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Favoritism and Firms: Micro Evidence and Macro Implications

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Favoritism and Firms:

Micro Evidence and Macro Implications

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Abstract

We study the economic implications of regional favoritism, a form of distributive politics that redistributes resources spatially within countries. We use a large sample of enterprise surveys spanning across many low and middle income countries, and utilize transitions of national political leaders for identification. We document strong evidence of regional favoritism among firms located in close vicinity to leader's birthplaces but not in other regions, nor in home regions before leader's rise to power. Firms in favored regions become substantially larger in sales and employment, and also produce more output per worker, pay higher wages and, more generally, have higher total factor productivity. Furthermore, evidence from several mechanisms suggests that leaders divert public resources into their home regions by generating higher demand for firms operating in non-tradable sectors. A simple structural model of resource misallocation that is calibrated to match our empirical estimates implies that favoritism generates aggregate output loss of 0.5% annually.

JEL codes: D22, D72, O43, R11.

Keywords: Regional favoritism, firm performance, enterprise surveys, resource misallocation.

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1 Introduction

Regional favoritism, the redistribution of resources spatially within countries, is a large phenomenon observed in many parts of the world (Hodler and Raschky 2014). Economists have for a long time studied the question of whether and, if so, how distributive politics, including political and in particular regional favoritism, lead to distortionary economic policies (Golden and Min 2013). The literature has hypothesized that lower income and less democratic countries chronically suffer from various types of distortive policies which presumably lead to widening the gap in the incomes of high and low income countries.

Our aim is to shed light on the question of whether regional favoritism is a policy failure that will necessarily lead to further diverging economic outcomes, or whether it can be thought of as a type of industrial policy that may potentially improve economic outcomes. To answer this question, we study whether regional favoritism has implications on firm performance. We remain agnostic on the normative mechanisms of favoritism at play. On one hand, favoritism will likely diminish welfare if leaders misallocate the factors of production to unproductive firms and regions, for example, due to political connections and corrupt motives. On the other hand, favoritism can improve welfare if leaders can, for example due to their informational advantages, provide at least a selected set of productive firms and regions the push necessary to grow, become more productive and enter international markets.

We study this trade-off using data of at most 125 thousand enterprises spanning across 120 low and middle income countries and by utilizing transitions of national political leaders for identification (see the geography of the firms and leaders in Figure 1). Our first contribution is to document the existence of strong regional favoritism in firm outcomes. Firms located in the home regions of current political leaders are larger in their sales and the number of employees than firms located in other regions. Exploiting information on the exact geo-location of firms, we show that these effects of favoritism are strongest in a close area of a 10 km radius around a leader's birthplace, and that the effects diminish by distance. In our baseline specification, we find that favored firms located within about a 50 km radius of the leader's birthplace have

22% higher sales and 13% more employees compared to control firms. These effects translate to an increase of $1.5 million in sales and 10 more workers employed in an average firm. Our placebo analysis does not find evidence for pre-trends suggesting that the causality likely runs from leader changes to firm outcomes.

We then exploit the richness of our enterprise survey data and study the mechanisms that lead to such outcomes. We find that firms located in favored regions are not only larger in size, but that they produce more output per labor, pay higher wages and have higher total factor productivity compared to other firms. This evidence is consistent with the interpretation that regional favoritism may be an efficient policy. However, several of our further pieces of evidence speak against this hypothesis. First, our results indicate that the effects are driven by the non-tradable sector. In the literature, episodes of rapid expansion of the non-tradable sector, relative to the tradable, are associated with the inflows of funds. These may be driven by, for example, natural resource booms, remittances or borrowing, all of which increase the demand for non-tradable goods (see van der Ploeg 2011 for a comprehensive survey of the literature). In contrast, overall productivity improvements should lead to more balanced growth in the two sectors. Second, and relatedly, we do not find evidence that manufacturing firms start to export more. Third, we find that the expansion of firms is partly fueled by direct government transfers in the form of more public procurement contracts. Forth, we find that the effects on firms are temporary such that they cease almost immediately after the leader leaves office. Fifth, firms located in favored regions do not perceive any improvements in the business environment, if anything denouncing the available infrastructure and the quality of the labor force. Overall, these results are consistent with the interpretation that leaders divert public resources towards their home regions generating higher demand for output produced by firms operating in the non-tradable sector. This redistribution comes at the cost of other regions and is indicative of a case of misallocation of resources.

As a third and final step, we setup a simple model of misallocation in the spirit of Restuccia and Rogerson (2008). We use the model to quantify the aggregate implications of regional favoritism. We consider an economy with two regions and two sectors, where

firms face wedges driven by favoritism. We calibrate the model to match the moments that we estimate empirically. Our counterfactual exercise shows that in an economy with spatial wedges driven by favoritism, output is 0.5% lower compared to a distortion free economy. The intuition behind this result is that the redistribution between regions increases incomes in the home region and thus demand. The demand for non-tradable goods can be satisfied only by local production, while the demand for tradable goods can also be met through imports from the other region. Therefore, factors of production will reallocate towards the non-tradable sector in the leaders' home region and the tradable sector in the non-home region. Higher concentration of labor in sectors decreases the marginal productivity of firms and results in aggregate losses.

This paper is related to two strands of literature. First, we contribute to the evolving literature on regional favoritism. i Miquel et al. (2007) is one of the first to lay down the theoretical framework for favoritism, while Hodler and Raschky (2014) is one of the first to document evidence for it. In particular, Hodler and Raschky (2014) uses satellite data from across the globe and find higher intensity of nighttime lights in the birthplaces of the countries' political leaders compared to other regions within countries. In a closely coupled strand of literature, de Luca et al. (2018), Dickens (2018) observe higher night-light intensity in political leaders' ethnic homelands. Relatedly, Amodio et al. (2019), Asatryan et al. (2021), Franck and Rainer (2012), Kramon and Posner (2016) find evidence for improved human capital outcomes (such as in health, education and labor-markets) among individuals belonging to either the same ethnicity or coming from the same region as those holding political power. Several papers extend this work on ethno-regional favoritism to various sets of policies, such as road-building in Kenyan districts (Burgess et al. 2015) and Sub-Saharan Africa more broadly (Bandyopadhyay and Green 2019), infrastructure projects in Vietnam (Do et al. 2017), school construction in Benin (André et al. 2018), enforcement of audits (Chu et al. 2021) and taxes (Chen et al. 2019) in China, mining activities in Africa (Asatryan et al. 2021), allocation of foreign aid in Africa (Anaxagorou et al. 2020, Dreher et al. 2019), among others.

Second, our paper relates to an important strand of literature on how the misallocation of factors of production lead to substantial differences in aggregate total factor productivity. This literature goes back to Hsieh and Klenow (2009, 2010), Restuccia and Rogerson (2008), and is surveyed by Hopenhayn (2014), Restuccia and Rogerson (2017). In this context several studies have used the enterprise survey data to estimate aggregate output losses caused by various institutional frictions (Besley and Mueller 2018, Ranasinghe 2017). Our contribution is to highlight a new source of misallocation that is driven by regional favoritism and which is caused by endogenous concentration of production factors in opposite sectors in each region. Several related papers study efficiency losses caused by policy distortions in spatial contexts. Brandt et al. (2013) study China's economy in a model with multiple provinces and two types of firms (private and state-owned). Desmet and Rossi-Hansberg (2013) introduce labor wedges into a model with cities to asses efficiency losses in the US and China. Fajgelbaum et al. (2018) use an economic geography model to estimate welfare losses caused by heterogeneity in tax systems across US states.

2 Empirical design

2.1 Data

Firms The source of our firm-level data are the World Bank Enterprise Surveys which have been administered with a global methodology since 2006. The full sample of these surveys spans over 140 countries, however only 98 countries were surveyed more than once. In these countries survey waves were typically carried out with two to five years in between leading to on average 2.5 survey waves per country. Surveys cover the non-agricultural formal private sector, thus excluding firms which are fully government owned, are informal or are classified as agricultural firms according to ISIC revision 3.1. Firms are drawn by stratified random sampling where the stratification is done along firm size, geographic location within the country and sector of activity. Furthermore, firms are required to have five or more employees. The number

of firms sampled in a given country varies with the size of its economy. Large, medium and small economies host, respectively, 1800-1200, 360 and 150 interviews.[1]

The enterprise surveys contain information on general firm characteristics such as age, ownership structure, sector as well as indicators of their performance in terms of sales, employment and input factors. In addition firms are asked about their management practices, relations to the government, crime and corruption and the business environment, an advantage of this data that allows us to study favoritism effects and channels in greater detail.

For the main part of our empirical analysis we consider the sub-sample of surveys carried out since 2009 as they provide us with geocoded data on the location of firms.[2] In additional specifications we use the general sample where we identify the location of firms according to administrative regions. However, there are occasionally changes in the definition of regions between survey waves. Therefore, we give priority to the smaller sub-sample of geocoded data to achieve greater precision and to perform detailed spatial analysis, while we rely on the larger sample to test the robustness of our baseline findings.

