**The impact of Special Economic Zones on Southern Italy**

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## **Abstract**

Special Economic Zones (SEZs) are geographically delimited area where governments establish special economic rules to attract businesses and investors in underdeveloped regions. Despite SEZs in the world have a long history, the Italian government introduced the SEZ program in 2017 to boost economic and social development of Southern Italy. This paper proposes a first analysis of the impact of Italian SEZs on firms in Southern Italy. To do this, we built a panel dataset containing thousands of Italian businesses observed between 2014 and 2022 and analyzed the impact of being a firm located in a zone or adjacent to a zone on its number of employees. Preliminary results suggest that the SEZ program has been successful so far, since businesses located in a zone and adjacent to a zone have significantly increased their number of employees. We also analyzed the performance of each SEZ, finding that almost all zones positively affected business employment. Moreover, the SEZ program has induced economic specialization: while businesses in the agricultural sector have not made significant changes to employment, the opposite is true for firms in the industrial and service sectors, where the number of employees has increased significantly. Finally, the increase in the number of employees seems to be sustainable over time, since firms located in a zone and adjacent to a zone also increased their revenues. If these results were confirmed in the medium-long term, the SEZ program could represent the beginning of the end of the historic Italian dualism.

**Keywords:** Special Economic Zones; Southern Italy; Italian dualism; employment; economic specialization

## **1. Introduction**

Special Economic Zones (SEZs) are geographically delimited area in which governments establish special rules for businesses and investors, through tax breaks and administrative simplifications (Bost, 2019; UNCTAD, 2019). There are three main reasons why policymakers create SEZs. The first is investment attraction (Davies and Mazhikeyev, 2019). Attracting domestic investment and foreign investment is necessary for both developing and developed countries to boost the economic and social development of lagging regions. A study realized by Wang (2013) on Chinese SEZs found that the SEZ program significantly increased foreign direct investment in treated municipalities, generating wage increases for workers more than the increase in the local cost of living. A second reason strictly related to the previous one is the creation of jobs (Lu *et al.*, 2019). Indeed, investment attraction in existing or new firms generates an increase in employment, directly and indirectly. Directly for those firms in which investments are made, indirectly for those firms whose activity is closely linked to the firms affected by investments. Zheng (2021) recently studied the impact of Chinese SEZs on job creation, showing that zones increased local jobs due to investments in the creation of new businesses and the expansion of existing ones. The combination of investment attraction and job creation leads to the last reason: economic growth (Moberg, 2015). In this regard, SEZs are expected to increase the GDP of the treated areas and, consequently, of the country as a whole. For example, Huang *et al.* (2017) found that the Shanghai pilot free trade zone positively affected Shanghai’s economic growth.

The first modern SEZs were created in the 1960s, and then their number increased exponentially in the following decades: while in 1975 there were just 79 zones in the world, in 2019 this number increased to 5,383. The creation of SEZs is a phenomenon usually linked to developing countries, and in particular to Asian ones. Indeed, 4,046 zones are placed in Asia. China is the Asian country with the largest number of SEZs (2,543). Despite this, SEZs also exist in developed countries (374 zones), most of which are in the United States (262). In the European Union, SEZs are usually located in former socialist economies. Indeed, the top three EU countries by number of SEZs include Poland (21 zones), Lithuania (16) and Croatia (11). This is because the zones were used to sustain employment in undeveloped areas during the economic transition of the 1990s (Jensen, 2018).

Despite SEZs have a long history, they are a new tool in Italy. Indeed, the Italian government approved the law which establishes SEZs (*Zone Economiche Speciali* – ZES in Italian) in 2017 (law decree n. 91). Stimulating economic growth of Southern Italy is the reason why this tool was introduced in Italy. Indeed, Italy has been affected by an economic dualism since the proclamation of the Kingdom of Italy in 1861. On the one hand we have Northern Italy whose economy was gradually integrating with the developed European economies, on the other hand the economy of Southern Italy lagged behind. To solve this problem, several interventions were implemented in the following decades, both at the national and European level.

The most important intervention implemented by the Italian government after the Second World War was the Fund for the South, which was established with the law n. 646 in 1950 to promote the realization of public works and infrastructure in rural areas of Southern Italy. The Fund operated until 1984 and was supposed to contribute to “the economic and social progress of Southern Italy” (law 1950/646). In the meantime, the European Union started cohesion policy in the 1980s, an investment policy delivered through several funds aimed at supporting economic and social growth among member states. For the 2021-2027 cohesion policy, Southern Italy was financed by the European Social Fund Plus, which supports employment and aims to create a fair and socially inclusive society in EU countries, and by the European Regional Development Fund, which invests in social and economic development of all EU regions and cities.

Despite the use of these tools, the Italian dualism remains unsolved (Banca d’Italia, 2022). Indeed, several macroeconomic indicators suggest that both the Fund for the South before and the cohesion policy after have not eliminated, or at least significantly reduced, the historical gap between Northern and Southern Italy. In this regard, we can see SEZs as the new intervention tool aimed at reducing the Italian dualism. Although it is too early to judge whether SEZs have been successful in achieving this long-term goal, we can make a preliminary assessment of their effectiveness. This study proposes a quantitative analysis of the impact of SEZs on Southern Italy. While most of the literature has studied the impact of zones at the aggregate level, in this paper we study this impact on entities directly affected by the Italian law on SEZs, i.e. Italian businesses. To do this, we constructed a panel dataset of hundreds of thousands of Italian firms observed between 2014 and 2022. Then we carried out a regression analysis where we analyzed the impact of SEZs on the number of employees. Moreover, we also verified whether SEZs generated positive or negative spillovers on businesses located in municipalities adjacent to zones. Results suggest that firms located in a zone or in a municipality adjacent to zones increase their number of employees.

This chapter is structured as follows: section 2 presents a summary of previous findings on the effects of SEZs and describes the policy background of Italian zones. The third section illustrates data e methods used for the empirical analysis. Section 4 discusses the obtained results. The role of Italian SEZs in solving the dualism between Northern and Southern Italy is discussed in section 5. The sixth section concludes.

## **2. Literature review**

Several studies have assessed the impact of SEZs policies. Busso *et al.* (2013) estimated causal impacts of American Empowerment Zones, basically SEZs aimed at encouraging economic and social investment in the neediest urban and rural areas of the United States. To do this, they applied an adjusted difference-in-differences estimator on a dataset of households and establishments from the 1980, 1990 and 2000 Decennial Censuses of Population and Housing. Their findings show that these zones generated jobs in affected areas and increased wages of residents working in the zones, without causing dramatic changes in the local cost of living. Ambroziak and Hartwell (2018) analyzed the impact of Polish zones on regional development. For this purpose, they used a counterfactual evaluation method to evaluate the economic and social consequences of Polish SEZs at the *powiat* level (Polish entities equivalent to the Local Administrative Units (LAU) level 1) between 2005 and 2013. In particular, they identified *powiats* for the experimental and control groups (*powiats* affected and not affected by the SEZ policy, respectively) which are statistically equivalent, i.e. *powiats* with similar characteristics in terms of GDP per capita. Their results show that SEZs have increased investment attractiveness and job creation. Ciżkowicz *et al.* (2017) estimated a set of panel models for employment and capital outlays of Polish *powiats* over the period 2003–2012. Their results suggest that SEZs had a strong positive effect on employment and a weak positive effect on investment. Jensen (2018) assessed the employment impact of the Poland’s SEZs policy using the Polish databank. She collected economic data at the *gmina* level (basically, Polish municipalities equivalent to the LAU level 2) for the period 1995-2014. Then, she used a difference-in-differences approach adjusted for panel data to assess the impact of zones on employment, finding that SEZs have been successful in increasing employment after the economic transition of 1990s. A comparison of SEZ programs among EU countries was realized by Arbolino *et al.* (2023), which investigated the impact of European incentive zones (IZs), a generic term which covers different types of policy incentives, including SEZs. To this end, they implemented a two-step methodology on a panel dataset of administrative regions located in seven EU countries (Croatia, Estonia, France, Germany, Lithuania, Poland and Spain) observed between 2006 and 2018. First, they constructed two composite indicators using the principal component analysis to assess the benefits obtained by IZ regions during the implementation of IZ programs. Second, they compared IZ regions with other regions using the counterfactual analysis to verify the ability of public policy to steer the conditions of a target population in a desired direction. Their findings show significant positive results achieved by the various industrial policy instruments with differing levels of success.

