti, 2013). These agglomeration processes are important for creating self-sustaining economic activity.

Table 6 restricts the sample to municipalities in former '*homelands*' and compared the differences in the firm entry between municipalities with RIDP zones and those without but falling in former '*homelands*' before and after the shock. Results are robust to our main specification. However, it should be noted that in this case, the increase in firm entry is higher than all the cases considered. This result suggests that comparing the differences in firm entry between municipalities with RIDP zones and surrounding regions may underestimate the effects of RIDP. This may be driven by the fact that the inclusion of former '*homelands*' regions in this sample is likely to bias the results if there was some systematic reason for why certain RIDP zones were put in '*homelands*' and certain RIDP zones were located outside '*homelands*'.

In table 7, municipalities outside former '*homelands*' are only considered and in this case, the differences in firm entry between municipalities with RIDP zones and surrounding municipalities outside former '*homelands*', before and after the shock are compared. Main results are robust. The second block of results in table 7 show that the removal of RIDP incentives had no effect on firm entry in manufacturing. These findings corroborate earlier results in table 5. Another concern with the difference-in-difference estimation is the likely bias emanating from comparing time periods before and after the introduction of a shock that is not of equal length. However, results presented in table A1 in the appendix, where the period before and after RIDP are restricted to equal length, show that main results are robust to such specification. Another concern is the presence of zeros and the fact that the dependent variable is a count variable. Results presented in A2 in the appendix shows that main findings are robust to controlling for this problem by using a Poisson estimator. The effect of RIDP is positive and

significant, albeit at a lower magnitude. Looking at different sectors, results are robust to our finding of increased entry in manufacturing and services sectors.

Overall, results from the difference-in-difference analysis suggest that regional policy incentives such as the RIDP increased firm entry when the policy incentives were still in place. However, after the removal of RIDP in 1991, the gains in firm entry were reversed, although not completely. Less than half of the gains in firm entry were reversed when the RIDP was removed. In manufacturing, wholesale and retail, and the services sector, the gains in firm entry more than offset the reductions, suggesting that agglomeration economies due to external economies of scale were important in creating self-sustaining economic effects in these sectors.

Other Robustness Checks: Market access and proximity

Since the distribution of municipalities with RIDP zones was spread across the country and their development may be expected to be affected by market access and proximity to major markets (Harris, 1954; Head and Mayer, 2004; Hanson, 2005). Not accounting for these factors may bias results reported in this study, if RIDP zones were in municipalities with less market access and far away from major cities relative to other municipalities. Although the study controlled for distance and other factors that may affect market access and proximity, by using fixed effects, this procedure might not fully capture factors influencing the development of these municipalities. To capture the effect of market access, we calculated the market access index for each municipality based on Harris (1954). Since there is no data on income or population spanning the time being studied, the study relied on the cumulative sum of firm entry to get the estimate of stock of firms in a municipality. The stock of firms is then used as a measure of economic activity to get a proxy of market access. The calculated index can be interpreted as a measure of “supplier access”. Higher values for the index indicates that the municipality is located nearer to input suppliers. For each municipality, the index is computed as

$$MA_i = \sum_{j=1}^J \left(\frac{Y_{jt}}{d_{ij}} \right) \quad (5)$$

where J is all other municipalities excluding i . Y_{jt} is the stock of firms in municipality j and year t , measured by the cumulative sum of firm entry. d_{ij} is the linear distance in kilometres between municipality i and j . This measure serves as a proxy for supplier access. It is included in the estimation of equation (4) to account for the effect of market access.

To account for proximity to major markets for each municipality, distance to major cities of Cape Town, Johannesburg, and Durban is calculated. Proximity is then measured as the inverse of the average distance to the three major cities. This measure implies that municipalities closer to the cities will have large values.

Regression results that account for these variables are presented in table A3 in the appendix. In all the columns market access, the interaction of market access with RIDP dummy, as well as the interaction of proximity with RIDP dummy is included. Introducing these variables does not change the sign of the variable of interest, however, the estimate is now several times larger than the original estimate reported in table 5. Results suggest that greater market access is associated with increased firm entry (column 1 first block), but when the results are disaggregated by sector, market access is only associated with increased firm entry in the wholesale and retail, and services sector.

To account for the fact that the relationship between RIDP and firm entry may be affected by the fact that some municipalities with and without RIDP zones might have better access to markets than others, estimates for the interaction between market access and RIDP dummy are shown in the table. Results show that there is no evidence that the relationship was different. The estimated coefficient for the interaction between proximity and RIDP dummy suggests that the relationship between proximity and firm entry is statistically different for municipalities with RIDP compared to those without. Results presented in the second block of the table shows the persistence effects of RIDP zones after controlling for market access and proximity to major cities. These results show that the removal of RIDP zones in 1982 had no effect on firm entry, suggesting that controlling for market access and proximity will eliminate the negative effect of the removal of RIDP incentives on firm entry.

5. Conclusions and Way Forward

Regional development policies such as Special Economic Zones have become an increasingly important policy tool for reducing regional disparities in economic activity and promoting economic growth in Sub-Saharan Africa. This paper set to analyse the effects of the first Special Economic Zone in Sub-Saharan Africa, that is the creation of Regional Industrial Development Programme zones in South Africa between 1982 and 1991, on the spatial distribution of economic activity, captured by firm entry. Empirical results from the paper show

that the creation of RIDP zones increased firm entry during the period when the policy incentives were still in place. After the removal of RIDP policy incentives in 1991, about half of the gains in firm entry were reduced, as firm entry decreased, although this result is not robust to accounting for market access and proximity to major cities. These results corroborate earlier findings in the literature that have shown that RIDP zones were not effective in creating long-term industrial activity.