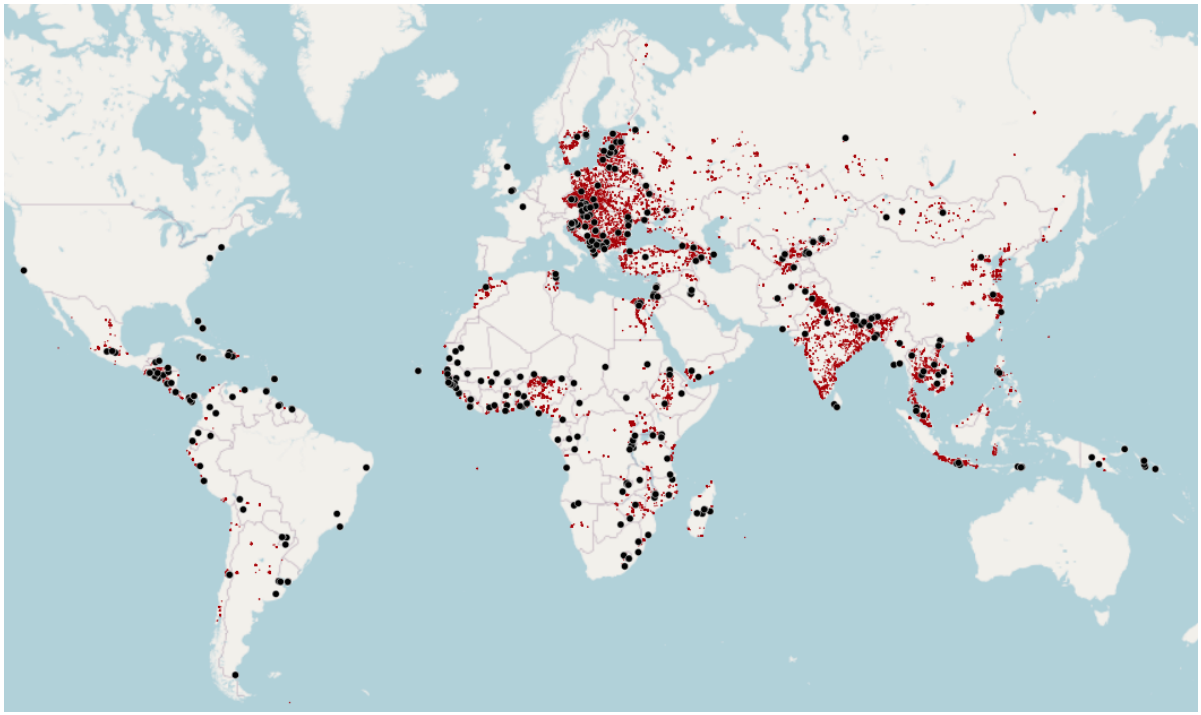
In total there are around 100 and 150 thousand enterprise surveys carried out in the geocoded and regional samples, respectively. However, the key variables we use have missing values of varying degree. Additionally, to alleviate bias in our estimates from outliers, we exclude values that are outside three standard deviations of the calculated mean within an industry and country income level. For our baseline analysis this leaves us with 80 to 58 thousand firm-level observations depending on the outcome we study. In the regional specification we have between 140 to 105 thousand observations. Figure 1 presents the geography of firm locations, and Table A1 lists the countries and survey-waves in our sample.

Political leaders To identify political leaders in power we use the Archigos database of political leaders version 4.1. It includes information on the start and end date of the primary effective leader's time in power. Archigos data is available until 2015 and we manually extend

[1] Size of the economy is determined by gross national income. Further information on the sampling and stratification procedure can be found in the Enterprise Survey and Indicator Surveys sampling methodology available at https://www.enterprisesurveys.org/en/methodology.

[2] For reasons of data protection the latitudes and longitudes are precise within 0.5 to 2 kilometers.

Figure 1: Map of Leader's Birthtowns and Firms in Our Sample



Notes : This map attempts to present the geography of our sample and of the identifying variation. Red (and small) dots present firms. Black (and large) dots present circles of 100 km radius around national leader's birthplace. Table A1 presents the list of countries and survey-waves in our sample. [3]

this data by including leaders from 2016 to 2020. We then utilize a plug-in that automatically parses a leaders birth town to Google maps API and retrieves the latitude and longitude of the town. We manually validate no matches or faulty matches which can arise due to towns sharing same names, special characters in the town names or other reasons. We exclude any leader with less than a year of tenure.

We merge this data on leaders to the enterprise data by country. In the geocoded sub-sample we calculate the distance of every firm to each leader in the sample period. In the total sample we generate a dummy indicating whether a firm is within a leaders region. In the general sample we have a total of 396 leaders coming from 120 countries. The location of leader regions are plotted in Figure 1. Since our empirical strategy builds on leader transitions,

[3]For our main sample there are around 25,000 African, 40,000 Asian, 20,000 European, 6,000 Middle American and 10,500 South American firms available.

our identifying variation comes from a much smaller sample than the 396 leaders. First, as discussed above, the enterprise surveys are on average carried out only in 2.5 waves within a country. Second, in many countries, especially in less democratic ones, we do not observe leader transitions within our relatively short sample. Third, in cases when leaders were born in foreign countries, we do not identify any favored region. Taking into account these restrictions, our identifying variation comes from 15 countries in the baseline sample and from 33 countries in the regional sample.

Country characteristics In order to allow for comparisons across countries and for the interpretation of mean and aggregate values of monetary variables, we transform variables from local currency units to 2009 USD. For this transformation, we use period average exchange rates and GDP deflators from the World Banks World Development Indicators. To study whether the effects of favoritism differ with respect to political and institutional features of countries, we collect data on a democracy index from the Polity5 project, as well as data on corruption perception indicators from Transparency International.

Tradable and non-tradable sector On a general level, the enterprise surveys identify whether firms belong to the service or manufacturing sectors. At a more granular level, firms report the ISIC revision 3.1 industry where their main product or service lies. We exploit this information to construct a measure of tradability of products so as to categorize firms into either the tradable or non-tradable sector. We rely on the micro-founded approach of Chen and Novy (2011) that ranks the trade costs of 163 industries at the four-digit NACE level.[4] We use this classification and categorize firms ranking 50 or higher as tradable. This exercise leads to a total of around 26,500 tradable and 75,000 non-tradable firms in our geocoded sample. We prefer this approach because, as noted by Holmes and Stevens (2014) many product categories that are considered manufacturing tend to be sold only locally. For this

[4]We utilize conversion tables to translate our ISIC rev 3.1 classification to the 4-digit NACE rev.1 classification of industries.

reason we reclassify manufacturing sectors with very high trade costs, such as bricks, into the non-tradable category.

Sample and summary statistics Table A1 of the appendix presents a detailed description of our sample. The table lists countries, years, number of firms and leaders in our sample. We also visualize this data on firms as well as the birth regions of leaders in the map of Figure 1. Table A2 of the appendix shows the summary statistics of the variables that we use in this paper.

2.2 Identification

Empirical strategy Our empirical strategy exploits leader transitions and the location of firms for identification. We compare firms located in "favored" areas in the sense of the current national leader being born in that region, to firms in the same area but in a time period when the area was not being represented by the current leader. Firms located in other non-favored areas but having similar observable characteristics, such as being in the same industry, serve as our control group.

As discussed in Section 2.1, our data measures the location of firms either by the exact geocoordinates of the firm or by the administrative region of its location as reported in the enterprise surveys. The geocoded specification is preferred over the regions specification as the former is more precise and allows to study spatial effects around the birth town of the leader, however this comes at the cost of losing identifying variation from the longer sample period. We start by studying firms with information on exact geo-locations where we can identify the effects on granular distances. As complementary evidence, we then replicate this exercise on the larger sample.

Geocoded data We estimate a difference-in-differences model of the following form:

$$log(Outcome_{f,i,r,c,t}) = \alpha + \beta^{km} \cdot LeaderArea^{km}_{l,c} \times Term_{c,t} + \gamma \cdot Controls_{f,t} + \tau_i + \mu^{km}_f + \lambda_r + \eta_{c,t} + \epsilon_{f,i,r,c,t} \quad (1)$$

where $Outcome_{f,i,r,c,t}$ is the logarithm of either of the following five main outcome variables: total sales, number of permanent employees, output per worker, wage per worker, and total factor productivity (TFP). We estimate TFP by regressing output in terms of sales on costs of input factors and the net book value of land, buildings and machinery.[5] We then study the residual from this regression as an outcome in equation (1). Our unit of observation is the firm f belonging to industry i located in region r of country c in year t.

The β^{km} is our main coefficient of interest. It is identified by the set of dummy variables $LeaderArea^{km}_{l,c}$, which set firms to be treated if they are located within a km kilometer radius to the birth town of leader l in country c. The superscript km ranges from 10 to 100 km around the leader's birthplace in 5 km intervals. Firms located in country c but outside a 150 km radius of the leader l's birthplace serve as our control group. To get at the average treatment effect, we interact $LeaderArea^{km}_{l,c}$ with $Term_{l,c,t}$ which is a dummy indicating whether leader l is currently in office.