Focusing on other studies not strictly related to SEZs policies, Martin *et al.* (2011) adopted a GMM approach for analyzing the impact of the French cluster policy. They used French annual business surveys data from 1996 to 2004, finding that neither workers nor profits captured the gains from localization economies. Kline and Moretti (2014) studied the long-term effects of the Tennessee Valley Authority (TVA), an American regional development program established in 1933 to modernize the economy of the Tennessee Valley region through investments in infrastructure. For this purpose, they estimated Oaxaca-Blinder regressions to compare the economic performance between TVA counties and non-TVA counties with similar characteristics to the treated counties before the program started, finding that the TVA led to large gains in agricultural and manufacturing employment between 1940 and 1960. However, between 1960 and 2000, when federal transfers were reduced, the gains in agricultural employment were reversed, while the gains in manufacturing employment continued to increase. Since the manufacturing sector paid higher wages than the agricultural sector, the TVA generated a positive net effect for an extended period.

Focusing on developing countries, Alkon (2018) investigated whether SEZs have induced developmental spillovers in India. He created an original dataset by matching SEZs to SEZs to the nearest Indian villages. Then, he tested the spillover effects of SEZs policy using 2001 and 2011 Indian census data (four years before and six years after the Indian law on SEZs was approved). For this purpose, he applied the Covariate Balancing Propensity Score methodology to several indicators associated with economic and social development. His findings show that Indian SEZs have failed to achieve socioeconomic development, suggesting that this result is due to the political economy framework of India, in which high levels of corruption lead politicians to privilege rent-seeking instead of long-term economic and social growth. On the contrary, Chinese SEZs are seen as a case study of successful SEZs in developing countries. Indeed, there are many studies that state that SEZs in China have increased the economic development of affected areas, for example in terms of investment attractions and employment generation (Zeng, 2010; Wang, 2013; Alder *et al.*, 2016). As an example, a recent study realized by Lu *et al.* (2019) investigated the effects of the SEZ program in China using a panel dataset of manufacturing firms from the economic censuses conducted by China’s National Bureau of Statistics at the end of 2004 and 2008. In particular, they used a difference-in-differences estimation to compare village and county performance before and after the establishment of SEZs, finding that zones have increased employment and productivity in the designated areas. Case studies of successful SEZs can also be found in Latin America. Defever *et al.* (2019) analyzed the reform of Dominican Republic’s SEZs, which involved the staggered removal of export share requirements in the zones to align the law on SEZs with the World Trade Organization agreement on subsidies. The authors carried out panel regressions on customs data using international trade transactions between 2006 and 2014, finding that the reform made SEZs more attractive locations for exporters. A more comprehensive study of how SEZs impacted developing economies was realized by Frick *et al.* (2019). The authors collected nightlight data from the Defense Meteorological Satellite Program and used them to proxy the performance of SEZs in developing economies. In particular, they regressed SEZs growth between 2007 and 2012 on SEZs factors, finding that SEZs growth is difficult to sustain over time, zones rarely lead to economic specialization and larger SEZs have an advantage in terms of growth potential.

Table 1 reports a summary of the recent literature on SEZ programs, including the authors, the country analyzed, the period considered, the methodology applied and the effectiveness of the SEZ program:

**Table 1. Summary of the recent literature on SEZ programs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Authors | Country | Period | Method | Effective SEZs? |
| Alkon (2018) | India | 2001 and 2011 | CBPS | ✗ |
| Ambroziak and Hartwell (2018) | Poland | 2005-2013 | Counterfactual analysis | ✓ |
| Arbolino *et al.* (2023) | EU countries | 2006-2018 | PCA and counter-factual analysis | ✓ |
| Busso *et al.* (2013) | United States | ‘80, ‘90 and ‘00 | DiD | ✓ |
| Ciżkowicz *et al.* (2017) | Poland | 2003-2012 | Panel regression | ✓ |
| Defever *et al.* (2019) | Dominican Republic | 2006-2014 | Panel regression | ✓ |
| Frick *et al.* (2019) | Developing countries | 2007 and 2012 | Panel regression | ✗ |
| Jensen (2018) | Poland | 1995-2014 | DiD | ✓ |
| Kline and Moretti (2014) | United States | 1940-2000 | Oaxaca-Blinder regressions | ✓ |
| Lu *et al.* (2019) | China | 2004 and 2008 | DiD | ✓ |
| Martin *et al.* (2011) | France | 1996-2004 | GMM | ✗ |

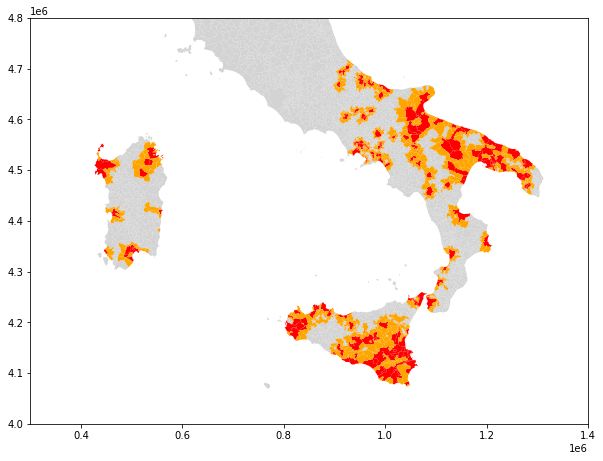
### **2.1. The Italian Special Economic Zones**

The law on SEZs and the related regulation were approved by the Italian government with the law decree 2017/91 (“Urgent measures for the economic growth of Southern Italy”) and the decree of the prime minister 2018/12, respectively. According to article 2 of the regulation, SEZs are established to promote favorable conditions in economic, financial and administrative terms to allow the development of existing and new firms in the zones. Article 4 of the law establishes that a SEZ is a geographically delimited area which includes at least one port.[[1]](#footnote-1) In this area, existing or new firms can benefit from special economic conditions. Each less developed or transition region can propose to the Italian government the establishment of maximum two zones, provided that there are two or more ports in its territory. Less developed or transition regions that do not have ports can apply for the establishment of an interregional SEZ with less developed or transition regions that have ports. Each SEZ is administered by an authority (*Comitato di indirizzo*, in Italian), presided by a Special Commissioner appointed by the Italian government. The SEZ authority has to ensure the proper functioning of the zone, supporting existing and new firms and promoting the attraction of investments. The monitoring of the implementation of the SEZ program is carried out by the Territorial Cohesion Agency, a public agency supervised by the Italian government. According to article 7 of the regulation, the minimum and maximum duration of SEZs is 7 and 21 years, respectively.

Article 5 of the law defines the package of benefits for businesses located in a SEZ, basically administrative simplifications, a special customs regime and fiscal incentives. With reference to the administrative simplifications, existing or new firms can benefit from the streamlining of administrative procedures. In particular, for these businesses the time for these procedures is reduced by a third or even half, depending on the procedure. A zone can also include a special customs regime. Indeed, in a SEZ can be established customs free zones, where firms can import goods at a reduced tariff. Focusing on the fiscal incentives, businesses can benefit from the tax credit of up to 100 million euros for goods (machineries, lands and buildings) purchased by 2023. Firms in a SEZ that want to access these benefits have to continue their activities in the zone for at least seven years after receiving the benefits. Paragraph 174 of article 1 of law 2020/178 (“Budget Law 2021”) extended this period to ten years, specifying that firms have to preserve “the jobs created in the SEZ activity for at least ten years”.