Empirical findings also reveal that the effects of RIDP zones differ across sectors. In manufacturing and the services sector, the positive gains in firm entry more than offset the reductions in firm entry. This finding is consistent with the literature suggesting that manufacturing and services sector are subject to economies of scale that help in kick-starting agglomeration processes that are important for creating long term effects in improved economic activity.

The findings in this study highlight the role of regional policy incentives in explaining the spatial disparity in economic activity and the limited impact of such programs to create self-sustaining economic activity in marginalised regions. It is suggested that industrial policies aimed at reducing regional disparities should not only consider regional policy incentives targeting certain regions but consider other factors that are important for agglomeration processes to kick-off. Such factors may include economic geography and other regional institutions that shape economic incentives.

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Tables and Figures

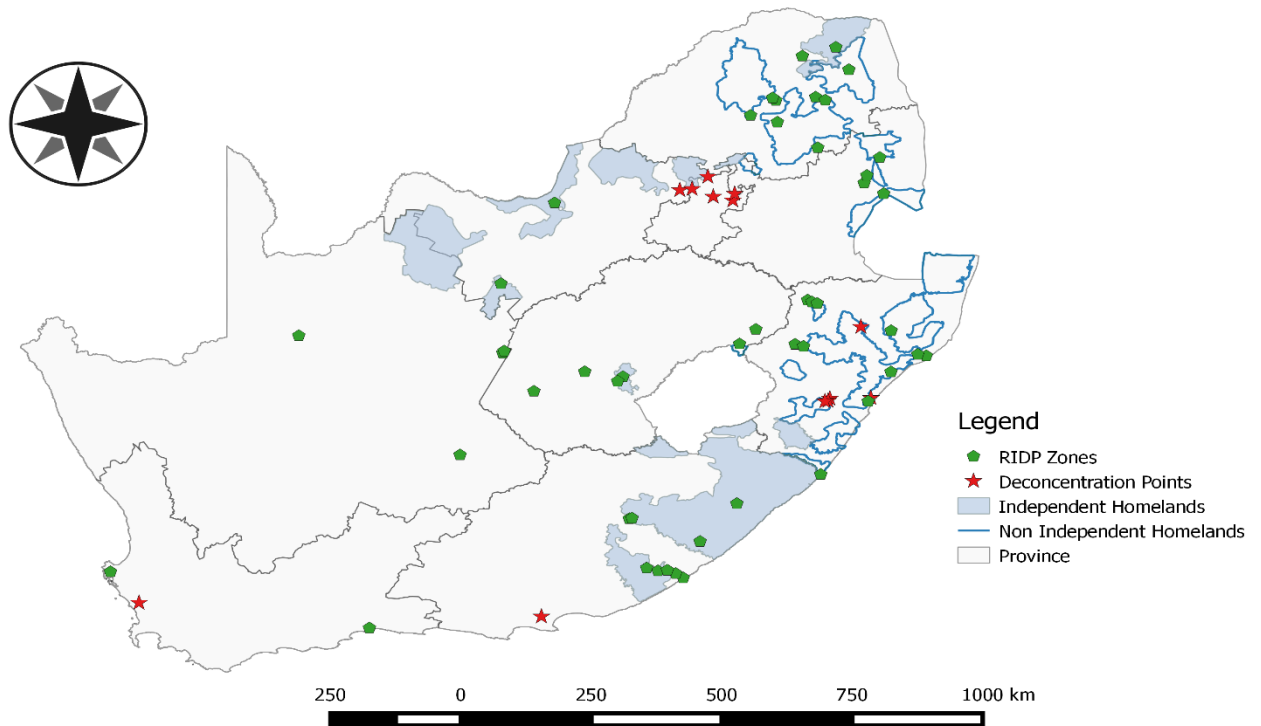


Figure 1: Map of South Africa showing the distribution of industrial zones and former homeland areas.

Source: Generated by the authors using GIS shape-files obtained from Statistics South Africa and data on RIDP zones from Kerby (2016).