$Controls_f$ is a vector of firm specific control variables including the age of the firm, its ownership shares belonging to foreigners or to the public sector. τ_i, μ^{km}_f, λ_r and $\eta_{c,t}$ are industry, leader area, region and country-by-time fixed effects, respectively. The error term is captured by $\epsilon_{f,i,r,c,t}$ which we two-way cluster at the level of country-sector-year and leader area following the design of De Haas and Poelhekke (2019).

[5] We sum up the costs for various input factors such as labor, raw materials and intermediate goods or electricity. As we use total sales as output in this regression, it constitutes as a revenue based TFP measure.

Regional data As discussed above, we also estimate a version of equation (1) where treatment is defined based on the birth region of the leader. The equation is as follow:

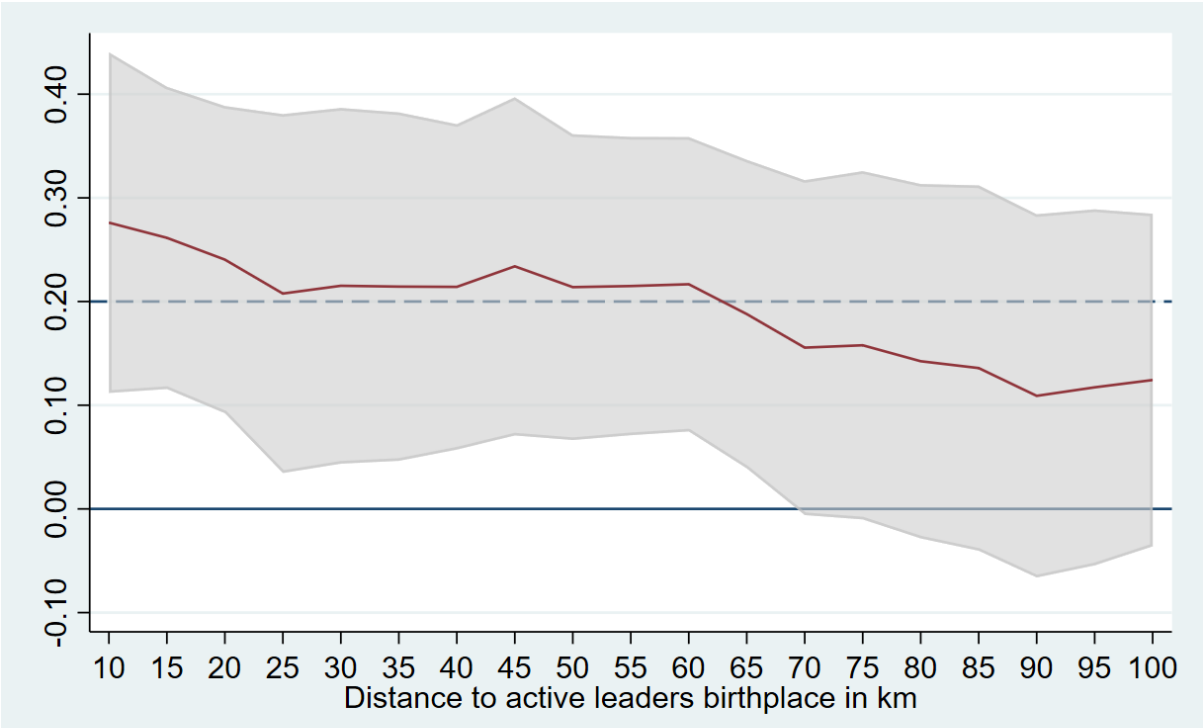
$$\begin{aligned} log(Outcome_{f,i,r,c,t}) =& \alpha + \beta \cdot LeaderRegion_{r,c} \times Term_{c,t} + \\ & \gamma \cdot Controls_{f,t} + \tau_i + \lambda_r + \eta_{c,t} + \epsilon_{f,i,r,c,t} \end{aligned} \tag{2}$$

where the treatment status of a firm is defined by $LeaderRegion_{r,c}$ which is a dummy variable indicating whether any national leader was born in region r or not.

Identifying assumptions Our difference-in-differences model compares firms located within areas or regions around the leader's birthplace before and after the leader comes to power controlling for firms belonging to same industries but located further away from leader's birthplace. The main identifying assumption in difference-in-differences setting is that treatment and control groups follow parallel trends prior to the treatment. In our case this will be violated if, for example, faster developing regions are more likely to nominate a national leader. We validate this assumption, in Section 3.4 by conducting an analysis that tests for effects in leads and lags of the treatment variable. We do not find evidence that any of the several outcome variables between treated and control firms are different from zero in the years leading to the nomination of the leader. This absence of pre-trends suggests no systematic bias coming from selection as long as the selection effect is captured by the observables, and assuming that the selection effect is homogenous across regions so that the average effect on the pre-trends does not mask potentially offsetting trends. This evidence is consistent with previous work that has used regional level data to study the patterns of regional favoritism and, similar to our test, providing evidence against the existence of pre-trends.

3 Micro evidence

Figure 2: Treatment Effects by Distance to Leader's Birthtown



Notes : Regression is estimated using equation 1. Red line plots the coefficient β^{km} estimated for each radius separately. Shaded area represent 95% confidence intervals. The dependent variable is total sales and is specified in logarithm. All regressions include fixed effects for leader circles, regions, industries, and country-by-years. Standard errors are two-way clustered at the level of country-sector-year and leader area.

3.1 Results by distance

We start by studying the treatment effects of favoritism using the detailed geolocation of firms. We are agnostic about the area around the birthplace which is potentially affected by favoritism. Therefore, we exploit information on the exact location of firms and, as specified in equation 1, estimate the treatment effects of favoritism on firm outcomes in a radius going from 10 km to 100 km around the leader's birthplace with 5 km intervals. In this preliminary exercise which aims to understand the spatial dimension of our potential treatment effect, we use the logarithm of total sales as the main firm level outcome.

Figure 2 plots the treatment effects of favoritism by distance to the leader's birthplace. The effects are strongest in areas very close, with firms located in a circle of 10 km around the leader's birthplace having on average nearly 30% higher sales than similar firms located further away. These effects decrease by distance and become indistinguishable from zero after around 70 km away from the leader's birthplace.

The magnitudes of these effects are substantial. Taking into account the number of firms operating in these areas and the sum of their sales we can calculate the aggregate effects of favoritism. This effect amounts to about a $25 billion increase in total sales due to favoritism as measured in 2009 nominal USD. Hodler and Raschky (2014) calculates that leader's regions on average have 1% higher GDP in the worldwide sample, but the effects can reach up to 9% in certain subsamples. We take their approach of mapping the effects on nightlight to GDP growth using the correlation coefficient of 0.8 between firm revenues and GDP growth as estimated by Cravino and Levchenko (2017). In our case, the corresponding effect on the favored regions[6] is 11% when transformed into GDP growth values.[7]

3.2 Baseline results

For the ease of presentation, we define a baseline area of treatment around the leader's birthplace and in the rest of the paper present our estimates based on this area, rather than having to estimate dozens of point effects over distance for each outcome variable. We choose the baseline treatment area to include firms located within a 50 km radius around the leader's birthplace. We do not take smaller circles in the baseline given the trade-off that we would lose firm observations and therefore statistical power. Also, focusing on a small circle may allow us to obtain large estimates but its aggregate implications on the economy will be relatively

[6]To be more comparable with Hodler and Raschky (2014), in this back of the envelope calculation we take the coefficient estimated for regions from Table 2 rather than the coefficient estimated for certain radii around leader's birthtowns as in Figure 2.

[7]Following Hodler and Raschky (2014) and other papers in this literature, we study whether the effects of favoritism are different across countries with different political institutions. In particular, in Table A4 we interact our treatment effect with the polity score of democracy and a measure of corruption perceptions. To study potential non-linear effects we also interact with the squared values of these indices. Overall, we do not find evidence that in our sample democracy or corruption either constrain or exacerbate the effects of regional favoritism.