The Italian government established eight SEZs between 2018 and 2021: SEZ Abruzzo (2020), SEZ Calabria (2018), SEZ Campania (2018), SEZ Apulia-Basilicata (2019), SEZ Apulia-Molise (2019), SEZ Sardinia (2021), SEZ Western Sicily (2020) and SEZ Eastern Sicily (2020). Although these zones have been established since 2018, they became fully operational in 2022. Indeed, the appointment of the Special Commissioners, who preside the SEZ authorities, took place from the end of 2021. Figure 1 shows the map of Italian municipalities that fall within a SEZ or are adjacent to a SEZ:

**Figure 1. Map of SEZ municipalities**



Municipalities that fall within a SEZ and those that are adjacent to a SEZ are in red and orange, respectively.

## **3. Data and methods**

We gathered data from the Computerized analysis of Italian companies database (*Analisi informatizzata delle aziende italiane* – Aida in Italian). The Aida database contains detailed information on the financial statements of Italian businesses. The constructed dataset contains firms active between 2014 and 2022. Collected variables include municipalities, provinces and regions where business headquarters are located, and assets, number of employees and revenues of businesses. Since for each firm we have the municipality where business headquarters are located, we constructed a dummy variable which captures whether the i-th firm is in an operational SEZ. In particular:

Since SEZs became fully operational in 2022, we considered this year as the year in which zones actually started.[[2]](#footnote-2) Similarly, we created a dummy variable which captures whether the i-th firm is in a municipality adjacent to an operational SEZ as follows:

We have seen in the literature review section that employment is a key variable for evaluating the effectiveness of a SEZ program. Consequently, we used the log number of employees as dependent variable in the following econometric model:

The model includes the variables of our interest ( and ) as well as several controls. A summary description of all regressors is reported in Table 2:

**Table 2. Description of the regressors included in the model**

|  |  |
| --- | --- |
| Variable name | Description |
|  | Dummy variable which captures whether the i-th firm is in an operational SEZ |
|  | Dummy variable which captures whether the i-th firm is in a municipality adjacent to an operational SEZ |
|  | Row of dummies which capture the size effect (micro, small or medium-big businesses). We made this classification using the definition of Small and medium-sized enterprises (SME) adopted by the European Commission (European Commission, 2020). In particular, we have a micro business whether its number of employees is less than 10 and its revenues or assets are less than 2 million euros. Small businesses have less than 50 employees and less than 10 million euros in revenues or assets. We defined medium-big businesses all other businesses that there were neither micro nor small businesses |
|  | Row of dummies which capture the sectoral effect (agricultural, industrial or service sector). To classify a business in one of these three macro sectors, we used ATECO 2007, the classification system of economic activities adopted by the Italian National Institute of Statistics (ISTAT, 2009). Indeed, each business was labelled with an ATECO 2007 code, through which it was possible to classify businesses in the agricultural, industrial or service sector |
|  | Row of dummies which capture fixed effects. Each firm has unique characteristics. Fixed effects are used to absorb these heterogeneous traits |
|  | Row of dummies which capture time effects. Time effects are useful for absorbing common shocks which occurred in a given year |

We launched our model on a balanced panel of firms observed over the period considered. To better separate the treated period from the non-treated one, for each firm located in a SEZ or in a municipality adjacent to a SEZ we removed the observation relating to 2021, the year before in which the zones were considered fully operational. We used standard errors corrected for heteroskedasticity (Wooldridge, 2010).

## **4. Results and discussions**

Do SEZs affect the number of employees? Do SEZs induce spillovers on adjacent municipalities? Do SEZs lead to economic specialization? In this regard, we can make some hypotheses. As we have seen in the literature review section, most of the contributions on SEZs state that this tool has been successful in increasing the employment of treated areas. For example, the study of Jensen (2018) on the impact of Poland’s SEZs showed that SEZs have been able to sustain employment in the consolidation phase after the economic transition of the 1990s. Moreover, the regulation of Italian SEZs (decree of the prime minister 2018/12) states that SEZs are established to promote favorable conditions in economic, financial and administrative terms to allow the development of existing and new firms in the zones.

Hypothesis 1: businesses located in an operational SEZ increased their number of employees (H1)

SEZs are also expected to generate positive spillovers on neighboring areas (Alder *et al.*, 2016; Frick and Rodríguez-Pose, 2019). This is because firms whose activities are closely related to firms that operate in zones should benefit from the growth of these partners (for example, consider how deep the economic relationship can be between a supplier operating outside a zone and its customer operating in the zone). In this regard, the United Nations estimated that globally SEZs have indirectly generated between 50 and 200 million jobs (UNCTAD, 2019).

Hypothesis 2: businesses adjacent to an operational SEZ increased their number of employees (H2)

We have seen that the Italian government established eight SEZs. Consequently, it can monitor, through the Territorial Cohesion Agency, the implementation of the SEZ program in different parts of the country. Indeed, it could happen that not all zones have been successfully implemented, allowing the Italian government to adopt targeted interventions to solve the issues encountered in a SEZ. This means that we can analyze the performance of each SEZ to verify whether the results observed at the aggregate level are confirmed at smaller levels.

Hypothesis 3: not all SEZs have been successful (H3)

Economic specialization is a crucial point for a successful SEZ program (UNCTAD, 2019). Indeed, policymakers should use zones not only as an investment promotion tool, i.e. as a tool only used to attract investments, but also and foremost as an industrial policy tool, i.e. SEZs should lead to the specialization of economies. This is usually what happens in developed economies, where SEZs have developed specific branches of economies. As a consequence, we can reasonably assume that SEZs do not affect all sectors equally: some sectors may be positively affected by zones, other sectors may be unaffected or even negatively affected by a SEZ program.

Hypothesis 4: the effects of SEZs on firms depend on their economic sector (H4)

While it is reasonable to assume that the effects of the SEZ program on firms may depend on their economic sector, the economic literature does not seem to suggest that there may be valid reasons why such effects may depend on the size of the firm. Consequently, we can assume that the number of employees increased regardless of the size of the business.

Hypothesis 5: SEZs affected firms regardless of their size (H5)

We will test these hypotheses in the next subsections. To check the robustness of our estimates, we will consider different starting years for our panel dataset, from 2014 to 2020, two years before the actual implementation of the SEZ program. Indeed, considering more recent starting years allows us to expand the sample of firms observed, reducing the risk that the estimates are influenced by a specific sample of firms.

### **4.1. Have SEZs been successful?**

To test the first two hypotheses empirically, we regressed the panel model discussed in section 3 (Table 3):

**Table 3. The impact of SEZs and their spillovers on the log Number of employees**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| SEZ | 0.0615\*\*\*  (0.0041) | 0.0543\*\*\*  (0.0036) | 0.0564\*\*\*  (0.0034) | 0.0675\*\*\*  (0.0034) | 0.0683\*\*\*  (0.0031) | 0.0688\*\*\*  (0.0029) | 0.0663\*\*\*  (0.0030) |
| Adjacent SEZ | 0.0751\*\*\*  (0.0056) | 0.0660\*\*\*  (0.0049) | 0.0645\*\*\*  (0.0045) | 0.0794\*\*\*  (0.0046) | 0.0804\*\*\*  (0.0042) | 0.0757\*\*\*  (0.0039) | 0.0682\*\*\*  (0.0039) |
| Industrial sector | 0.0871  (0.0550) | 0.0750  (0.0491) | 0.0650  (0.0471) | 0.0711  (0.0463) | 0.0717  (0.0441) | 0.0476  (0.0435) | 0.0698  (0.0403) |
| Service sector | -0.0096  (0.0556) | 0.0045  (0.0496) | -0.0018  (0.0474) | 0.0173  (0.0469) | 0.0267  (0.0446) | 0.0055  (0.0439) | 0.0127  (0.0407) |
| Small business | 0.6893\*\*\*  (0.0023) | 0.6684\*\*\*  (0.0024) | 0.6523\*\*\*  (0.0025) | 0.6340\*\*\*  (0.0027) | 0.6183\*\*\*  (0.0030) | 0.5932\*\*\*  (0.0033) | 0.5574\*\*\*  (0.0041) |
| Medium-big business | 0.6198\*\*\*  (0.0035) | 0.5884\*\*\*  (0.0036) | 0.5573\*\*\*  (0.0038) | 0.5260\*\*\*  (0.0040) | 0.4909\*\*\*  (0.0042) | 0.4496\*\*\*  (0.0046) | 0.3956\*\*\*  (0.0053) |
| Fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Observations | 1665018 | 1580002 | 1477128 | 1355889 | 1219901 | 1041342 | 818074 |
| R-squared | 0.3043 | 0.2925 | 0.2835 | 0.2730 | 0.2622 | 0.2489 | 0.2325 |