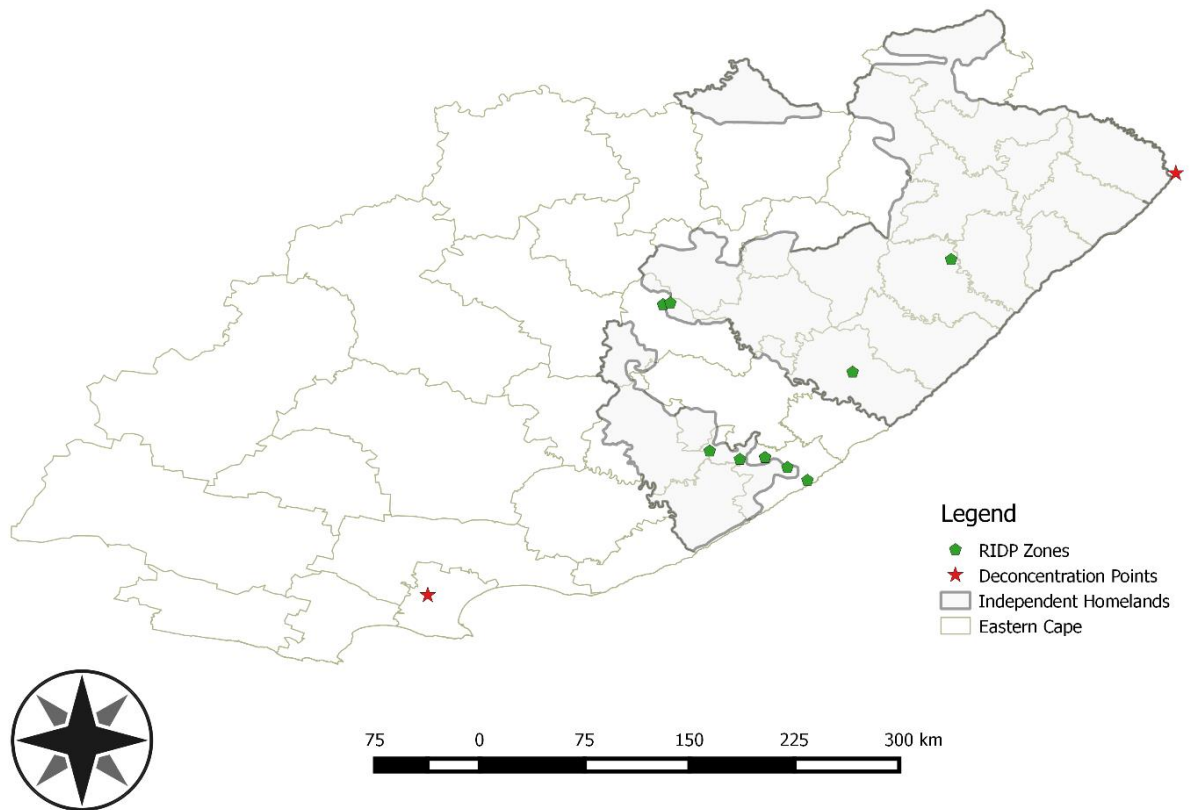


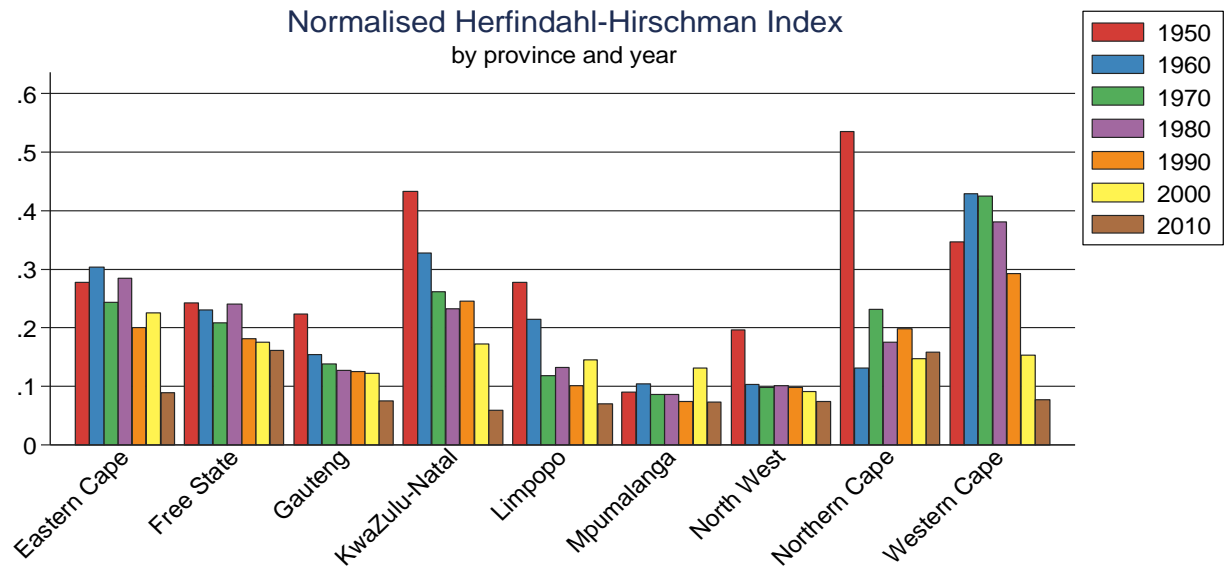
Figure 2: Map of municipalities in the Eastern Cape province showing some of the regions bordering and inside the homelands that received the RIDP incentives. In the empirical analysis, the study will compare the differences between the regions that received RIDP incentives and surrounding regions before and after the introduction of RIDP.

Source: Generated by the authors using GIS shape-files obtained from Statistics South Africa and data on RIDP zones from Kerby (2016).

Table 1: Municipalities and RIDP designation (1982-1991)

RIDP Designation	Count	Percent
Municipalities with RIDP zones (treated)	39	26.35
Municipalities bordering regions with RIDP zones (control)	109	73.65
Total	148	100

Notes: Table reports number and percentage of municipalities by RIDP zone status. The sample is restricted to municipalities with RIDP zones and surrounding municipalities.



Source: Author's calculation based on dataset from Companies and Intellectual Property Commission (CIPC) of South Africa

Figure 3: Evolution of the geographical concentration of firm entry by province. The normalized Herfindahl–Hirschman Index is calculated across municipalities within the province. It ranges from 0 (equal distribution) to 1 (only 1 municipality). The sample includes all municipalities with data of firm registrations in the country.

