

# Regional Differences in Public Sector Productivity and Managerial Talent

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Large dispersion in productivity is a stylized fact that has been widely documented across settings—between countries, within countries, between industries, and within industries (Foster, Haltiwanger and Syverson, 2008; Hall and Jones, 1999; Syverson, 2004). In tandem, economists have used large administrative datasets and innovative survey designs to link variation in productivity to variation in manager quality and managerial practices (Bloom and Van Reenen, 2007, 2010; Scur et al., 2021). Better managerial practices correlate with higher firm productivity and organization performance (Bloom and Van Reenen, 2007; Bloom et al., 2015; Lemos, Muralidharan and Scur, 2021; Rasul and Rogger, 2018; Tsai et al., 2015). The correlations persist in experimental and quasi-experimental settings implying that better managers and managerial practices causally improve the performance of private-sector firms and public-sector organizations (Bandiera et al., 2020; Bianchi and Giorcelli, 2022; Bertrand and Schoar, 2003; Bloom et al., 2013; Fenizia, 2022; Giorcelli, 2019).

In this paper, I examine regional differences in management and productivity within the Social Security Agency (SSA) in Italy, a country known for a stark North-South divide. I find that while there is a large North-South gap in private-sector productivity, the differences in public-sector productivity are modest. This is because, despite a substantial dispersion in productivity across SSA offices, most of the dispersion is within rather than across regions. Differences in managers' characteris-

tics explain only a limited part of this variation. Because most of the variation in office productivity is within- rather than across regions, reassigning managers to more productive offices increases nationwide output and inequality in SSA output across offices while decreasing across-region inequality.

## I. Data

The primary data source is the internal records of the Italian Social Security Agency (SSA), a large centralized government agency with 494 offices in both small towns and large metropolitan areas. These data include quarterly information on office productivity (Q1 2011–Q2 2017) and detailed personnel records for workers employed at these offices (see Fenizia, 2022 for details). The Italian SSA represents an ideal context in which to study differences in productivity and managerial talent across regions because offices produce a homogeneous product, they are subject to the same rules, and there are virtually no differences in physical capital across sites. I complement these data with aggregate statistics on GDP per capita, value-added per inhabitant, and value-added per employee from the Italian National Institute of Statistics (2013–2017, ISTAT).

## II. Regional Differences in Productivity

I begin the empirical analysis by examining Italy's public- and private-sector productivity differences across broad macro-regions. Following a standard taxonomy, I divide Italy into three macro-regions: the North, the Center, and the South.<sup>1</sup> Figure 1 reports the log differences in GDP

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<sup>1</sup>The South includes both Southern regions and the islands.

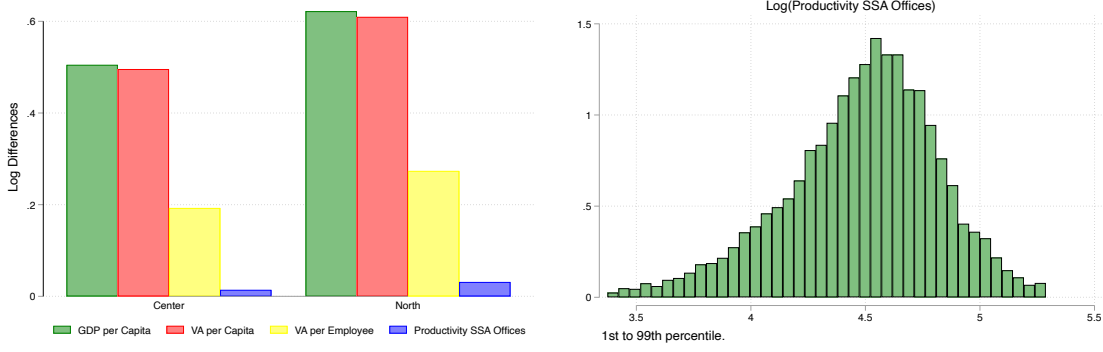


FIGURE 1. DIFFERENCES IN PRODUCTIVITY

*Note:* The left panel illustrates the differences in log productivity between macro-regions across four outcomes. For each outcome the log difference is computed as  $\log y^j - \log y^{South}$  where  $j = \text{North, Center}$ . The outcomes are GDP per capita (green), value-added per capita (red), value-added per employee (yellow), SSA productivity (blue). The right panel displays the dispersion in the log productivity of SSA offices.

*Source:* ISTAT(2013–2017) and INPS (2011–2017).

per capita, value-added (VA) per capita, VA per employee, and productivity of SSA offices between the North (Center) and the South. Italy is known for a very stark North-South divide. Not surprisingly, the left panel of Figure 1 shows large private-sector productivity differentials across macro-regions. Central and Northern regions exhibit 50 to 60% higher GDP and VA per capita than Southern regions. Because employment rates tend to be much lower in Southern regions, the gaps in VA across macro-regions roughly halve if I normalize VA by the number of employees rather than the number of inhabitants. Yet, the differences are still substantial (20-30%). These large gaps in private-sector productivity contrast starkly with much smaller differences in public-sector productivity. Surprisingly, the differences in SSA office productivity across regions are modest, amounting to 1.5–3%.