The name of each column indicates the starting year of the observed sample. Robust standard errors are reported in brackets. The constant is not reported but is included in the estimated equation. \*Significant at a 5% level, \*\*significant at a 1% level, and \*\*\*significant at a 0.1% level

Both H1 and H2 are supported. Indeed, SEZ and Adjacent SEZ are significant at the 0.1% level in all models. The positive sign of their coefficients denotes that there is a positive association between these regressors and the dependent variable. We have said that considering different starting years allows us to expand the sample of firms observed, reducing the risk that the estimates are influenced by a specific sample of firms. In this regard, it is interesting to note that SEZs coefficients are not only significantly greater than zero, but also their magnitude is more or less the same for all starting years, denoting a stable impact of the SEZ program on the employment of all businesses. In particular, being a firm in an operational SEZ or adjacent to an operational SEZ leads to an average increase in the number of employees between 6 and 8 percentage points.[[3]](#footnote-3)

### **4.2. Have *all* SEZs been successful?**

Now we will verify whether all zones have been successfully implemented or not. For this purpose, we modified the proposed model as follows:

where represents a row of dummies which capture each operational SEZ (SEZ Abruzzo, SEZ Calabria, SEZ Campania, SEZ Apulia-Basilicata, SEZ Apulia-Molise, SEZ Sardinia, SEZ Western Sicily and SEZ Eastern Sicily). The estimates are reported in Table 4:

**Table 4. The impact of individual SEZs on the log Number of employees**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| SEZ Abruzzo | 0.0342  (0.0261) | 0.0372  (0.0232) | 0.0426\*  (0.0211) | 0.0374  (0.0203) | 0.0375  (0.0192) | 0.0368\*  (0.0182) | 0.0342  (0.0188) |
| SEZ Calabria | 0.1056\*\*\*  (0.0277) | 0.1075\*\*\*  (0.0263) | 0.1003\*\*\*  (0.0236) | 0.1036\*\*\*  (0.0221) | 0.1167\*\*\*  (0.0204) | 0.1097\*\*\*  (0.0189) | 0.1240\*\*\*  (0.0190) |
| SEZ Campania | 0.0594\*\*\*  (0.0068) | 0.0570\*\*\*  (0.0064) | 0.0582\*\*\*  (0.0059) | 0.0590\*\*\*  (0.0055) | 0.0595\*\*\*  (0.0052) | 0.0571\*\*\*  (0.0048) | 0.0510\*\*\*  (0.0049) |
| SEZ Apulia-Basilicata | 0.0400\*  (0.0170) | 0.0410\*  (0.0160) | 0.0399\*\*  (0.0149) | 0.0424\*\*  (0.0141) | 0.0443\*\*\*  (0.0130) | 0.0471\*\*\*  (0.0123) | 0.0510\*\*\*  (0.0125) |
| SEZ Apulia-Molise | 0.0576\*\*\*  (0.0081) | 0.0562\*\*\*  (0.0076) | 0.0592\*\*\*  (0.0071) | 0.0549\*\*\*  (0.0066) | 0.0547\*\*\*  (0.0062) | 0.0609\*\*\*  (0.0058) | 0.0648\*\*\*  (0.0058) |
| SEZ Sardinia | 0.0536\*\*  (0.0167) | 0.0497\*\*  (0.0157) | 0.0505\*\*\*  (0.0149) | 0.0587\*\*\*  (0.0139) | 0.0550\*\*\*  (0.0130) | 0.0640\*\*\*  (0.0128) | 0.0793\*\*\*  (0.0127) |
| SEZ Western Sicily | 0.0435\*\*\*  (0.0123) | 0.0366\*\*  (0.0113) | 0.0506\*\*\*  (0.0107) | 0.0691\*\*\*  (0.0101) | 0.0709\*\*\*  (0.0094) | 0.0751\*\*\*  (0.0087) | 0.0691\*\*\*  (0.0085) |
| SEZ Eastern Sicily | 0.0714\*\*\*  (0.0105) | 0.0727\*\*\*  (0.0099) | 0.0817\*\*\*  (0.0094) | 0.0893\*\*\*  (0.0087) | 0.0895\*\*\*  (0.0080) | 0.0838\*\*\*  (0.0074) | 0.0751\*\*\*  (0.0074) |
| Industrial sector | 0.0873  (0.0550) | 0.0762  (0.0499) | 0.0661  (0.0480) | 0.0697  (0.0465) | 0.0707  (0.0442) | 0.0466  (0.0435) | 0.0689  (0.0403) |
| Service sector | -0.0100  (0.0557) | 0.0043  (0.0506) | -0.0023  (0.0484) | 0.0154  (0.0470) | 0.0251  (0.0447) | 0.0039  (0.0439) | 0.0113  (0.0407) |
| Small business | 0.6896\*\*\*  (0.0023) | 0.6658\*\*\*  (0.0024) | 0.6498\*\*\*  (0.0025) | 0.6345\*\*\*  (0.0027) | 0.6189\*\*\*  (0.0030) | 0.5939\*\*\*  (0.0033) | 0.5581\*\*\*  (0.0041) |
| Medium-big business | 0.6199\*\*\*  (0.0035) | 0.5859\*\*\*  (0.0037) | 0.5554\*\*\*  (0.0038) | 0.5262\*\*\*  (0.0040) | 0.4911\*\*\*  (0.0042) | 0.4498\*\*\*  (0.0046) | 0.3957\*\*\*  (0.0053) |
| Fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Observations | 1665018 | 1580002 | 1477128 | 1355889 | 1219901 | 1041342 | 818074 |
| R-squared | 0.3045 | 0.2917 | 0.2829 | 0.2731 | 0.2624 | 0.2492 | 0.2327 |

The name of each column indicates the starting year of the observed sample. Robust standard errors are reported in brackets. The constant is not reported but is included in the estimated equation. \*Significant at a 5% level, \*\*significant at a 1% level, and \*\*\*significant at a 0.1% level

Results support H3. Except for the models with starting years at 2016 and 2019, where a weak significance is found, the SEZ Abruzzo has not affected the number of employees. Vice versa, this number is increased in the remaining SEZs.