Table 1: Treatment Effects around Leader's Birthtown

VARIABLES	Log Sales	Log Sales	Log Employees	Log Wage	Log Output per Worker	TFP Residual
Treated area	0.2828***	0.2139***	0.1404**	0.0927**	0.0954***	0.0479***
	(0.0892)	(0.0749)	(0.0588)	(0.0436)	(0.0173)	(0.0080)
Firm age		0.0251***	0.0192***	0.0030***	0.0049***	0.0067***
		(0.0021)	(0.0013)	(0.0007)	(0.0009)	(0.0007)
% owned foreign		0.0171***	0.0102***	0.0038***	0.0065***	0.0050***
		(0.0008)	(0.0005)	(0.0004)	(0.0005)	(0.0004)
% owned public		0.0174***	0.0153***	-0.0001	0.0016	0.0048***
		(0.0042)	(0.0029)	(0.0021)	(0.0014)	(0.0015)
Constant	16.9923***	16.4067***	2.8020***	11.6463***	13.5864***	-0.1344***
	(0.0217)	(0.0433)	(0.0273)	(0.0167)	(0.0189)	(0.0130)
Observations	70,177	70,177	79,718	66,262	69,524	57,840
R-squared	0.6369	0.6660	0.2582	0.8286	0.7796	0.2995
F	10.06	129.0	148.4	33.30	45.85	785.0

Notes : Regressions are estimated using equation 1. Treatment is set equal to 50km radius around leader's birthtown. Dependent variables are specified in logarithms. Mean values of dependent variables in levels are 6.8 million USD in columns 1-2, 78 employees in column 3, 104 thousand USD in column 4, and 7423 USD in columns 5. USD is measured in 2009 nominal values. All regressions include fixed effects for leader circles, regions, industries, and country-by-years. Standard errors are two-way clustered at the level of country-sector-year and leader area.

inconsequential. On the other hand, we do not take larger circles as, according to Figure 2, the treatment effect would start to decline. This choice of fixing the baseline treated area to a 50 km radius is necessarily a selective one. This choice in general will not matter for the direction of the effects that we identify. However, it may somewhat effect the magnitudes that we identify, and therefore, when appropriate, we can provide robustness tests of our results for other distances.

We present our baseline results in Table 1. The first column regresses log sales on the treatment variable and fixed effects. In the second column we include key firm characteristics as control variables. The estimated coefficient is highly significant and implies that firms located close to the leader's hometown experience a 21% increase in sales relative to firms in the other parts of the country. In the third column our dependent variable is the log total number of employees. Again we observe highly significant positive effects of 14% on average.

These effects represent an increase in sales of $1.5 million and in employment of nearly 10 workers for an average firm.

The size of the estimated coefficient on employment is smaller than the one on sales. Consistent with this, in columns 4 and 5 we find that treated firms pay higher wages and produce more output per capita. Finally, column 6 of Table 1 shows that treated firms not only grow in size but that they also become more productive in the sense of estimated total factor productivity.

3.3 Region level results

As discussed in section 2.2, we prefer to work with the data where information on the geolocation of firms is available. However for a quite larger sample of firms we have data on the region of location of the firm. This larger sample also uses twice as many leader transitions for identification than the geolocated sample. Therefore as a complementary exercise to our baseline results, we run regressions where the treatment is defined according to the region of birth of the leader as opposed to the exact radius around leader's birthplace. Table 2 shows these estimates, as before using the five main outcome variables of interest. As expected, the treatment effects become somewhat smaller and less precise. However, in all cases the evidence for positive and statistically significant effects can be replicated.[8]

3.4 Effects before and after leader transitions

We conduct placebo estimations to ensure that our results are driven by leader transitions rather than existing trends in their regions. Since we are using a difference-in-differences specification, we want to make sure that there are no pre-trends that potentially drive our results. For this reason we construct a placebo treatment variable by assuming that the leadership transition took place up to two years earlier than it actually happened. In a similar spirit we also create a treatment variable that takes a value of of one for the period covering

[8] In an additional specification we interact the region treatment with the 50 km area treatment. Table A3 of the appendix shows the results. Not surprisingly we find strongest effects on firms which are located within a 50 km radius from leader's birthplace and at the same time belong to the leader's birth regions.

Table 2: Treatment Effects in Leader's Birthregion

VARIABLES	Log Sales	Log Sales	Log Employees	Log Wage	Log Output per Worker	TFP Residual
Treated region	0.1543***	0.1308**	0.0609**	0.1013***	0.0662**	0.0190*
	(0.0581)	(0.0512)	(0.0290)	(0.0343)	(0.0280)	(0.0111)
Firm age		0.0257***	0.0195***	0.0032***	0.0051***	0.0060***
		(0.0010)	(0.0006)	(0.0004)	(0.0006)	(0.0004)
% owned foreign		0.0173***	0.0103***	0.0041***	0.0067***	0.0045***
		(0.0006)	(0.0004)	(0.0003)	(0.0004)	(0.0002)
% owned public		0.0176***	0.0157***	0.0011	0.0011	0.0034***
		(0.0015)	(0.0011)	(0.0009)	(0.0009)	(0.0008)
Constant	16.8800***	16.2709***	2.7792***	11.5343***	13.4884***	-0.1447***
	(0.0129)	(0.0238)	(0.0135)	(0.0103)	(0.0139)	(0.0097)
Observations	126,359	126,359	142,710	121,357	125,191	107,439
R-squared	0.6319	0.6643	0.2626	0.8382	0.7800	0.2741
F	7.048	388.6	499.3	62.28	90.31	149.6

Notes : Regressions are estimated using equation 2. Treatment is set equal to the administrative region where the leader was born. Dependent variables are specified in logarithms. All regressions include fixed effects for regions, industries and country-by-years. Standard errors are two-way clustered at the level of country-sector-year and leader region.

up to two years after the leadership transition. We then re-estimate equation (1) including these leads and lags. The results are presented in Table 3. As can be seen, neither leads nor lags have significant effects on sales or employment.

Additionally, the fact that the firm growth effect dies after the leader leaves implies that we do not find support for the big push hypothesis. According to this hypothesis, large positive shocks and investments can help firms change their permanent growth trajectories (Murphy et al. 1989). This is in contrast to few recent papers. For example, Kline and Moretti (2013) provide evidence that a place-based policy in the US had long term effects, while Lu et al. (2019) study China's successful implementation of Special Economic Zones.

4 Mechanisms

Table 3: Treatment Effects before and After Leader Transitions

VARIABLES	Log Sales	Log Sales	Log Employees	Log Employees
0-2 years before treatment	-0.0697		0.0208	
	(0.2597)		(0.2275)	
0-2 year after treatment		0.0248		0.0152
		(0.1190)		(0.0814)
Treated area	0.1953*	0.2156***	0.1456**	0.1413**
	(0.0992)	(0.0766)	(0.0721)	(0.0609)
Firm age	0.0251***	0.0251***	0.0192***	0.0192***
	(0.0021)	(0.0021)	(0.0013)	(0.0013)
% owned foreign	0.0171***	0.0171***	0.0102***	0.0102***
	(0.0008)	(0.0008)	(0.0005)	(0.0005)
% owned public	0.0174***	0.0174***	0.0153***	0.0153***
	(0.0042)	(0.0042)	(0.0029)	(0.0029)
Constant	16.4122***	16.4060***	2.8004***	2.8015***
	(0.0493)	(0.0436)	(0.0322)	(0.0277)
Observations	70,177	70,177	79,718	79,718
R-squared	0.6660	0.6660	0.2582	0.2582
F	105.8	103.4	118.6	120.8

$Notes$: Regressions are estimated based on equation 1 but adding the leads and lags of the treatment variable. Treatment is set equal to 50km radius around leader's birthtown. Dependent variables are specified in logarithms. All regressions include fixed effects for leader circles, regions, industries, and country-by-years. Standard errors are two-way clustered at the level of country-sector-year and leader region.

4.1 Sectoral results

As a central mechanism behind our baseline result, we investigate how regional favoritism affects the sectors of the economy. To this end we split firms into the tradable and non-tradable sector. As we discuss in Section 5, we expect sectors to be affected differentially from redistributive policies implemented by the government. In particular, our model predicts that the non-tradable sector is likely to benefit more from redistributive policies. This prediction is similar and in line with the literature studying inflows of funds into developing countries from commodity booms, remittances, international aid or borrowing. Such inflows increase incomes of households and thus consumption. The increased demand for tradable goods

Table 4: Treatment Effects by Sector

VARIABLES	Log Sales	Log Output per Worker	TFP Residual	Log Employees	Log Wage
Treated area	0.2554***	0.1455***	0.1018***	0.1239**	0.1010***
	(0.0692)	(0.0201)	(0.0145)	(0.0487)	(0.0387)
Tradable	0.1194**	-0.1777***	-0.0805*	0.2976***	-0.0942***
	(0.0473)	(0.0614)	(0.0451)	(0.0371)	(0.0167)
Treated#Tradable	-0.1386**	-0.1504**	-0.1281**	0.0335	-0.0160
	(0.0670)	(0.0731)	(0.0522)	(0.0583)	(0.0291)
Firm age	0.0257***	0.0048***	0.0062***	0.0199***	0.0030***
	(0.0021)	(0.0009)	(0.0007)	(0.0014)	(0.0007)
% owned foreign	0.0174***	0.0065***	0.0051***	0.0104***	0.0039***
	(0.0008)	(0.0006)	(0.0004)	(0.0005)	(0.0004)
% owned public	0.0177***	0.0020	0.0050***	0.0153***	-0.0000
	(0.0042)	(0.0015)	(0.0017)	(0.0028)	(0.0020)
Constant	16.3595***	13.6339***	-0.1127***	2.7106***	11.6720***
	(0.0395)	(0.0212)	(0.0126)	(0.0328)	(0.0162)
Observations	70,177	69,524	57,840	79,718	66,262
R-squared	0.6585	0.7731	0.2615	0.2374	0.8269
F	100.00	470.8	265.6	112.3	31.65

Notes : Regressions are estimated based on equation 1 but adding an interaction term between treatment and sectors. Treatment is set equal to 50km radius around leader's birthtown. Dependent variables are specified in logarithms. All regressions include fixed effects for leader circles, regions, and country-by-years. Standard errors are two-way clustered at the level of country-sector-year and leader region.

can be met by imports, while the demand for the non-tradables can be satisfied only by domestic production. Such episodes lead to relative increases in the prices of non-tradable goods (exchange rate appreciation), reallocation of factors of production towards the non-tradable sector and deindustrialization. van der Ploeg (2011) provides a review of the resource curse literature and its implications. In a more recent study, De Haas and Poelhekke (2019) investigate the implications of natural resource booms and sectoral reallocation patterns using the firm data from the Enterprise Surveys as well.