The small SSA productivity gaps mask substantial overall variation between offices (the right panel of Figure 1)—the 90-10 percentile difference is 0.86 log points (Fenizia, 2022). The roughly doubling in productivity reflected in the 90-10 gap shares the same order of magnitude as the 1.42 log point 90-10 gap measured across private-sector firms in narrowly defined U.S. industries (Syverson, 2004).

### III. Regional Differences in Manager Characteristics and Managerial Talent

To reconcile the small differences in public-sector productivity across macro-regions (left panel) with the tremendous amount of variation in office productivity over the analysis period (right panel), I perform an analysis of the variance of productivity of SSA offices. Table 1 reports adjusted  $R^2$  for several models where I decompose log office productivity into the components driven by managerial talent, geography, and seasonality.<sup>2</sup> Roughly 30% of the variation in office productivity is explained by seasonal variation in claim processing (column 1). Managers explain roughly 40% of the residual variation, suggesting that they are an important determinant of office performance (column 2). Adding either 2 macro-region dummies or 19 regional dummies does not substantially improve the model fit (columns 3 and 4), whereas adding office fixed effects increases the  $R^2$  from 72% to 76%. This analysis suggests that the dispersion in SSA office productivity is explained by variation within regions rather than across regions.

Next, I investigate whether managers dif-

<sup>2</sup>Columns 1, 2, and 5 replicate the results in Fenizia (2022) and are reported for comparability.

TABLE 1—ANALYSIS OF VARIANCE OF OFFICE PRODUCTIVITY.

	(1) $\ln P$	(2) $\ln P$	(3) $\ln P$	(4) $\ln P$	(5) $\ln P$
N	3316	3316	3316	3316	3316
R sq.	0.325	0.789	0.790	0.793	0.835
Adj. R sq.	0.324	0.720	0.721	0.723	0.762
Time FE	Yes	Yes	Yes	Yes	Yes
Manager FE	No	Yes	Yes	Yes	Yes
Macro-Region FE	No	No	Yes	No	No
Region FE	No	No	No	Yes	No
Office FE	No	No	No	No	Yes

*Note:* This table investigates how much of the variance in log productivity is explained by geography, the office component, manager fixed effects, and seasonality. N represents the number of office-year observations. Columns 1, 2, and 5 reproduce the results in Fenizia (2022) and are reported for comparability.

*Source:* INPS data (2011–2017).

fer across geographical areas. Table 2 reports the characteristics of managers stationed in northern or central offices (column 1) and those serving in southern offices (column 2). Columns 3 and 4 report the difference in means and the  $p$ -value for the null hypothesis that the difference in means is equal to zero. Managers stationed in northern and central offices are 13 percentage points (p.p.) less likely to be male. Managers are also more likely to come from the region in which they are born. Managers stationed in northern and central offices are 59 p.p. more likely to be born in the north or the center of Italy. Similarly, managers serving in southern offices are 60 p.p. more likely to be born in the south. However, managers stationed in northern and central offices do not significantly differ from those in Southern offices in age, experience, and educational attainment (although the former are marginally more likely to have obtained a degree in STEM).

Finally, I study the extent to which managers differ in their underlying productivity across macro-areas and whether observable characteristics are predictive of these differences. Table 3 regresses the manager fixed effects estimated from model (5) in Table 1 on a dummy for the macro-region, observable characteristics of managers, and connected set fixed effects.<sup>3</sup> The

estimated manager fixed effects capture the portable component of managerial talent across SSA offices. Column (1) shows that managers serving in northern or central offices are marginally more productive than those in Southern offices, but the difference is not statistically significant. Adding observable manager characteristics does not close the gap, which remains fairly stable and not statistically significant (column 2). Interestingly, male managers are, on average, less productive than their female colleagues, and manager productivity exhibits a quadratic relationship with experience. These correlations are primarily driven by the sample of managers stationed in Southern offices (column 4), while the productivity of managers serving in Northern or Central branches does not appear to be strongly correlated with their observable characteristics (column 3).

#### IV. Counterfactual Exercise

There is little difference in average SSA office productivity across macro-regions. Most of the variation in productivity across offices is within regions. North-south parity in productivity parallels north-south parity in managerial talent, whose diversity is also within- rather than across-region. Thus, reallocating managers across offices in order to increase overall SSA output will

<sup>3</sup>Refer to Fenizia (2022) for a detailed explanation the estimation of the manager fixed effects, the identi-

fication assumptions, and the diagnostic tests on model specification.

TABLE 2—MANAGER CHARACTERISTICS.