### **4.3. Have SEZs induced economic specialization?**

We can test H4 by analyzing the interaction between the firms located in an operational SEZ or adjacent to an operational SEZ and each economic sector. The proposed model becomes:

If all interactions have the same impact on the dependent variable, i.e. there is a significant and positive association between these regressors and the dependent variable, we can conclude that the SEZ program did not lead to the specialization of specific economic sectors. If otherwise, the program has induced economic specialization. Table 5 includes the estimates with the interactions:

**Table 5. The impact of SEZs and their spillovers by economic sector on the log Number of employees**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| SEZ\*Agricultural sector | 0.0106  (0.0316) | 0.0042  (0.0294) | 0.0003  (0.0268) | 0.0008  (0.0243) | -0.0114  (0.0231) | 0.0107  (0.0227) | 0.0014  (0.0233) |
| SEZ\*Industrial sector | 0.1087\*\*\*  (0.0071) | 0.1060\*\*\*  (0.0067) | 0.1120\*\*\*  (0.0064) | 0.1136\*\*\*  (0.0061) | 0.1135\*\*\*  (0.0057) | 0.1094\*\*\*  (0.0054) | 0.1083\*\*\*  (0.0056) |
| SEZ\*Service sector | 0.0407\*\*\*  (0.0050) | 0.0400\*\*\*  (0.0047) | 0.0441\*\*\*  (0.0043) | 0.0491\*\*\*  (0.0040) | 0.0512\*\*\*  (0.0037) | 0.0533\*\*\*  (0.0035) | 0.0505\*\*\*  (0.0034) |
| Adj. SEZ\*Agricultural sector | 0.0162  (0.0388) | 0.0024  (0.0363) | 0.0149  (0.0337) | 0.0135  (0.0295) | 0.0326  (0.0265) | 0.0371  (0.0251) | 0.0401  (0.0231) |
| Adj. SEZ\*Industrial sector | 0.1186\*\*\*  (0.0089) | 0.1183\*\*\*  (0.0085) | 0.1220\*\*\*  (0.0081) | 0.1270\*\*\*  (0.0076) | 0.1324\*\*\*  (0.0071) | 0.1274\*\*\*  (0.0067) | 0.1210\*\*\*  (0.0069) |
| Adj. SEZ\*Service sector | 0.0490\*\*\*  (0.0071) | 0.0482\*\*\*  (0.0066) | 0.0467\*\*\*  (0.0061) | 0.0531\*\*\*  (0.0057) | 0.0511\*\*\*  (0.0052) | 0.0467\*\*\*  (0.0048) | 0.0385\*\*\*  (0.0048) |
| Industrial sector | 0.0826  (0.0554) | 0.0713  (0.0504) | 0.0616  (0.0484) | 0.0655  (0.0468) | 0.0643  (0.0441) | 0.0418  (0.0435) | 0.0648  (0.0404) |
| Service sector | -0.0103  (0.0560) | 0.0039  (0.0510) | -0.0019  (0.0487) | 0.0158  (0.0474) | 0.0234  (0.0446) | 0.0034  (0.0439) | 0.0110  (0.0407) |
| Small business | 0.6892\*\*\*  (0.0023) | 0.6653\*\*\*  (0.0024) | 0.6492\*\*\*  (0.0025) | 0.6338\*\*\*  (0.0027) | 0.6180\*\*\*  (0.0030) | 0.5928\*\*\*  (0.0033) | 0.5569\*\*\*  (0.0041) |
| Medium-big business | 0.6197\*\*\*  (0.0035) | 0.5856\*\*\*  (0.0037) | 0.5550\*\*\*  (0.0038) | 0.5257\*\*\*  (0.0040) | 0.4905\*\*\*  (0.0042) | 0.4492\*\*\*  (0.0046) | 0.3951\*\*\*  (0.0053) |
| Fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Observations | 1665018 | 1580002 | 1477128 | 1355889 | 1219901 | 1041342 | 818074 |
| R-squared | 0.3039 | 0.2911 | 0.2822 | 0.2725 | 0.2617 | 0.2485 | 0.2320 |

The name of each column indicates the starting year of the observed sample. Robust standard errors are reported in brackets. The constant is not reported but is included in the estimated equation. \*Significant at a 5% level, \*\*significant at a 1% level, and \*\*\*significant at a 0.1% level

H4 is also confirmed. Indeed, SEZ and Adjacent SEZ do not have the same impact in all economic sectors. While in the industrial and service sectors both regressor are significant at the 0.1% level and the sign of their coefficients is positive, the same is not true for the agricultural sector: indeed, both regressors are not significant, denoting that the SEZ program did not affect this sector. A possible reason for this outcome is that in Italy the agricultural sector is a low added value sector, which grows at low or even negative rates. For example, according to a recent report on the Italian economy, in 2021 the value added of this sector decreased by 1.3% (ISTAT, 2022). Vice versa, the number of employees has increased significantly in firms of the industrial and service sectors operating in a zone or adjacent to a zone. If confirmed in the long term, these results are interesting for two reasons. First, the service sector has always been crucial for the *current* development of the South. Indeed, the current economy of Southern Italy is mostly based on businesses operating in this sector (Bripi *et al.*, 2023). Second, a development of the industrial sector could be important for the *future* development of this area. Southern Italy has always suffered from the lack of a developed industrial sector (Prezioso and Servidio, 2011), which usually has higher growth margins than the other sectors. Going back to previous report on the Italian economy, in 2021 the value added of the industrial sector increased by 16.6% against 4.7% of the service sector.

### **4.4. Have SEZs affected firms of all size?**

A last hypothesis that we will verify for the number of employees is whether SEZs have affected this number in firms of all size or not. To this end, we will consider the interaction between the businesses operating in a zone or adjacent to a zone and their size class, obtaining the following model:

The estimated models are reported in Table 6:

**Table 6. The impact of SEZs and their spillovers by size class on the log Number of employees**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| SEZ\*Micro business | 0.0295\*\*\*  (0.0053) | 0.0313\*\*\*  (0.0049) | 0.0425\*\*\*  (0.0046) | 0.0513\*\*\*  (0.0042) | 0.0582\*\*\*  (0.0038) | 0.0606\*\*\*  (0.0035) | 0.0597\*\*\*  (0.0035) |
| SEZ\*Small business | 0.1016\*\*\*  (0.0068) | 0.0995\*\*\*  (0.0066) | 0.0971\*\*\*  (0.0063) | 0.0981\*\*\*  (0.0061) | 0.0953\*\*\*  (0.0059) | 0.0933\*\*\*  (0.0058) | 0.0883\*\*\*  (0.0059) |
| SEZ\*Medium-big business | 0.1158\*\*\*  (0.0129) | 0.1048\*\*\*  (0.0120) | 0.0965\*\*\*  (0.0113) | 0.0856\*\*\*  (0.0107) | 0.0659\*\*\*  (0.0101) | 0.0627\*\*\*  (0.0096) | 0.0578\*\*\*  (0.0101) |
| Adj. SEZ\*Micro business | 0.0509\*\*\*  (0.0070) | 0.0511\*\*\*  (0.0065) | 0.0566\*\*\*  (0.0061) | 0.0685\*\*\*  (0.0056) | 0.0749\*\*\*  (0.0051) | 0.0720\*\*\*  (0.0047) | 0.0655\*\*\*  (0.0047) |
| Adj. SEZ\*Small business | 0.1142\*\*\*  (0.0093) | 0.1182\*\*\*  (0.0089) | 0.1112\*\*\*  (0.0085) | 0.1083\*\*\*  (0.0082) | 0.0999\*\*\*  (0.0079) | 0.0924\*\*\*  (0.0077) | 0.0830\*\*\*  (0.0079) |
| Adj. SEZ\*Medium-big business | 0.1056\*\*\*  (0.0205) | 0.0881\*\*\*  (0.0194) | 0.0839\*\*\*  (0.0185) | 0.0744\*\*\*  (0.0170) | 0.0675\*\*\*  (0.0157) | 0.0595\*\*\*  (0.0147) | 0.0507\*\*\*  (0.0148) |
| Industrial sector | 0.0866  (0.0548) | 0.0758  (0.0497) | 0.0668  (0.0476) | 0.0710  (0.0462) | 0.0721  (0.0441) | 0.0481  (0.0435) | 0.0702  (0.0404) |
| Service sector | -0.0093  (0.0554) | 0.0054  (0.0502) | -0.0003  (0.0479) | 0.0177  (0.0467) | 0.0273  (0.0446) | 0.0061  (0.0439) | 0.0132  (0.0407) |
| Small business | 0.6878\*\*\*  (0.0023) | 0.6637\*\*\*  (0.0024) | 0.6477\*\*\*  (0.0025) | 0.6324\*\*\*  (0.0027) | 0.6168\*\*\*  (0.0030) | 0.5916\*\*\*  (0.0033) | 0.5557\*\*\*  (0.0041) |
| Medium-big business | 0.6178\*\*\*  (0.0035) | 0.5840\*\*\*  (0.0037) | 0.5536\*\*\*  (0.0038) | 0.5249\*\*\*  (0.0040) | 0.4906\*\*\*  (0.0042) | 0.4495\*\*\*  (0.0046) | 0.3957\*\*\*  (0.0053) |
| Fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Observations | 1665018 | 1580002 | 1477128 | 1355889 | 1219901 | 1041342 | 818074 |
| R-squared | 0.3039 | 0.2911 | 0.2823 | 0.2726 | 0.2620 | 0.2488 | 0.2323 |

The name of each column indicates the starting year of the observed sample. Robust standard errors are reported in brackets. The constant is not reported but is included in the estimated equation. \*Significant at a 5% level, \*\*significant at a 1% level, and \*\*\*significant at a 0.1% level

Results give support to H5, because all interactions are significant at the 0.1% level in all models, suggesting that the SEZ program positively affected the number of employees of firms placed in a zone or adjacent to a zone regardless of their size.