Table 2: Normalised Herfindahl-Hirschman Index by Province and Sector

Province	Sector	1950s	1960s	1970s	1980s	1990s	2000s	1950-2011
Eastern Cape	Manufacturing	0,64	0,43	0,40	0,24	0,27	0,18	0,36
	Wholesale and Retail	0,39	0,29	0,30	0,25	0,24	0,17	0,27
	Services	0,30	0,34	0,29	0,28	0,23	0,16	0,27
Free State	Manufacturing	0,39	0,48	0,67	0,30	0,23	0,19	0,38
	Wholesale and Retail	0,46	0,34	0,30	0,25	0,22	0,23	0,30
	Services	0,38	0,22	0,21	0,28	0,24	0,18	0,25
Gauteng	Manufacturing	0,23	0,18	0,18	0,15	0,13	0,09	0,16
	Wholesale and Retail	0,19	0,19	0,16	0,15	0,14	0,19	0,17
	Services	0,25	0,21	0,16	0,16	0,14	0,11	0,17
KwaZulu-Natal	Manufacturing	0,60	0,50	0,41	0,26	0,23	0,14	0,36
	Wholesale and Retail	0,56	0,37	0,27	0,25	0,24	0,12	0,30
	Services	0,40	0,34	0,28	0,27	0,23	0,12	0,27
Limpopo	Manufacturing	0,39	0,70	0,69	0,32	0,17	0,14	0,40
	Wholesale and Retail	0,39	0,24	0,36	0,20	0,14	0,15	0,25
	Services	0,26	0,24	0,19	0,18	0,17	0,13	0,19
Mpumalanga	Manufacturing	0,19	0,57	0,46	0,19	0,14	0,16	0,29
	Wholesale and Retail	0,28	0,22	0,23	0,14	0,13	0,18	0,20
	Services	0,22	0,16	0,13	0,13	0,14	0,13	0,15
North West	Manufacturing	0,24	0,61	0,52	0,21	0,15	0,13	0,31
	Wholesale and Retail	0,40	0,26	0,25	0,16	0,14	0,11	0,22
	Services	0,39	0,16	0,13	0,15	0,14	0,12	0,18
Northern Cape	Manufacturing	0,19	0,24	0,53	0,47	0,25	0,22	0,32
	Wholesale and Retail	0,65	0,53	0,58	0,27	0,17	0,21	0,40
	Services	0,42	0,28	0,28	0,25	0,22	0,19	0,27
Western Cape	Manufacturing	0,63	0,51	0,49	0,44	0,24	0,14	0,41
	Wholesale and Retail	0,35	0,44	0,38	0,38	0,22	0,12	0,32
	Services	0,44	0,34	0,36	0,38	0,24	0,13	0,31

The table presents results of within province Normalised Herfindahl-Hirschman Index by sector. The sample includes all municipalities with data on firm registrations in the country.

Source: Author's calculation based on data set from Companies and Intellectual Property Commission (CIPC) of South Africa

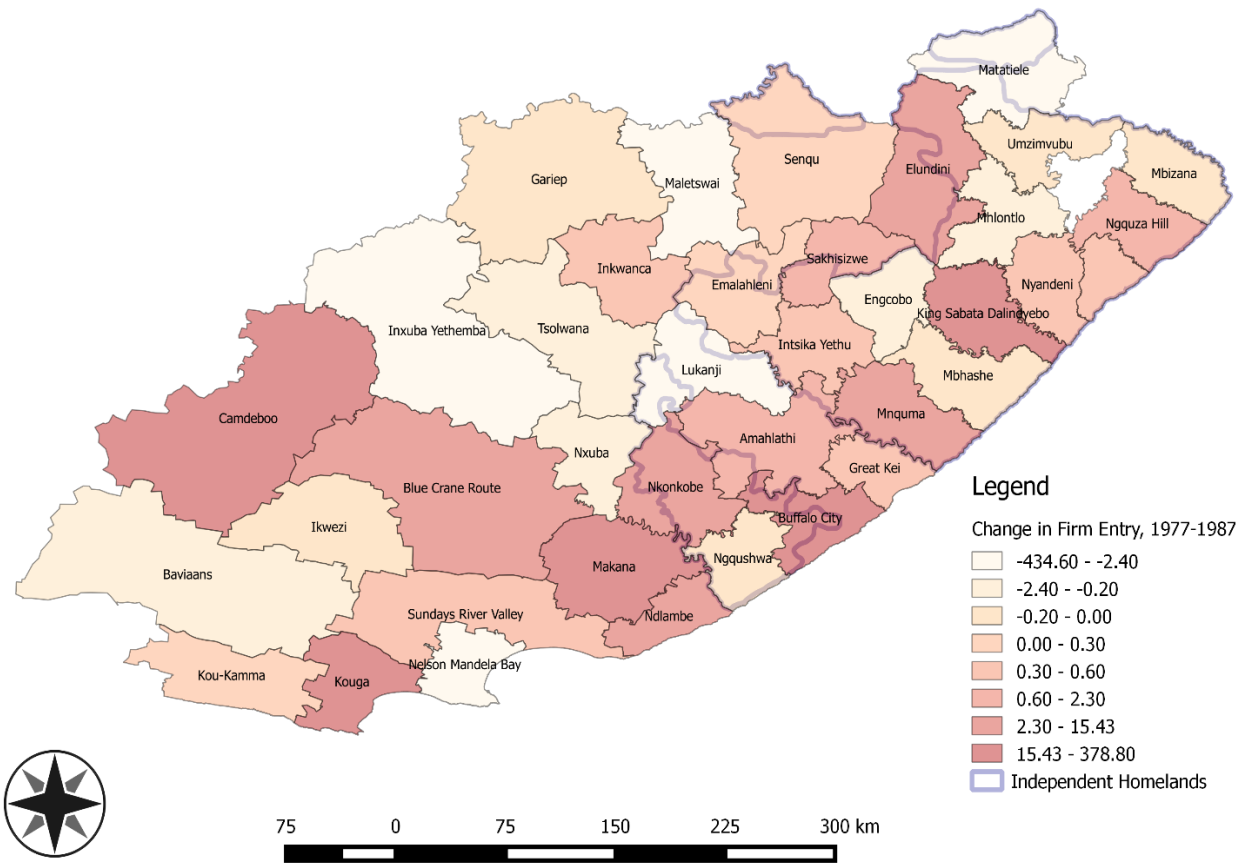


Figure 4: Map of municipalities and borders of homelands in the Eastern Cape Province showing the distribution of the change in the average firm entry between the period before and after the introduction of 1982 RIDP incentives.

Source: Generated by the authors using GIS shape-files obtained from Statistics South Africa and Business Registration Database from CIPC.