	(1) Northern and Central Offices	(2) Southern Offices	(3) Diff. (1)-(2)	(4) P value
Male	0.58	0.71	-0.13	0.00
Age	54.74	55.25	-0.50	0.27
Experience Publ. Sec.	27.31	27.44	-0.13	0.86
Born in the North-East	0.21	0.01	0.20	0.00
Born in the North-West	0.18	0.01	0.17	0.00
Born in the Center	0.25	0.03	0.22	0.00
Born in the South or Islands	0.35	0.95	-0.60	0.00
Born Abroad	0.01	0.01	0.01	0.23
High-School Diploma	0.24	0.28	-0.04	0.22
Econ, Business, and Admin	0.15	0.10	0.05	0.03
Sci, Engen, Math, and Stat	0.05	0.04	0.01	0.34
Social Sciences and Humanities	0.21	0.18	0.03	0.29
Law	0.28	0.33	-0.05	0.13
Missing Educ	0.07	0.08	-0.01	0.77
N Managers	511	347		

*Note:* The table reports the summary statistics of manager characteristics. The statistics are computed over the subsample of managers stationed in Northern or Central offices in column (1) and over the subsample of managers stationed in Southern offices in column (2). The statistics in column 3 are calculated as (1)-(2), and column 4 reports the  $p$ -value associated with the null hypothesis that the difference in means is equal to zero.

*Source:* INPS data (2011–2017).

not necessarily exacerbate across-region inequality. In fact, if managers are more “misallocated” in the south, it may further narrow north-south differences in productivity. I follow Fenizia (2022) and assume that the social planner seeks to maximize the SSA output and can do so by reallocating managers to offices. The optimal allocation entails assigning the most productive managers to large and productive offices. Whether Region A benefits more than Region B from optimally assigning managers to branches depends on the relative distance between the current allocation and the optimal in Region A vs. B. All else equal, regions with a larger gap between the current and the optimal allocation of managers benefit more from the reallocation of managerial talent. Reassigning better managers to larger and more productive offices increases nationwide output and inequality in output across offices while decreasing across-region inequality. The optimal allocation primarily benefits southern regions, which would experience an increase of 14.5% in output, relative to northern and

Central regions, which would enjoy a 2.7% output gain. While nationwide output and overall dispersion in output across offices increase by construction, the impact of the optimal allocation on across-region inequality depends on the sorting pattern of managers into offices.

## V. Conclusions

In this paper, I study the regional differences in productivity and managerial talent across SSA offices in Italy. While private-sector productivity differs starkly across regions, differences in SSA office productivity are modest. Differences in managerial talent and managers’ characteristics explain a small share of the regional differences in SSA performance. These results push against the conventional wisdom that the performance of organizations located in the South of Italy is systematically worse than that of organizations in Northern or Central regions. However, the Italian SSA is a large centralized government agency, and these findings may be applicable to more decentralized organizations such as hospi-

TABLE 3—MANAGER EFFECTS AND OBSERVABLE CHARACTERISTICS.

Dep. Var.: Manager FE	(1) Full Sample	(2) Full Sample	(3) Northern and Central Offices	(4) Southern Offices
Northern or Central Office	0.07 (0.07)	0.08 (0.07)		
Male		-0.05** (0.02)	-0.03 (0.03)	-0.10** (0.04)
Experience Publ. Sec.		0.02*** (0.01)	0.01 (0.01)	0.04*** (0.01)
Experience Publ. Sec. Squared		-0.00*** (0.00)	-0.00 (0.00)	-0.00*** (0.00)
Born in the Center		0.06 (0.06)	0.11* (0.06)	-0.13 (0.17)
Born in the South or Islands		0.03 (0.04)	0.02 (0.04)	0.09 (0.13)
Born in the North-West		-0.00 (0.05)	0.02 (0.05)	-0.18 (0.15)
Born Abroad		0.01 (0.06)	0.04 (0.07)	0.06 (0.15)
Econ, Business, and Admin		0.03 (0.05)	0.03 (0.06)	0.06 (0.09)
Sci, Engen, Math, and Stat		-0.09 (0.06)	-0.07 (0.08)	-0.11 (0.10)
Social Sciences and Humanities		0.02 (0.04)	0.03 (0.04)	-0.02 (0.07)
Law		-0.05 (0.04)	-0.03 (0.05)	-0.10 (0.07)
Missing Educ		-0.09 (0.07)	-0.13 (0.10)	-0.04 (0.09)
N	857	857	511	347
R sq.	0.39	0.45	0.50	0.42
Connected Set FE	Yes	Yes	Yes	Yes

*Note:* This table presents the correlation between the manager effects and manager characteristics. These characteristics include a dummy for whether the office is located in the North or Center of Italy, gender, experience, the region of birth, and highest educational attainment. N represents the number of managers-by-macro-region in my sample. “Experience in the public sector” is defined as the number of years since the manager was first hired in any public sector institution. The omitted categories are “Female”, “North-East”, and “No college”. Controls include connected set fixed effects. Robust SE in parentheses.

*Source:* INPS data (2011–2017).

tals, schools, or municipalities.

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