### **4.5. Have revenues increased?**

The increase in the number of employees is usually a condition for accessing benefits in a SEZ or a consequence of accessing these benefits. However, benefits in a SEZ are not enough to sustain employment in a firm, especially in the medium-long term. To offset this cost, revenues should also increase. Consequently, looking at business revenues can help us to understand whether the increase in the number of employees is sustainable over time or not. To test whether SEZs have affected the revenues,[[4]](#footnote-4) we estimated the model proposed in section 3 using the log revenues as the dependent variable (Table 7):

**Table 7. The impact of SEZs and their spillovers on the log Revenues**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| SEZ | 0.1421\*\*\*  (0.0130) | 0.1398\*\*\*  (0.0124) | 0.1394\*\*\*  (0.0117) | 0.1507\*\*\*  (0.0115) | 0.1494\*\*\*  (0.0111) | 0.1571\*\*\*  (0.0113) | 0.1760\*\*\*  (0.0122) |
| Adjacent SEZ | 0.1575\*\*\*  (0.0166) | 0.1597\*\*\*  (0.0157) | 0.1686\*\*\*  (0.0151) | 0.1713\*\*\*  (0.0144) | 0.1841\*\*\*  (0.0144) | 0.1888\*\*\*  (0.0148) | 0.1768\*\*\*  (0.0159) |
| Industrial sector | 0.0804  (0.1105) | 0.1159  (0.0894) | 0.0602  (0.0755) | 0.2766  (0.1741) | 0.2288  (0.1409) | 0.2155  (0.1327) | 0.2029  (0.1599) |
| Service sector | 0.0150  (0.1079) | 0.0182  (0.0886) | -0.0607  (0.0761) | 0.1347  (0.1743) | 0.0780  (0.1417) | 0.0133  (0.1359) | -0.0481  (0.1647) |
| Small business | 0.8284\*\*\*  (0.0066) | 0.8126\*\*\*  (0.0069) | 0.8092\*\*\*  (0.0075) | 0.8006\*\*\*  (0.0081) | 0.8114\*\*\*  (0.0092) | 0.8073\*\*\*  (0.0105) | 0.7579\*\*\*  (0.0131) |
| Medium-big business | 1.2903\*\*\*  (0.0101) | 1.2664\*\*\*  (0.0107) | 1.2457\*\*\*  (0.0113) | 1.2243\*\*\*  (0.0122) | 1.2117\*\*\*  (0.0135) | 1.1961\*\*\*  (0.0155) | 1.1257\*\*\*  (0.0190) |
| Fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Observations | 1665018 | 1580002 | 1477128 | 1355889 | 1219901 | 1041342 | 818074 |
| R-squared | 0.2151 | 0.2156 | 0.2154 | 0.2132 | 0.2119 | 0.2118 | 0.2088 |

The name of each column indicates the starting year of the observed sample. Robust standard errors are reported in brackets. The constant is not reported but is included in the estimated equation. \*Significant at a 5% level, \*\*significant at a 1% level, and \*\*\*significant at a 0.1% level

Results suggest that the increase in the number of employees is sustainable over time. Indeed, the SEZ and Adjacent SEZ coefficients are significant at the 0.1% level and positive, entailing a significant positive association between firms in an operational SEZ or adjacent to an operational SEZ and their revenues. On average, revenues increased between 15 and 21 percentage points.

In Table 8 we considered individual SEZs as regressors:

**Table 8. The impact of individual SEZs on the log Revenues**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| SEZ Abruzzo | -0.0410  (0.0911) | 0.0350  (0.0909) | 0.0119  (0.0807) | -0.0109  (0.0756) | -0.0358  (0.0739) | 0.0510  (0.0841) | 0.0669  (0.0924) |
| SEZ Calabria | 0.1490  (0.0820) | 0.1079  (0.0715) | 0.1025  (0.0659) | 0.1516\*  (0.0682) | 0.2087\*\*  (0.0679) | 0.2440\*\*  (0.0776) | 0.3445\*\*\*  (0.0903) |
| SEZ Campania | 0.1106\*\*\*  (0.0205) | 0.1261\*\*\*  (0.0199) | 0.1101\*\*\*  (0.0169) | 0.1260\*\*\*  (0.0181) | 0.1258\*\*\*  (0.0175) | 0.1488\*\*\*  (0.0180) | 0.1893\*\*\*  (0.0198) |
| SEZ Apulia-Basilicata | 0.2147\*\*\*  (0.0586) | 0.1775\*\*\*  (0.0527) | 0.1647\*\*\*  (0.0464) | 0.1817\*\*\*  (0.0484) | 0.2513\*\*\*  (0.0520) | 0.1982\*\*\*  (0.0502) | 0.2369\*\*\*  (0.0554) |
| SEZ Apulia-Molise | 0.1245\*\*\*  (0.0278) | 0.1204\*\*\*  (0.0266) | 0.1151\*\*\*  (0.0240) | 0.1319\*\*\*  (0.0246) | 0.1171\*\*\*  (0.0240) | 0.1303\*\*\*  (0.0243) | 0.1299\*\*\*  (0.0253) |
| SEZ Sardinia | 0.1726\*\*  (0.0635) | 0.1595\*\*  (0.0592) | 0.1215\*  (0.0563) | 0.1703\*\*  (0.0554) | 0.1146\*  (0.0512) | 0.1368\*\*  (0.0515) | 0.1929\*\*\*  (0.0582) |
| SEZ Western Sicily | 0.1864\*\*\*  (0.0382) | 0.1590\*\*\*  (0.0344) | 0.1426\*\*\*  (0.0310) | 0.1900\*\*\*  (0.0330) | 0.1772\*\*\*  (0.0315) | 0.1687\*\*\*  (0.0311) | 0.1482\*\*\*  (0.0326) |
| SEZ Eastern Sicily | 0.1497\*\*\*  (0.0313) | 0.1356\*\*\*  (0.0297) | 0.1326\*\*\*  (0.0273) | 0.1547\*\*\*  (0.0281) | 0.1609\*\*\*  (0.0272) | 0.1351\*\*\*  (0.0269) | 0.1332\*\*\*  (0.0285) |
| Industrial sector | 0.0804  (0.1103) | 0.1155  (0.0894) | 0.0626  (0.0747) | 0.2729  (0.1743) | 0.2257  (0.1412) | 0.2117  (0.1329) | 0.1983  (0.1601) |
| Service sector | 0.0139  (0.1078) | 0.0169  (0.0887) | -0.0661  (0.0754) | 0.1302  (0.1745) | 0.0744  (0.1420) | 0.0085  (0.1361) | -0.0532  (0.1649) |
| Small business | 0.8290\*\*\*  (0.0066) | 0.8133\*\*\*  (0.0069) | 0.8137\*\*\*  (0.0074) | 0.8016\*\*\*  (0.0081) | 0.8126\*\*\*  (0.0092) | 0.8089\*\*\*  (0.0105) | 0.7597\*\*\*  (0.0131) |
| Medium-big business | 1.2906\*\*\*  (0.0101) | 1.2667\*\*\*  (0.0107) | 1.2463\*\*\*  (0.0112) | 1.2247\*\*\*  (0.0122) | 1.2122\*\*\*  (0.0135) | 1.1964\*\*\*  (0.0155) | 1.1259\*\*\*  (0.0190) |
| Fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Observations | 1665018 | 1580002 | 1477128 | 1355889 | 1219901 | 1041342 | 818074 |
| R-squared | 0.2152 | 0.2157 | 0.2167 | 0.2133 | 0.2120 | 0.2120 | 0.2090 |