In Table 4 we include an additional interaction term between the treatment variable and a dummy variable for firms in the tradable sector. Section 2.1 describes how we construct this dummy variable. The results in column one show that tradable sector firms located around

the leader's hometown benefit less from favoritism. Further, the results in column 2 imply that they do not experience any growth in output per worker. Column 3 yields similar results for TFP. Growth in output per worker and in productivity in the favored areas are completely driven by the non-tradable sector firms. In column 4 we observe that wage growth is similar in both sectors. This is consistent with the idea that there is high level of mobility between sectors. And despite the fact that non-tradable firms experience more growth, wages faced by firms in both sectors are similar because both sectors compete for similar workers. In column 5 we document that there are no sectoral differences in employment growth.

4.2 Business environment

Next we try to understand what kind of policies and tools leaders use to contribute to firm expansion in their region. The enterprise surveys ask questions regarding the constraints that firms face while doing business. Firms are asked to evaluate certain obstacles to their business on a five point Likert-type scale. We center and normalize these variables to report the results in terms of standard deviations in Table 5. In the first column the dependent variable is the average of all business constraints. The estimated coefficient is positive and significant indicating a worsening of the business environment. However, this measure is not informative on the specific source of the constraint, therefore in the following three columns we study its individual components. The results show that there is no change in the institutional environment around the leader's home town. Meanwhile, the estimated coefficients on infrastructure constraints and input constraints are positive and significant. This implies that firms operating in the areas around the leaders hometown see the lack of infrastructure as well as inputs to a lesser extent as significant constraints to their businesses. The input constraint concept itself combines three components, the results for which are displayed in the last three columns of Table 5. From these regressions we observe that firms around the leader's hometown complain about the lack of land and educated workforce while the coefficient on access to finance measure is not significantly different from zero. In terms of

Table 5: Effects on the Business Environment around Leader's Birthtown

VARIABLES	(1) Avgerage	(2) Infrastructure	(3) Institutions	(4) Input	(5) Land	(6) Finance	(7) Workforce
Treated area	0.1133*	0.1558***	0.0316	0.0979**	0.0879***	-0.0493	0.1919***
	(0.0615)	(0.0575)	(0.0787)	(0.0384)	(0.0264)	(0.0336)	(0.0483)
Firm age	-0.0011***	-0.0008***	0.0003	-0.0018***	-0.0025***	-0.0022***	0.0008***
	(0.0003)	(0.0003)	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0003)
% owned foreign	-0.0006***	0.0007***	-0.0009***	-0.0013***	-0.0008***	-0.0024***	0.0005***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
% owned public	-0.0017**	-0.0014**	-0.0021***	-0.0012**	-0.0026***	-0.0005	0.0007
	(0.0007)	(0.0006)	(0.0007)	(0.0005)	(0.0005)	(0.0007)	(0.0007)
Constant	-0.0004	-0.0276**	-0.0080	0.0210*	0.0312***	0.0663***	-0.0590***
	(0.0154)	(0.0138)	(0.0191)	(0.0119)	(0.0102)	(0.0118)	(0.0140)
Observations	65,598	78,826	68,654	76,060	77,954	79,469	79,861
R-squared	0.3969	0.2924	0.3902	0.2806	0.2236	0.1947	0.2354
F	8.105	7.314	9.702	18.79	22.15	34.17	6.004

$Notes$: Regressions are estimated using equation 1. Treatment is set equal to 50km radius around leader's birthtown. Dependent variables are indices that have been centered at zero and normalized with variance of one. All regressions include fixed effects for leader circles, regions, industries, and country-by-years. Standard errors are two-way clustered at the level of country-sector-year and leader region.

relative magnitudes, among the several types of business constraints, firms are most concerned about the quality of the workforce.

Taken together these results imply that leaders divert resources into their home region and generate higher demand for output produced by firms in the hometown area. However, they do not make sufficient infrastructure improvements to keep up with the increasing needs of the firms. This result is intuitive because infrastructure investments require planing and proper project implementation. Such actions require longer time horizons and more effort than, for example, awarding contracts to favored firms. So our results indicate that the leaders are more likely to choose the latter option and other similar mechanisms to promote development in the home region. It is also possible that leaders make infrastructure investments but because of improper implementation they do not sufficiently contribute to the actual stock of infrastructure.

Regarding the input constraints the regressions indicate that leaders do not directly affect the capital market. The increasing complaints about land is rather intuitive because this factor is in fixed supply and it does not increase proportionately with output. Finally, the result in the last column indicates that educated labor force also does not increase sufficiently to meet the demand for labor. This is also consistent with the increasing wages around the leader's hometown as presented, for example, in Table 1. It is also worthwhile to note that, in the context of ethnic favoritism, Dickens (2018) shows that there is no increase in migration into the leader's ethnic region. So, it seems there are some frictions on labor mobility that prevent adjustment to take place. Ethnic tensions among various groups can be one factor hindering labor mobility within countries.

4.3 Further mechanisms

In Table 6 we explore further channels that can help us better understand how regional favoritism works. First we consider whether firms located in proximity to the leader's birth place are more likely to secure government contracts. Governments can affect the allocation decision of such contracts and provide them to favored firms. Our estimations confirm this hypothesis, we observe that firms in the treated area are 2.4% more likely to secure government contracts. In the second column of Table 6 we restrict our sample to the tradable sector firms only and study whether there is an increase in the likelihood of firms to report to be exporters. The results show that there is no such evidence. A positive and significant coefficient would indicate an improvement in the competitiveness among firms located around the leader's home town because of better infrastructure and public goods provision. However, since we did not observe such improvements in Table 5, it is rather intuitive that the exporting prospects of firms in the leader's region do not improve. In the following two columns we study whether firms have introduced new products or processes. For new products we observe a positive and significant coefficient, while for new processes a negative one. Our interpretation is that higher incomes of consumers can generate more demand and increase firms' incentives to introduce new products. However, this horizontal expansion does not necessarily imply improvements

Table 6: Evidence on Further Mechanisms

VARIABLES	Government contract secured?	Firm has any exports?	New product/service last 3 years?	New process last 3 years	Any informal payments?
Treated area	0.0240***	0.0099	0.0244**	-0.0750***	-0.0504
	(0.0041)	(0.0092)	(0.0118)	(0.0031)	(0.0329)
Firm age	0.0016***	0.0028***	0.0010***	0.0008***	0.0001
	(0.0002)	(0.0004)	(0.0002)	(0.0002)	(0.0001)
% owned foreign	-0.0001	0.0040***	0.0009***	0.0006***	-0.0000
	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
% owned public	0.0020***	0.0010	-0.0001	-0.0001	-0.0001
	(0.0006)	(0.0008)	(0.0007)	(0.0007)	(0.0003)
Constant	0.1470***	0.2741***	0.3527***	0.3908***	0.3004***
	(0.0033)	(0.0090)	(0.0047)	(0.0028)	(0.0085)
Observations	78,635	23,436	57,205	55,932	80,810
R-squared	0.1013	0.2441	0.2113	0.2944	0.2736
F	37.07	113.5	37.49	3818	0.707

Notes : Regressions are estimated using equation 1. Treatment is set equal to 50km radius around leader's birth town. Mean values of dependent variables from left to right are 17.8%, 37%, 38%. 39.4 % and 28.9 %. All regressions include fixed effects for leader circles, regions, industries, and country-by-years. Standard errors are two-way clustered at the level of country-sector-year and leader region.

in efficiency.[9] At the same time process innovations are more likely to be associated with improved efficiency.

In the last column the dependent variable is an indicator for firms reporting whether they have made informal payments. The estimated coefficient is negative but it is not significant. A negative coefficient would imply that leaders reduce informal tax collection and provide better treatment to firms located in the areas around their birthplaces. These informal payments are one manifestation of policy distortions that have been discussed in the misallocation literature (Hsieh and Klenow 2009, Restuccia and Rogerson 2008).