Table 3: Average Firm entry in municipalities before and after the introduction of RIDP incentives in 1982

	Year	Means (Standard deviation)		Differences (Standard error) (1) - (2)
		Municipalities with RIDP Zones (Treatment group) (1)	Surrounding municipalities (Control group) (2)	(3)
Firm entry	1977	2,73 (7,01)	1,96 (19,53)	0,77 (1,60)
	1987	30,47 (58,13)	20,77 (150,30)	9,70 (12,44)
Differences (Standard error)		27,74 (4,69)	18,81 (7,26)	8,93 (0,44)

Notes: Calculated by the authors using CIPC data. The table reports average firm entry in municipalities with RIDP zones and nearby municipalities, before and after the introduction of RIDP incentives in 1982. Control areas are those regions bordering treated regions with an RIDP zone. The sample is restricted to municipalities with RIDP zones and those bordering municipalities with RIDP zones.

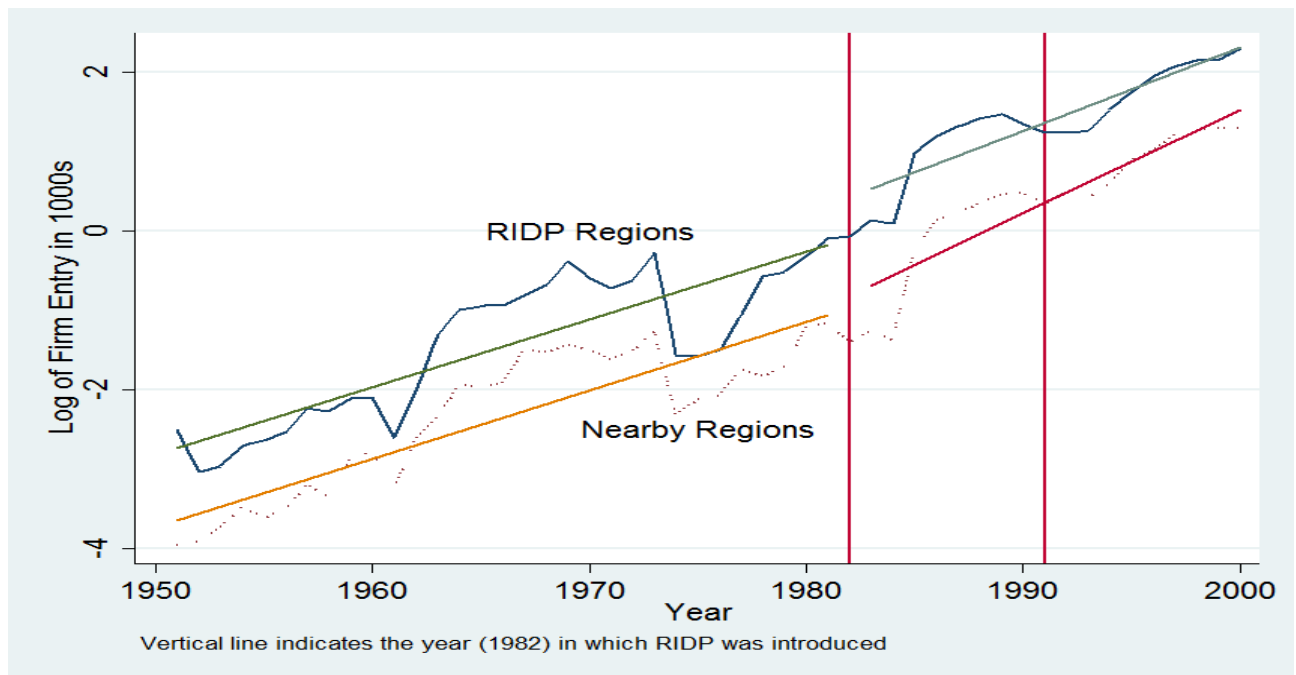


Figure 5: Firm entry in municipalities with RIDP zones and municipalities bordering RIDP regions before and after RIDP, 1950-2000.

Table 4: OLS estimates testing the parallel trend assumption

VARIABLES	Firm entry (1)
RIDP dummy*trend	-0.046 (0.087)
Observations	19536
R-squared	0.209

Note: Table reports regression results where firm entry is regressed on time trend and the interaction of time trend and future treatment dummy. Robust standard errors clustered at the municipality level in parentheses. Significance level indicated by *** p<0.01, ** p<0.05, * p<0.1. Fixed effects are included in the estimation.

Table 5: OLS estimates, RIDP zones and Firm Entry (Surrounding municipalities as controls)

<i>Dependent Variable: Log of Firm Entry</i>	All Sectors (1)	Manufacturing (2)	Wholesale and Retail (3)	Services (4)
<i>Contemporaneous Effects, 1950-1991</i>				
Municipality with RIDP zones and period 1982-1991=1	0.970*** (0.151)	0.960*** (0.171)	1.053*** (0.207)	0.992*** (0.171)
Municipalities with decon points and period 1982-1991=1	-0.423 (0.457)	-0.577 (0.574)	-0.371 (0.603)	-0.0897 (0.348)
N	24864	6216	6216	6216
Number of municipalities	148	148	148	148
R-squared	0.713	0.713	0.774	0.864
<i>Persistent Effects, 1982-2011</i>				
Municipality with RIDP zones and period 1982-1991=1	-0.327*** (0.0660)	-0.205*** (0.0786)	-0.449*** (0.0970)	-0.103 (0.107)
Municipalities with decon points and period 1982-1991=1	0.101 (0.217)	-0.0210 (0.183)	0.218 (0.264)	0.224 (0.340)
N	17168	4292	4292	4292
Number of municipalities	148	148	148	148
R-squared	0.896	0.872	0.924	0.952
Sector by time fixed effects ¹²	Yes	No	No	No

Note: Table reports regression results using municipalities with RIDP zones (development and deconcentration points) as treated regions and municipalities surrounding these regions as a control group. Robust standard errors clustered at the municipality level in parentheses. Significance level indicated by *** p<0.01, ** p<0.05, * p<0.1. Municipality and district by time fixed effects included in all estimations.