The name of each column indicates the starting year of the observed sample. Robust standard errors are reported in brackets. The constant is not reported but is included in the estimated equation. \*Significant at a 5% level, \*\*significant at a 1% level, and \*\*\*significant at a 0.1% level

Revenues usually increased among zones. Except for the SEZ Abruzzo, whose non-significance is not surprising given that the number of employees also did not increase significantly, all zones usually have a significant and positive association with business revenues. Only the SEZ Calabria has a weaker significance, since this regressor is statistically significant only in some models. In any case, it is too early to draw definitive conclusions in this regard, because the time horizon that we are analyzing is short. A medium-long term analysis should be performed when new data will be available.

We also tested the same hypothesis for each economic sector and each size class, whose tables are reported in the Appendix.

## **5. Towards the end of the Italian dualism?**

In the previous section we saw that SEZs have been successful in increasing the number of employees in Southern Italy, as well as they led to economic specialization in this macro-region. Moreover, we saw that revenues increased significantly in the areas treated by the SEZ program, suggesting that the increase in employment is sustainable. But can we state that SEZs will lead to the end of the Italian dualism? The short answer is it depends. This is because the Italian SEZ program started a few years ago. Consequently, it is too early to make predictions about a problem that has afflicted the Italian economy since the 19th century. However, we can make some hypotheses based on what the literature says about the long-term effects of successful SEZ programs and the previous interventions that tried to address the Italian dualism. Most of the literature is optimistic about the positive effects of SEZs over time, suggesting that successful SEZ programs lead to economic development and structural transformation (Zeng, 2021). For example, Alder *et al.* (2016) analyzed the long-term effects of Chinese SEZs on the economic development of Chinese cities, finding a GDP increase of about 20% in cities where SEZs are established. However, if we pay our attention to the previous interventions carried out at the national and European level, we are not optimistic that the Italian SEZ program can solve the problem of two-speed Italy. Indeed, several studies suggested that programs such as the Italian Fund for the South and the European cohesion policy did not lead to positive structural changes in the economic growth of Southern Italy (Milio, 2010; Felice and Lepore, 2013). According to these studies, these interventions failed because of their poor implementation. For example, d’Adda and de Blasio (2017) showed that the Fund for the South suffered from low quality of governance and was driven by political considerations rather than by efficiency ones. Citarella and Filocamo (2017) explained that the cohesion policy failed in reducing the gap between Northern and Southern Italy because of the inefficiency of the EU financing system in terms of programming, co-financing and conditionality.

Going back to our question about the possibility of SEZs to eliminate, or at least to significantly reduce, the Italian dualism, the answer is: SEZs can reduce the gap between Northern and Southern Italy, provided that they will be implemented correctly. The SEZ program is an economic tool whose effectiveness depends on *how* it is implemented. In this regard, there are three factors for a successful SEZ program (UNCTAD, 2019). First, SEZs need a strategic focus, i.e. policymakers have to keep a development strategy in mind during the realization of the SEZ program. Indeed, SEZs are not only an investment tool (they provide incentives in limited geographical areas), but also and foremost an industrial policy tool (they should lead to the specialization of economies). Second, a SEZ program needs an adequate regulatory framework. In this regard, policymakers have to create an independent zone regulator, which must be shielded from political pressure and adequately funded to effectively implement the program. Moreover, an adequate regulatory framework has to include monitoring mechanisms, in order to verify whether the SEZ program needs adjustments during its implementation. Third, it is important the value proposition in the SEZs, i.e. the package of benefits that zones provide. This package should include at least three benefits: the choice of location, support for infrastructure and services, and administrative simplifications. With reference to the first benefit, we said that SEZs are usually created to support the economic development of underdeveloped areas. However, underdeveloped areas should not be confused with remote areas. Although a remote area is usually an underdeveloped area, an underdeveloped area is not necessarily a remote area. A remote area is an area away from key infrastructure and/or large cities. If we want to attract businesses and investors to the zone, we need a zone that is well connected to the rest of the world, for example through ports and airports, and/or close to labor pools. Indeed, studies have shown a negative correlation between the distance of a SEZ from ports and large cities and its performance (Frick *et al.*, 2019). The second benefit that a zone should include is adequate support for infrastructure and services, for example by providing access to at least two modes of transportation and services for businesses and investors. The last benefit is the facilitation of administrative procedures, which is considered more important than fiscal incentives (UNCTAD, 2019). Studies suggest that excessive bureaucracy has significantly affected failed SEZ programs (Moberg, 2015).

The Italian SEZ program seems to satisfy all the factors to be a successful program. First, preliminary analyses realized in section 4.3 suggest that SEZs have induced economic specialization in Southern Italy (strategic focus factor). Second, the Italian law on SEZs described in section 2.1 includes an independent zone regulator, whose power is divided among different institutions, and a monitoring mechanism (regulatory framework factor). Third, this law provides many benefits for investors and businesses, from the choice of location of SEZs, which by law must be close to at least a port, to the administrative simplifications, thanks to which businesses can benefit from the streamlining of administrative procedures (value proposition factor).

## **6. Conclusions**

This chapter proposed a preliminary analysis of the impact of Italian SEZs on firms in Southern Italy. To do this, we built a panel dataset of Italian businesses and analyzed the impact of being a firm located in a zone or adjacent to a zone on its number of employees. Preliminary results suggest that SEZs have been successful, because businesses located in a zone and adjacent to a zone have significantly increased their number of employees. This evidence is also confirmed on individual SEZs. Indeed, with the exception of the SEZ Abruzzo, each zone has positively influenced employment in firms.

Moreover, it seems that the SEZ program has not affected all economic sectors. In particular, while businesses in the agricultural sector have not made significant changes to employment, the opposite is true for firms in the industrial and service sectors, where the number of employees has increased significantly. The SEZ program, on the other hand, has affected businesses of any size. Finally, the increase in the number of employees has been accompanied by an increase in revenues deriving from the sale of products and the provision of services, suggesting that the cost of increasing employment may be sustainable over time.

This analysis was carried out over a short time horizon, and for this reason further studies are needed to understand whether the SEZ program is actually an effective political tool to eliminate, or at least significantly reduce, the historical gap between Northern and Southern Italy. For example, we need to understand whether what we have observed will persist over the years or not. In other words, we have to understand if the increase in employment in businesses is only a temporary boost or if it represents the beginning of a radical structural change. Only a medium-long term analysis will be able to suggest whether the SEZ program could lead to the definitive closure of the historic chapter of Italian dualism.