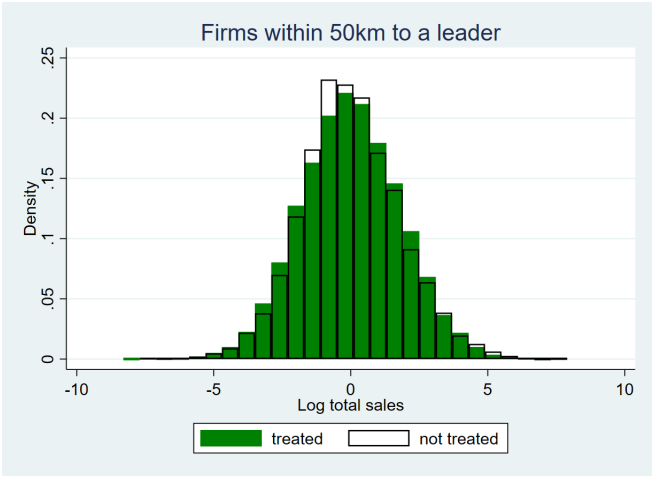
4.4 Size and productivity distribution of firms

On top of the average effects of favoritism we have identified so far, we are also interested in the question of whether favoritism differently affects the distribution of firms. Following

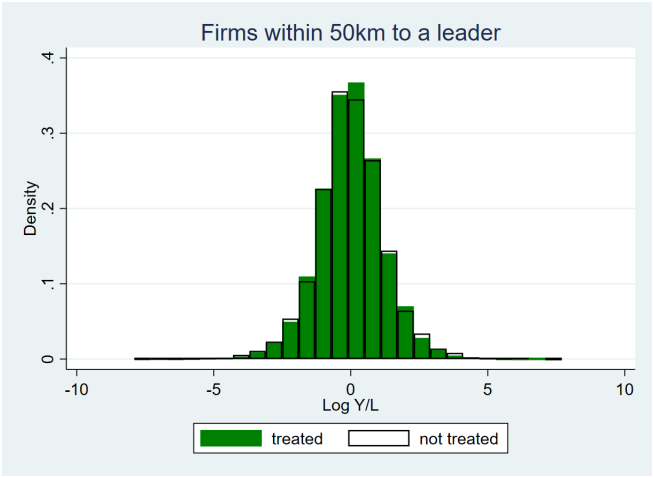
[9]For example, in the multi-product firm framework of Mayer et al. (2014) an exogenous increase in demand can lead the firm to expand its product scope without any improvement in productivity.

Figure 3: Size Distribution of Firms in Treated and Control Areas

(a) Sales



(b) Output per Employee



$Notes$: Histograms plot the distribution of firms with respect to log sales and log output per worker in treated area during and outside the leaders time in office.

Hsieh and Klenow (2009), in Figure 3 we present histograms on the distribution of firms in terms of the total sales and output per employee by plotting the distribution of residuals using equation (1). We compare firms in the leader areas, where the green bars represent the firms during the leaders time in office, while the bins showing firms outside the time in office are left transparent for ease of comparison. If the favoritism effects were to change the distribution of firms, we would expect to observe substantial mismatches in the distribution mass of the two groups. Thus, this descriptive evidence does not imply that favoritism had differential effects across the firm distribution. This results supports our assumption of modeling homogeneous firms.

5 Aggregate implications

In this section we introduce a simple theoretical framework that will facilitate to the interpretation of the empirical findings. We will also use this framework to estimate the size of

distortions created by regional favoritism and quantify aggregate losses generated by such policies.

5.1 Framework

We consider a two regions and two sectors economy with perfectly competitive firms. Regions denoted $i \in \{h, a\}$ are the home region which receives subsidies τ_h and and the rest of the country a which will pay taxes τ_a to finance these subsidies. Positive values of τ_i will denote taxes and negative values subsidies. We will use the term taxes to refer to τ_i but this should not be taken literally because these taxes capture various wedges discussed by Restuccia and Rogerson (2008). These may include informal payments for which we saw some tentative evidence in Table 6. Firms in both regions produce manufacturing goods (m) and services (s) $j \in \{m, s\}$. Manufacturing goods are traded across regions and internationally, they correspond to the tradable sector in our empirical analysis. On the other hand services are produced and consumed locally only, and thus match the definition of the non-tradable sector above. We will assume that both regions are symmetric. Our data provides evidence in support of this assumption. We run regressions on outcomes that can proxy the average level of development (output per worker and wage) and include an indicator variable for circles that had leaders. The estimated coefficient on this indicator variable turns out to be very close to 0 and statistically insignificant, which implies that the leader circles are not systematically wealthier or poorer compared to other places.[10]

5.1.1 Production

We will consider a simple production function

$$Y_{ij} = L_{ij}^{\alpha}. \tag{3}$$

[10]Our estimations include country-year fixed effects and exclude observations for circle-years during which the leader was in office from that circle.

Output Y_{ij} is produced by using labor L_{ij}. Both regions are endowed with a fixed amount of homogenous labor L_i which is allocated across sectors competitively. Labor is perfectly mobile across sectors but immobile across regions. We do not introduce capital into the production function because our empirical results do not show any differential frictions in the capital market due to regional favoritism. Our empirical results were consistent with high level of labor mobility between sectors (Table 4), and low mobility between regions (Table 1). Also in Table 5 we observed that firms do not face any differential constraints for having access to finance. Thus, we do not add capital to keep the model more tractable.

Using this notation, firm's optimization problem can be written as

$$(1 - \tau_i)p_{ij}Y_{ij} - w_i L_{ij}, \tag{4}$$

where p_{ij} is the price in region i and sector j and w_i the wage in region i. Perfect mobility between sectors implies that firms in both sectors face the same wage. We will set the price of the manufacturing good to unity ($p_{hm} = p_{am} = 1$).

5.1.2 Consumption

Both regions are populated by representative agents who derive utility by combining services (C_{is}) and manufacturing goods (C_{im}) given by $U_i = C_{im}^{\gamma} C_{is}^{1-\gamma}$. Agents maximize their utility subject to the budget constraint

$$p_{is}C_{is} + C_{im} \leq w_i L_i \tag{5}$$

5.1.3 Market clearing

The equilibrium requires clearing in labor and goods markets

$$L_{hs} + L_{hm} = L_h, \quad L_{as} + L_{am} = L_a \tag{6}$$

$$C_{hs} = Y_{hs}, \quad C_{cs} = Y_{cs} \tag{7}$$

$$C_{hm} + C_{am} = Y_{hm} + Y_{am} \tag{8}$$

Finally, the government balances its books, which requires that the amount of tax collected in the non-home regions should equal to the subsidies provided in the home region

$$\tau_h(p_{hs}Y_{hs} + Y_{hm}) + \tau_a(p_{as}Y_{as} + Y_{am}) = 0. \tag{9}$$

5.2 Model discussion

The model yields several predictions which help us to understand the empirical results observed in Section 3. The key outcome of the model concerns the relationship between the tax rate and the relative allocation of labor between sectors. The model implies that the share of labor allocated to the services sector decreases with the tax rate.

$$\frac{\partial L_{is}}{\partial \tau_i} < 0. \tag{10}$$

Given that the home region receives a subsidy and the non-home region pays taxes, this implies that a relatively larger share of labor in the home region will be allocated to the services sector. The intuition behind this result is rather simple. Since only the tradable good can be transferred across regions, the wedges introduced by the government require transfers from the non-home region. The relative supply of the tradable good in the home region increases because it receives transfers. As a result, it becomes optimal for firms in the home region to allocate relatively more resources to the production in the services sector to meet consumer demand. Consequently, both regions will have relatively more resources allocated to one of the sectors compared to the economy without wedges. The concentration of the resources in any of the sectors implies lower level of marginal physical output in the presence of decreasing returns to scale technology. As a result the implementation of taxes will generate aggregate losses in the economy.

Another prediction of the model concerns the effect of taxes on wages. Consistent with the empirical results documented in Table 1, wages decrease with taxes.

$$\frac{\partial w_i}{\partial \tau_i} < 0 \implies w_h > wf. \tag{11}$$

5.3 Calibration

The qualitative discussion of the model's predictions implied that taxes generate net losses. In this section we use standard parameter values from the literature and target some key moments from the empirical section to quantitatively asses the size of taxes required to generate observed output differences and quantify the losses generated by them. We will follow the macroeconomic literature and set the share of labor $\alpha = 2/3$, and the parameter governing the share of manufacturing goods consumption in developing economies $\gamma = 0.31$. We will assume that each region is endowed with one unit of labor. Our key objective is to choose parameters τ_h and τ_a such that we can match the 22 % total output differences between regions and make sure that the government's budget constraint (9) is satisfied. This value is taken from column 2 of Table 1. Notice that the 22 % target is not relative to the distortion free economy but relative to the other region because our empirical estimates capture this effect.