¹² Included to account for time varying sector specific effects that may affect firm entry.

Table 6: OLS estimates, RIDP zones, and Firm Entry, municipalities in former homelands only

<i>Dependent Variable: Log of Firm Entry</i>	All Sectors	Manufacturing	Wholesale and Retail	Services
	(1)	(2)	(3)	(4)
<i>Contemporaneous Effects, 1950-1991</i>				
Municipality with RIDP zones and period 1982-1991=1	0.996*** (0.281)	0.871*** (0.277)	0.992** (0.402)	1.315*** (0.355)
Municipalities with decon points and period 1982-1991=1	0.627 (0.546)	0.600 (0.498)	0.967 (0.790)	0.217 (0.608)
N	12600	3150	3150	3150
Number of municipalities	75	75	75	75
R-squared	0.671	0.627	0.705	0.814
<i>Persistent Effects, 1982-2011</i>				
Municipality with RIDP zones and period 1982-1991=1	-0.390** (0.173)	-0.295 (0.193)	-0.542** (0.253)	0.0256 (0.259)
Municipalities with decon points and period 1982-1991=1	-0.0143 (0.236)	-0.168 (0.205)	0.0917 (0.347)	-0.221 (0.363)
N	8700	2175	2175	2175
Number of municipalities	75	75	75	75
R-squared	0.883	0.793	0.896	0.942
Sector by time fixed effects	Yes	No	No	No

Note: Table reports regression results were the sample is restricted to municipalities in former homelands only. Treated regions are municipalities with RIDP zones and control regions include municipalities in homelands without RIDP zones. Robust standard errors clustered at the municipality level in parentheses. Significance level indicated by *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Municipality and district by time fixed effects included in all estimations.

Table 7: OLS estimates, RIDP zones, and Firm Entry, municipalities outside homelands

<i>Dependent Variable: Log of Firm Entry</i>	All Sectors	Manufacturing	Wholesale and Retail	Services
<i>Contemporaneous Effects, 1950-1991</i>				
Municipality with RIDP zones and period 1982-1991=1	0.746*** (0.191)	0.770*** (0.230)	0.895*** (0.265)	0.638*** (0.201)
Municipalities with decon points and period 1982-1991=1	-0.536 (0.578)	-0.748 (0.760)	-0.606 (0.779)	0.0742 (0.417)
N	15456	3864	3864	3864
Number of municipalities	92	92	92	92
R-squared	0.750	0.754	0.807	0.886
<i>Persistent Effects, 1982-2011</i>				
Municipality with RIDP zones and period 1982-1991=1	-0.286*** (0.0543)	-0.126* (0.0698)	-0.339*** (0.0827)	-0.236** (0.0978)
Municipalities with decon points and period 1982-1991=1	0.166 (0.285)	-0.0242 (0.235)	0.247 (0.346)	0.528 (0.448)
N	10672	2668	2668	2668
Number of municipalities	92	92	92	92
R-squared	0.907	0.898	0.939	0.958
Sector by time fixed effects	Yes	No	No	No

Note: Table reports regression results were the sample is restricted to municipalities outside homelands. In this case, treated regions are municipalities with RIDP zones, and control regions include municipalities surrounding RIDP zones but outside homelands. Robust standard errors clustered at the municipality level in parentheses. Significance level indicated by *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Municipality and district by time fixed effects included in all estimations.

Appendix

Table A1: OLS estimates, RIDP zones and Firm entry (Sample restricted to equal time periods)

<i>Dependent Variable: Log of Firm Entry</i>	All Sectors (1)	Manufacturing (2)	Wholesale and Retail (3)	Services (4)
<i>Contemporaneous Effects, 1950-1991</i>				
Municipality with RIDP zones and period 1982-1991=1	0.761*** (0.122)	0.846*** (0.155)	0.858*** (0.185)	0.554*** (0.112)
Municipalities with decon points and period 1982-1991=1	-0.294 (0.382)	-0.383 (0.507)	-0.238 (0.522)	-0.108 (0.248)
N	11248	2812	2812	2812
Number of municipalities	148	148	148	148
R-squared	0.767	0.775	0.818	0.918
<i>Persistent Effects, 1982-2011</i>				
Municipality with RIDP zones and period 1982-1991=1	-0.247*** (0.0617)	-0.124 (0.0762)	-0.347*** (0.0844)	-0.124 (0.0840)
Municipalities with decon points and period 1982-1991=1	0.0509 (0.129)	-0.181 (0.118)	0.170 (0.190)	0.198 (0.233)
N	10064	2516	2516	2516
Number of municipalities	148	148	148	148
R-squared	0.867	0.885	0.914	0.946
Sector by time fixed effects	Yes	No	No	No

Note: Table report regression results, where the period before and after the policy shock is of equal length. Robust standard errors clustered at the municipality level in parentheses. Significance level indicated by *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Municipality and district by time fixed effects included in all estimations.

Table A2: Poisson Estimates, RIDP zones and Firm Entry (Surrounding municipalities as controls)

<i>Dependent Variable: Firm Entry</i>				
	All Sectors (1)	Manufacturing (2)	Wholesale and Retail (3)	Services (4)
<i>Contemporaneous Effects, 1950-1991</i>				
Municipality with RIDP zones and period 1982-1991=1	0.222*** (0.0151)	0.320*** (0.0746)	-0.160*** (0.0402)	0.244*** (0.0174)
Municipalities with decon points and period 1982-1991=1	0.0601** (0.0264)	-0.0752 (0.134)	0.232*** (0.0740)	0.0896*** (0.0299)
N	23452	6216	6216	6216
Number of municipalities	148	148	148	148
<i>Persistent Effects, 1982-2011</i>				
Municipality with RIDP zones and period 1982-1991=1	-0.466*** (0.00756)	-0.176*** (0.0275)	-0.350*** (0.0140)	-0.486*** (0.0103)
Municipalities with decon points and period 1982-1991=1	0.214*** (0.0128)	-0.105** (0.0482)	0.342*** (0.0243)	0.228*** (0.0168)
N	17168	4292	4292	4292
Number of municipalities	148	148	148	148
Sector by time fixed effects	Yes	No	No	No

Note: Table report regression results, where the robustness of the main result in table 2.5, is checked by using poisson estimation methods to control for the presence of zeros and count data in the dependent variable. Robust standard errors clustered at the municipality level in parentheses. Significance level indicated by *** p<0.01, ** p<0.05, * p<0.1. Municipality and time fixed effects, included in all estimations.