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**Appendix**

## **Appendix A. Interactions for the revenues**

We also estimated the impact of SEZs and their spillovers on the revenues for both each economic sector (Table A.1) and each size class (Table A.2):

**Table A.1. The impact of SEZs and their spillovers by economic sector on the log Revenues**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| SEZ\*Agricultural sector | 0.1560  (0.0971) | 0.0742  (0.0849) | 0.0256  (0.0785) | 0.0206  (0.0733) | 0.0157  (0.0703) | -0.0159  (0.0710) | -0.1463\*  (0.0689) |
| SEZ\*Industrial sector | 0.3133\*\*\*  (0.0269) | 0.3008\*\*\*  (0.0255) | 0.3012\*\*\*  (0.0245) | 0.3037\*\*\*  (0.0238) | 0.2882\*\*\*  (0.0228) | 0.2720\*\*\*  (0.0226) | 0.2736\*\*\*  (0.0240) |
| SEZ\*Service sector | 0.0603\*\*\*  (0.0142) | 0.0670\*\*\*  (0.0136) | 0.0693\*\*\*  (0.0129) | 0.0866\*\*\*  (0.0127) | 0.0932\*\*\*  (0.0124) | 0.1135\*\*\*  (0.0128) | 0.1445\*\*\*  (0.0141) |
| Adj. SEZ\*Agricultural sector | 0.0214  (0.0760) | -0.0233  (0.0684) | 0.0237  (0.0668) | 0.0159  (0.0619) | 0.0262  (0.0751) | 0.0171  (0.0787) | -0.0175  (0.0876) |
| Adj. SEZ\*Industrial sector | 0.2993\*\*\*  (0.0305) | 0.2801\*\*\*  (0.0280) | 0.2877\*\*\*  (0.0274) | 0.2885\*\*\*  (0.0263) | 0.3117\*\*\*  (0.0266) | 0.3377\*\*\*  (0.0274) | 0.3830\*\*\*  (0.0311) |
| Adj. SEZ\*Service sector | 0.0691\*\*\*  (0.0192) | 0.0901\*\*\*  (0.0189) | 0.1000\*\*\*  (0.0179) | 0.1061\*\*\*  (0.0172) | 0.1147\*\*\*  (0.0169) | 0.1088\*\*\*  (0.0172) | 0.0650\*\*\*  (0.0175) |
| Industrial sector | 0.0662  (0.1114) | 0.1019  (0.0904) | 0.0447  (0.0770) | 0.2616  (0.1747) | 0.2104  (0.1415) | 0.1967  (0.1331) | 0.1812  (0.1602) |
| Service sector | 0.0147  (0.1089) | 0.0173  (0.0896) | -0.0628  (0.0775) | 0.1323  (0.1749) | 0.0714  (0.1423) | 0.0052  (0.1362) | -0.0599  (0.1650) |
| Small business | 0.8280\*\*\*  (0.0066) | 0.8121\*\*\*  (0.0069) | 0.8085\*\*\*  (0.0075) | 0.7997\*\*\*  (0.0081) | 0.8103\*\*\*  (0.0092) | 0.8060\*\*\*  (0.0105) | 0.7564\*\*\*  (0.0131) |
| Medium-big business | 1.2898\*\*\*  (0.0101) | 1.2658\*\*\*  (0.0107) | 1.2449\*\*\*  (0.0113) | 1.2233\*\*\*  (0.0122) | 1.2106\*\*\*  (0.0135) | 1.1948\*\*\*  (0.0154) | 1.1242\*\*\*  (0.0190) |
| Fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Observations | 1665018 | 1580002 | 1477128 | 1355889 | 1219901 | 1041342 | 818074 |
| R-squared | 0.2146 | 0.2151 | 0.2148 | 0.2127 | 0.2113 | 0.2112 | 0.2081 |

The name of each column indicates the starting year of the observed sample. Robust standard errors are reported in brackets. The constant is not reported but is included in the estimated equation. \*Significant at a 5% level, \*\*significant at a 1% level, and \*\*\*significant at a 0.1% level

**Table A.2. The impact of SEZs and their spillovers by size class on the log Revenues**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| SEZ\*Micro business | 0.1982\*\*\*  (0.0191) | 0.1942\*\*\*  (0.0177) | 0.1981\*\*\*  (0.0165) | 0.2157\*\*\*  (0.0158) | 0.2222\*\*\*  (0.0151) | 0.2340\*\*\*  (0.0150) | 0.2689\*\*\*  (0.0160) |
| SEZ\*Small business | 0.0704\*\*\*  (0.0182) | 0.0708\*\*\*  (0.0179) | 0.0585\*\*\*  (0.0174) | 0.0563\*\*  (0.0173) | 0.0416\*  (0.0174) | 0.0340  (0.0181) | 0.0053  (0.0187) |
| SEZ\*Medium-big business | 0.0494  (0.0277) | 0.0395  (0.0270) | 0.0293  (0.0267) | 0.0209  (0.0267) | -0.0179  (0.0257) | -0.0228  (0.0274) | -0.0220  (0.0326) |
| Adj. SEZ\*Micro business | 0.2360\*\*\*  (0.0241) | 0.2233\*\*\*  (0.0220) | 0.2426\*\*\*  (0.0210) | 0.2556\*\*\*  (0.0198) | 0.2732\*\*\*  (0.0194) | 0.2842\*\*\*  (0.0195) | 0.2799\*\*\*  (0.0209) |
| Adj. SEZ\*Small business | 0.0729\*\*  (0.0232) | 0.1061\*\*\*  (0.0244) | 0.0799\*\*\*  (0.0225) | 0.0564\*\*  (0.0216) | 0.0523\*  (0.0226) | 0.0217  (0.0229) | -0.0145  (0.0243) |
| Adj. SEZ\*Medium-big business | -0.0305  (0.0370) | -0.0397  (0.0362) | -0.0284  (0.0370) | -0.0488  (0.0367) | -0.0615  (0.0370) | -0.0495  (0.0406) | -0.0918\*  (0.0447) |
| Industrial sector | 0.0840  (0.1099) | 0.1204  (0.0888) | 0.0655  (0.0747) | 0.2817  (0.1736) | 0.2332  (0.1404) | 0.2189  (0.1321) | 0.2062  (0.1591) |
| Service sector | 0.0167  (0.1074) | 0.0206  (0.0880) | -0.0577  (0.0753) | 0.1375  (0.1738) | 0.0805  (0.1412) | 0.0150  (0.1353) | -0.0468  (0.1639) |
| Small business | 0.8315\*\*\*  (0.0066) | 0.8157\*\*\*  (0.0069) | 0.8138\*\*\*  (0.0075) | 0.8071\*\*\*  (0.0081) | 0.8202\*\*\*  (0.0091) | 0.8200\*\*\*  (0.0104) | 0.7767\*\*\*  (0.0130) |
| Medium-big business | 1.2953\*\*\*  (0.0101) | 1.2721\*\*\*  (0.0107) | 1.2528\*\*\*  (0.0113) | 1.2339\*\*\*  (0.0122) | 1.2250\*\*\*  (0.0135) | 1.2128\*\*\*  (0.0155) | 1.1476\*\*\*  (0.0190) |
| Fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Observations | 1665018 | 1580002 | 1477128 | 1355889 | 1219901 | 1041342 | 818074 |
| R-squared | 0.2155 | 0.2161 | 0.2160 | 0.2140 | 0.2129 | 0.2131 | 0.2103 |

The name of each column indicates the starting year of the observed sample. Robust standard errors are reported in brackets. The constant is not reported but is included in the estimated equation. \*Significant at a 5% level, \*\*significant at a 1% level, and \*\*\*significant at a 0.1% level

Results are usually consistent with what we have seen in Section 4.5, giving support to our hypothesis that the increase in employment is sustainable over time. The only significant exception concerns medium-big businesses located in a zone or adjacent to a zone, whose revenues have not been significantly affected. As we have already said, it is too early to draw definitive conclusions in this regard, because the time horizon that we are analyzing is short. A medium-long term analysis could provide us a clearer picture of the economic sustainability of SEZ companies over time.

1. Ports must have the characteristics defined by the EU regulation 2013/1315. [↑](#footnote-ref-1)
2. This is a conservative choice, aimed at ensuring that all zones were fully operational. In any case, we also constructed this variable by assuming partially operational SEZs, considering for each zone the year after its establishment as the year in which the SEZ started. The results obtained are essentially the same as those discussed in Section 4. [↑](#footnote-ref-2)
3. Since we used a model where the dependent variable is log-transformed, the beta coefficients must be interpreted as follows: . The result indicates that for every one-unit increase in the regressor, the dependent variable increases by about x%. [↑](#footnote-ref-3)
4. The revenues variable refers to revenues deriving from the sale of products and the provision of services, net of returns and discounts (see article 2425-*bis* of the Italian civil code). [↑](#footnote-ref-4)