Since both regions are symmetric, in the absence of wedges both regions produce and consume exactly the same quantities. In the first row of Table 7 we present the relative changes in some key estimates relative to the tax free economy quantities. As already discussed the relative share of labor allocated to the services production in the home region increases. Quantitatively this change is about 12 %, while in the non-home region the corresponding figure goes down by 10%. The following column displays the relative change in prices of non-tradable goods. There is a 15% increase in prices in the home region. In the data we do not observe these quantities and cannot compare them but there was strong suggestive evidence that prices of non-tradable goods increase in treated circles. For example, in Table 4, we observed an increase in Y/L ratio only in services sector. In our data output is measured as

Table 7: The Effect of Distortions on Factors and Output

	(1) L_{hs}	(2) L_{as}	(3) p_{hs}	(4) L_h	(5) Y	(6) W
Immobile labor %	12.00	-11	16	0	-0.5	-0.7
Mobile labor %	16.00	-14	2	13	-0.25	-0.3

$Notes$: The table displays the changes in percentages relative to the distortion-free economy. In column 6 Y refers to total output in the economy and in column 7 W refers to aggregate welfare in terms of consumption equivalents. In the first row labor is immobile across regions. In the second row labor is perfectly mobile.

price times quantity and we do not have information on physical output. However, in Table 5 and 6 we do not find any supporting evidence for improvements in efficiency, so it is very likely that the Y/L ratio is driven by increasing prices of non-tradable goods. Column four displays the change in aggregate labor. By assumption this measure does not change because labor is assumed to be immobile across regions. The fifth column displays the net loss in total real output, which amounts to 0.5%. In the last column we also report aggregate welfare changes measured in consumption equivalents. The decline in welfare is larger than in output because of the concavity of the utility function for individual goods.

In the second row of Table 7 we consider a specification with perfect labor mobility. In this environment workers will flow to the home region until wages are equalized across both locations. Thus, in column 4 we observe that total labor in the home region increases by 14%. The flow of workers between regions is also reflected in a larger increase (decline) in employment in the services sector in the home (non-home) region. This mitigates the effect on prices, such that we observe only a small increase in prices. Perfect mobility of labor also mitigates aggregate losses. In terms of output these losses are halved compared to the specification with no labor mobility between regions.

The real situation lies between these two extreme cases. The specification with immobile labor between regions is inconsistent with the data because it cannot generate an increase in total employment in the leader's region, while the specification with mobile labor is inconsistent with the data because it generates very small price changes and equalization of wages. Probably, the proper specification involves some frictions on labor mobility that lead to only

partial wage equalization. These frictions may involve direct utility costs or time/efficiency losses for migrant workers. We do not take a stand on the specific formulation of these losses and their parametrization. But as the specification with perfectly mobile labor demonstrates, even under very loose assumptions regional favoritism generates aggregate output and welfare losses.

6 Conclusions

Regional favoritism, the spatial redistribution of wealth within countries in favor of political leader's home regions, is a widespread phenomenon especially prevalent in low and middle income countries. While evidence behind this phenomenon has been extensively documented on various levels, the implications of regional favoritism are not very clearly understood. A commonly held normative view is that favoritism is necessarily a negative phenomenon arguably being fueled by corruption and other forms of rent seeking. However, discrimination can also lead to higher welfare if, for example, leaders are better informed and are able to subsidize productive activities in the economy at the expense of more wasteful ones.

In this paper we try to solve this normative tradeoff by first identifying the micro effects of favoritism on a global sample of firms, and then quantifying the macro effects of favoritism by feeding the estimated empirical parameters into a revised model of resource misallocation. Our empirical results suggest that firms located close to leaders' bithplaces not only grow in size but also become more productive. While such productivity improvements could potentially lead to more growth for the whole country, our further analysis does not support that outlook. In particular, our evidence shows that this evolution of firms in favored regions is driven by a rapid expansion of the non-tradable sectors, rather than substantial gain among manufacturing firms. One channel behind this effect are direct transfers to firms through public procurement contracts. Importantly, these positive and economically substantial effects on firms are not sustainable and vanish after leaders leave office.

We quantify that the net aggregate effects of these re-allocations of resources across regions and sectors cost countries on average 0.5% of their output every year. One policy implication is that countries can become substantially better off if they manage to constrain the regional redistributive policies of their leaders. Our paper is less clear on how this could be achieved, since our evidence on the role of democratic institutions as constraining factor is rather weak. Another lesson from our finding is that while the re-allocation of resources towards certain firms can improve their outcomes substantially, such policies are in general hurtful for the country as a whole and should be considered carefully.

Our results require several caveats. First, we study regional favoritism which may be a combination of various intentional and unintentional policies. It may also partly include policies working on other forms of societal divides such as through ethnic, religious and cultural lines. Future and more careful studies could try to disentangle the effects of these various policies. Second, we focus on leaders and ignore other systematically important politicians. This focus is purely due to data constraints. It would be potentially interesting to study the home regions of important members of the executive, legislative and judicial branches of the government. Third, future research can more seriously consider the endogeneity of regions. Political leaders gain power often as a result of battles between complicated power structures, which may or may not reflect the underlying economic trends happening in the regions. Although we provided reassuring evidence on these concerns using our difference-in-difference framework, our study very much remains a first pass. Fourth, we neglect the potential impact of favoritism on the entry, exit and migration of firms. Our survey data is not well equipped to explore this question, but it may remain an interesting topic for future research which perhaps is able to consolidate larger datasets from censuses or administrative sources.

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Appendix

Table A1: Sample description

Country	Year	# firms	# leaders
Afghanistan	2008	535	2
	2013	410	
Albania	2006	304	4
	2011	360	
	2017	5	
	2018	372	
Angola	2005	425	1
	2009	360	
Argentina	2005	1063	4
	2009	1054	
	2016	663	
	2017	328	
Armenia	2007	374	2
	2011	360	
Azerbaijan	2007	380	2
	2011	390	
Bahamas	2009	150	5
Bangladesh	2012	1442	3
Barbados	2009	150	3
Belarus	2007	273	1
	2011	360	
	2017	354	
	2018	246	
Belize	2009	150	2
Benin	2015	150	3
Bhutan	2014	253	6
Bolivia	2005	613	3
	2009	362	
	2015	11	
	2016	351	
	2017	2	
Botswana	2005	342	2
	2009	268	
Brazil	2007	1802	3
Bulgaria	2006	1015	6
	2007	288	
	2011	293	
	2017	26	
	2018	704	
	2019	42	
BurkinaFaso	2008	394	2
Burundi	2005	270	3
	2013	157	
Cambodia	2015	373	1
Cameroon	2008	363	1
	2015	361	

Continued on next page

Table A1 –continued from previous page

Country	Year	# firms	# leaders
Chad	2017	153	1
Chile	2005	1017	4
	2009	1033	
China	2011	2700	3
Colombia	2005	1000	3
	2009	942	
	2016	758	
	2017	235	
Costarica	2009	538	5
Croatia	2006	633	3
	2011	360	
	2017	2	
	2018	402	
Czech Republic	2007	250	8
	2011	22	
	2012	232	
	2017	9	
	2018	423	
	2019	70	
CÃ´te d'Ivoire	2007	526	2
	2015	361	
DRC	2005	340	1
	2009	359	
	2012	529	
Djibouti	2012	266	1
DominicanRepublic	2009	360	3
	2015	359	
Ecuador	2005	658	5
	2009	366	
	2016	361	
Egypt	2012	2897	4
	2015	1483	
	2016	331	
ElSalvador	2005	693	4
	2009	360	
	2015	719	
Estonia	2007	273	6
	2011	273	
	2017	71	
	2018	286	
	2019	3	
Eswatini	2005	307	2
	2015	150	
Ethiopia	2011	644	2
	2014	848	
Gambia	2005	174	2
	2017	150	
	2018	1	
Georgia	2007	373	5
	2011	360	
	2018	533	
	2019	48	

Continued on next page

Table A1 –continued from previous page

Country	Year	# firms	# leaders
Ghana	2006	494	3
	2012	720	
Guatemala	2005	522	5
	2009	590	
	2016	345	
Guinea	2005	223	3
	2015	150	
GuineaBissau	2005	159	6
Guyana	2009	165	2
Honduras	2005	436	5
	2009	360	
	2015	332	
Hungary	2007	291	5
	2011	310	
India	2013	9281	3
Indonesia	2008	1444	3
	2014	1320	
Iraq	2010	756	5
Israel	2012	483	3
Jamaica	2009	376	4
Jordan	2012	573	1
	2017	11	
	2018	590	
Kazakhstan	2007	544	2
	2011	600	
	2018	1446	
Kenya	2006	657	3
	2012	781	
	2017	727	
	2018	274	
Kosovo	2007	269	4
	2011	202	
	2017	1	
	2018	270	
Kyrgyz Republic	2007	235	5
	2011	270	
	2017	7	
	2018	353	
LaoPDR	2008	360	3
	2011	270	
	2015	368	
	2017	314	
	2018	18	
Latvia	2007	271	8
	2011	336	
	2017	58	
	2018	289	
	2019	12	
Lebanon	2012	561	4
	2017	4	
	2018	528	
Lesotho	2015	150	3