Table A3: OLS estimates, RIDP zones and Firm entry, market access, and proximity

<i>Dependent Variable: Log of Firm Entry</i>	All Sectors (1)	Manufacturing (2)	Wholesale and Retail (3)	Services (4)
<i>Contemporaneous Effects, 1950-1991</i>				
Municipality with RIDP zones and period 1982-1991=1	16.77** (6.997)	18.17** (7.767)	20.55** (9.802)	12.72 (7.857)
Municipalities with decon points and period 1982-1991=1	-0.926** (0.446)	-1.063** (0.525)	-0.881 (0.588)	-0.550 (0.396)
Market Access	4.867** (1.974)	4.179* (2.462)	5.069** (2.539)	5.782*** (1.925)
Market access*Municipality with RIDP zones and period 1982-1991	0.181 (0.156)	0.155 (0.206)	0.124 (0.221)	0.179 (0.139)
Proximity*Municipality with RIDP zones and period 1982-1991	2.596** (1.038)	2.784** (1.129)	3.104** (1.456)	1.975* (1.180)
N	24864	6216	6216	6216
Number of municipalities	148	148	148	148
R-squared	0.722	0.729	0.784	0.870
<i>Persistent Effects, 1982-2011</i>				
Municipality with RIDP zones and period 1982-1991=1	1.441 (4.087)	2.036 (4.598)	1.533 (6.294)	2.284 (5.540)
Municipalities with decon points and period 1982-1991=1	-0.0359 (0.201)	-0.150 (0.195)	0.0349 (0.270)	0.0967 (0.313)
Market Access	1.170 (1.146)	-0.0355 (1.001)	1.931 (1.513)	3.078** (1.547)
Market access*Municipality with RIDP zones and period 1982-1991	0.119 (0.109)	0.103 (0.139)	0.165 (0.151)	0.0945 (0.141)
Proximity*Municipality with RIDP zones and period 1982-1991	0.384 (0.591)	0.443 (0.657)	0.461 (0.921)	0.452 (0.823)
N	17168	4292	4292	4292
Number of municipalities	148	148	148	148
R-squared	0.896	0.872	0.925	0.953
Sector by time fixed effects	Yes	No	No	No

Note: Table report regression results, where market access and proximity to main markets are included in all regressions to check the robustness of the main result (table 2.5). These controls are interacted with RIDP indicator. Robust standard errors clustered at the municipality level in parentheses. Significance level indicated by *** p<0.01, ** p<0.05, * p<0.1. Municipality and district by time fixed effects, included in all estimations.

Table A4: List of Municipalities by RIDP designation

Municipalities with RIDP zones (development and deconcentration zones)	Surrounding Municipalities
//Khara Hais Local Municipality	! Kheis Local Municipality
Atlantis and surrounds	Abaqulusi Local Municipality
Buffalo City Local Municipality	Aganang Local Municipality
Bushbuckridge Local Municipality	Albert Luthuli Local Municipality
Emnambithi-Ladysmith Local Municipality	Amahlathi Local Municipality
Emthanjeni Local Municipality	Ba-Phalaborwa Local Municipality
Ga-Rankuwa	Baviaans Local Municipality
George Local Municipality	Bergvriervier Local Municipality
Greater Giyani Local Municipality	Bitou Local Municipality
Greater Taung Local Municipality	Blouberg Local Municipality

Greater Tubatse Local Municipality
Greater Tzaneen Local Municipality
Hibiscus Coast Local Municipality
King Sabata Dalindyebo Local Municipality
Lepele-Nkumpi Local Municipality
Letsemeng Local Municipality
Local Municipality of Madibeng
Lukanji Local Municipality
Mabopane
Mafikeng Local Municipality
Makhado Local Municipality
Maluti a Phofung Local Municipality
Mamellodi_Nellmapius
Mandeni Local Municipality
Mangaung Local Municipality
Mbombela Local Municipality
Mnquma Local Municipality
Mogalakwena Local Municipality
Newcastle Local Municipality
Nkomazi Local Municipality
Polokwane Local Municipality
Saldanha Bay Local Municipality
Sol Plaatje Local Municipality
Temba_Hammanskraal_Amadebele
The Msunduzi Local Municipality
Thulamela Local Municipality
Uitenhage and surrounds
Verulam and surrounds
uMhlathuze Local Municipality