Continued on next page

Table A1 –continued from previous page

Country	Year	# firms	# leaders
Liberia	2016	151	3
Lithuania	2007	276	4
	2011	270	
	2017	32	
	2018	324	
	2019	2	
Madagascar	2007	445	5
	2012	532	
Malawi	2013	523	4
Malaysia	2014	1000	3
Mali	2006	490	4
	2009	360	
	2015	185	
Mauritania	2005	237	4
	2013	150	
Mexico	2005	1480	3
	2009	1480	
Moldova	2007	363	5
	2011	360	
	2018	359	
	2019	1	
Mongolia	2007	362	4
	2011	360	
	2017	11	
	2018	349	
Montenegro	2007	116	7
	2011	150	
	2017	2	
	2018	148	
Morocco	2012	407	1
	2018	1096	
Mozambique	2006	479	3
	2017	494	
	2018	107	
Myanmar	2012	632	3
	2015	198	
	2016	409	
Namibia	2005	329	2
	2013	580	
Nepal	2008	368	6
	2012	482	
Nicaragua	2005	478	3
	2009	336	
	2016	333	
Niger	2016	151	3
Nigeria	2006	1891	3
	2013	2676	
North Macedonia	2007	366	6
	2011	360	
	2017	11	
	2018	349	
Pakistan	2012	1247	3

Continued on next page

Table A1 –continued from previous page

Country	Year	# firms	# leaders
Panama	2005	604	4
	2009	365	
PapuaNewGuinea	2014	65	4
Paraguay	2005	613	5
	2009	361	
	2016	364	
Peru	2005	632	4
	2009	1000	
	2015	10	
	2016	892	
	2017	101	
Philippines	2008	1326	2
	2014	1335	
Poland	2007	455	4
	2011	542	
	2018	1369	
Romania	2007	541	4
	2011	540	
Russia	2007	1004	1
	2010	4220	
	2017	1	
	2018	1322	
Rwanda	2005	212	1
	2018	134	
	2019	226	
Senegal	2006	506	2
	2013	601	
Serbia	2007	388	5
	2011	360	
	2017	13	
	2018	348	
Sierra Leone	2016	152	2
Slovak Republic	2007	275	5
	2011	54	
	2012	214	
	2017	8	
	2018	415	
	2019	6	
Slovenia	2007	276	8
	2011	270	
	2017	16	
	2018	393	
Solomon Islands	2014	151	8
SouthAfrica	2006	937	2
Southsudan	2013	738	1
SriLanka	2010	610	2
Sudan	2013	662	1
Suriname	2009	152	2
	2017	228	
	2018	5	
Sweden	2013	600	3
Tajikistan	2007	360	1

Continued on next page

Table A1 –concluded from previous page

Country	Year	# firms	# leaders
	2011	359	
	2018	352	
Tanzania	2005	419	2
	2012	813	
Thailand	2015	1000	5
Timor-Leste	2014	126	4
Togo	2015	150	2
TrinidadandTobago	2009	370	2
Tunisia	2012	592	2
Turkey	2007	1152	2
	2011	987	
	2012	357	
	2017	354	
	2018	1309	
Uganda	2005	563	1
	2012	762	
Ukraine	2007	851	5
	2011	1002	
	2017	2	
	2018	1335	
Uruguay	2005	621	4
	2009	607	
	2015	1	
	2016	257	
	2017	89	
Uzbekistan	2007	366	2
	2011	390	
	2018	1239	
Venezuela	2009	320	2
Vietnam	2008	1053	2
	2014	996	
Yemen	2009	477	2
	2012	353	
Zambia	2006	484	5
	2012	720	
	2018	108	
	2019	491	
	2020	2	
Zimbabwe	2015	540	1
	2016	60	

Table A2: Summary Statistics of Geocoded Sample

	N	Mean	Std. Dev.	p5	p95
Treated area	99965	.19	.39	0	1
Treated region	99965	.16	.37	0	1
0-2 years before treatment	99965	.02	.16	0	0
0-2 year after treatment	99965	.03	.17	0	0
Total sales in 2009 USD	86361	6869380	58078514	12259	22468666
Num. full-time employees	99081	78	217	5	310
Output per employee in 2009 USD	85963	104490	1561689	1185	257811
Wage in 2009 USD	82023	7423	54011	201	23359
TFP residual	71427	-.01	1.34	-1.79	2.33
Log cost of input factors	86677	15.89	3.38	10.8	21.58
Log value machinery/land/buildings	83595	7.21	8.29	0	20.21
Firm age	98676	18.65	15.36	3	48
Firm % owned private foreign	98666	6.84	23.35	0	85
Firm % owned public	98711	.65	6.47	0	0
Average of all constraints	80509	31.64	20.49	1.67	68.33
Infrastructure constraints	97277	33.84	28.16	0	87.5
Institutional constraints	84227	30.32	22.65	0	70
Input constraints	93761	30.19	23.04	0	75
Obstacle land	96199	24.5	31.43	0	100
Obstacle finance	97983	34.15	31.98	0	100
Obstacle inadequately educated workforce	98430	31.86	31.24	0	100
Attempted or secured government contract?	96976	.18	.38	0	1
Firm directly/indirectly exports?	98443	.24	.43	0	1
New product/service over the last 3 years?	93843	.36	.48	0	1
New/improved process over the last 3 years?	92180	.36	.48	0	1
Any informal payments made?	99965	.29	.46	0	1
Polity2 score	97590	4.14	5.68	-7	10
Estimate for control of corruption	99071	-.47	.61	-1.25	.75
Leader tenure in years	99965	7.63	7.24	1	25

Table A3: Spatial versus Regional Treatment Effects

VARIABLES	Log Sales	Log Sales	Log Employees	Log Wage	Log Output per Worker	TFP Residual
Treated area in leader admin region	0.3165***	0.2246***	0.1516**	0.0939**	0.0917***	0.0561***
	(0.0890)	(0.0799)	(0.0614)	(0.0464)	(0.0177)	(0.0169)
Treated area not in leader admin region	0.0097	0.1277	0.0531	0.0827	0.1253*	-0.0199
	(0.0901)	(0.0847)	(0.0795)	(0.0512)	(0.0744)	(0.1115)
Firm Age		0.0251***	0.0192***	0.0030***	0.0049***	0.0067***
		(0.0021)	(0.0013)	(0.0007)	(0.0009)	(0.0007)
% owned foreign		0.0171***	0.0102***	0.0038***	0.0065***	0.0050***
		(0.0008)	(0.0005)	(0.0004)	(0.0005)	(0.0004)
% owned government		0.0174***	0.0153***	-0.0001	0.0016	0.0048***
		(0.0042)	(0.0029)	(0.0021)	(0.0014)	(0.0015)
Constant	17.0141***	16.4137***	2.8091***	11.6471***	13.5839***	-0.1286***
	(0.0182)	(0.0429)	(0.0273)	(0.0166)	(0.0203)	(0.0165)
Observations	70,177	70,177	79,718	66,262	69,524	57,840
R-squared	0.6369	0.6660	0.2582	0.8286	0.7796	0.2995
F	7.190	105.0	123.9	26.70	36.28	722.5

Notes : Regressions are estimated using equation 1. In this specification we use an interaction of the spatial and regional definition of treatment. Dependent variables are specified in logarithms. All regressions include fixed effects for leader circles, regions, industries and country-by-years. Standard errors are two-way clustered at the level of country-sector-year and leader area.

Table A4: Treatment Effects by Institutional Setting

VARIABLES	Log Sales	Log Sales	Log Sales	Log Sales
Treated area	-0.1332	0.3030	0.2129***	0.2098
	(1.1510)	(2.6314)	(0.0809)	(0.1305)
Treated#Polity2	0.4048	-0.6969		
	(1.3118)	(6.9148)		
Treated#Polity2 squared		0.6841		
		(4.6095)		
Treated#Control of Corruption			-0.1032	-0.1076
			(0.1180)	(0.2100)
Treated#Control of Corruption squared				0.0073
				(0.1777)
Firm age	0.0248***	0.0248***	0.0250***	0.0250***
	(0.0021)	(0.0021)	(0.0021)	(0.0021)
% owned foreign	0.0174***	0.0174***	0.0170***	0.0170***
	(0.0008)	(0.0008)	(0.0008)	(0.0008)
% owned public	0.0172***	0.0172***	0.0173***	0.0173***
	(0.0042)	(0.0042)	(0.0042)	(0.0042)
Constant	16.4683***	16.4577***	16.4156***	16.4152***
	(0.0543)	(0.0762)	(0.0434)	(0.0445)
Observations	68,375	68,375	69,422	69,422
R-squared	0.6633	0.6633	0.6671	0.6671
F	119.4	99.50	103.2	88.24

$Notes$: Regressions are estimated using equation 1. All regressions include fixed effects for leader circles, regions, industries and country-by-years. Standard errors are two-way clustered at the level of country-sector-year and leader area.

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