Cape Town area
City of Tshwane Metro Part 1
Dannhauser Local Municipality
Dihlabeng Local Municipality
Dikgatlong Local Municipality
Ditsobotla Local Municipality
Elias Motsoaledi Local Municipality
Elundini Local Municipality
Emadlangeni Local Municipality
Emakhazeni Local Municipality
Emalahleni Local Municipality
Endumeni Local Municipality
Engcobo Local Municipality
Ezingoleni Local Municipality
Fetakgomo Local Municipality
Ga-Segonyana Local Municipality
Great Kei Local Municipality
Greater Letaba Local Municipality
Greater Marble Hall Local Municipality
Hlabisa Local Municipality
Impendle Local Municipality
Indaka Local Municipality
Ingwe Local Municipality
Inkwanca Local Municipality
Intsika Yethu Local Municipality
Inxuba Yethemba Local Municipality
Kagisano Local Municipality
Kai !Garib Local Municipality
Kareeberg Local Municipality
Knysna Local Municipality
Kopanong Local Municipality
Kou-Kamma Local Municipality
KwaDukuza Local Municipality
Kwanobuhle
Lekwa-Teemane Local Municipality
Lephalale Local Municipality
Magareng Local Municipality
Makhuduthamaga Local Municipality
Mamusa Local Municipality
Mantsopa Local Municipality
Maphumulo Local Municipality
Maruleng Local Municipality
Masilonyana Local Municipality
Mbhashe Local Municipality
Mbonambi Local Municipality
Mhlontlo Local Municipality

Mier Local Municipality
Mkhambathini Local Municipality
Modimolle Local Municipality
Mogale City Local Municipality
Molemole Local Municipality
Mookgopong Local Municipality
Moretele Local Municipality
Moses Kotane Local Municipality
Moshaweng Local Municipality
Mossel Bay Local Municipality
Msinga Local Municipality
Mthonjaneni Local Municipality
Musina Local Municipality
Mutale Local Municipality
Naledi Local Municipality
Ngqushwa Local Municipality
Nkandla Local Municipality
Nkonkobe Local Municipality
Nongoma Local Municipality
Nxuba Local Municipality
Nyandeni Local Municipality
Okhahlamba Local Municipality
Oudtshoorn Local Municipality
Phoenix
Phokwane Local Municipality
Phumelela Local Municipality
Pretoria_Akasia
Prince Albert Local Municipality
Ramotshere Moiloa Local Municipality
Ratlou Local Municipality
Renosterberg Local Municipality
Richmond Local Municipality
Rustenburg Local Municipality
Seme Local Municipality
Siyancuma Local Municipality
Siyathemba Local Municipality
Soshanguve
Swartland Local Municipality
Thaba Chweu Local Municipality
Thabazimbi Local Municipality
Thembelihle Local Municipality
Tokologo Local Municipality
Tsantsabane Local Municipality
Tsolwana Local Municipality
Tswaing Local Municipality
Ubuntu Local Municipality

	Umsobomvu Local Municipality Umtshezi Local Municipality Umzumbe Local Municipality uMlalazi Local Municipality uMngeni Local Municipality uMshwathi Local Municipality
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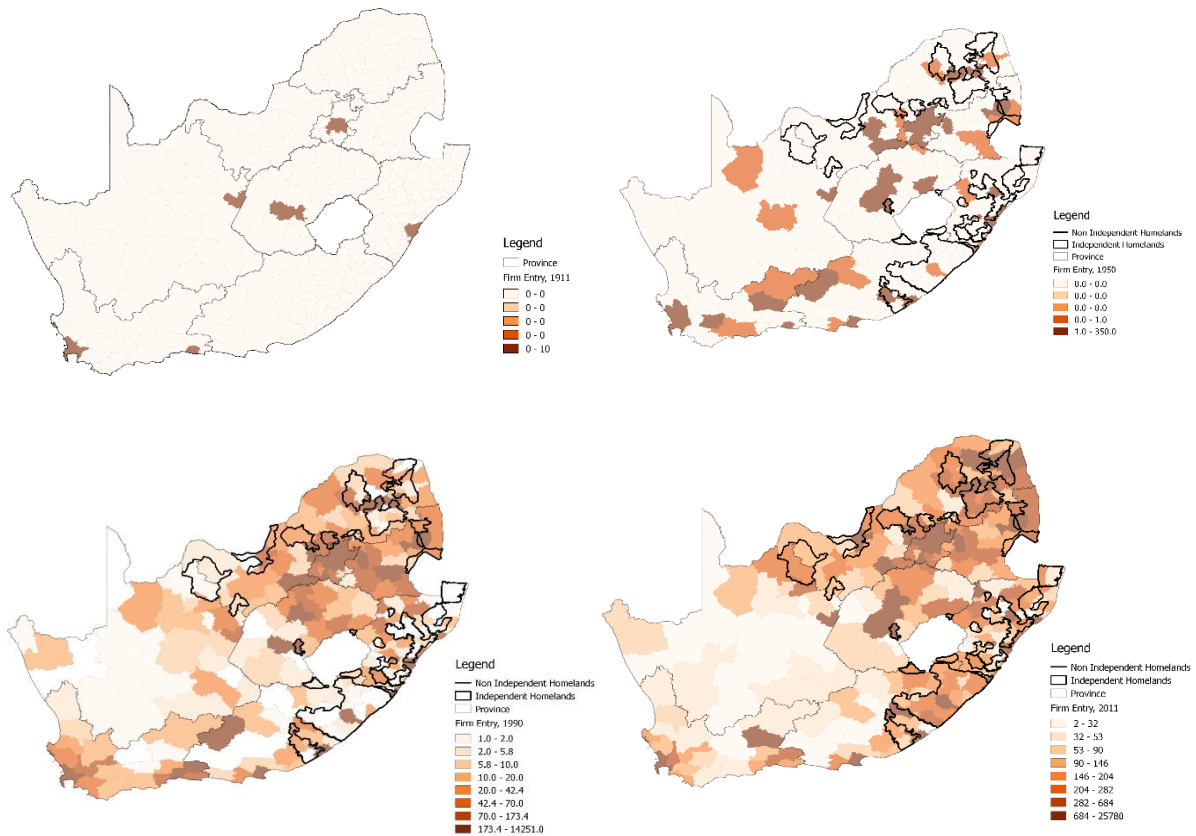


Figure A1: Spatial Distribution of firm entry in 1911, 1950, 1990 and 2011, with variation in and around former apartheid homelands.