Redistribution and risk sharing in Italy: Learning from the past

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Abstract

This paper investigates the role of public policies in Italy by assessing both the redistribution and risk sharing functions of interregional Net Fiscal Flows over a long time horizon. Its main novelty relies on the comparative approach that allows to contrast results obtained for two periods characterized by relevant diversity about design of regional policy and dynamics of regional convergence. Moving from 1951–65 to 1983–92, interregional redistribution increases from 10%–18% to 19%–30%, with a clear rise in the share of current to total expenditure. Concerning risk sharing, the role of fiscal policy in smoothing out idiosyncratic risks is weak in 1951–65 but significant in 1983–92. Although based on a specific case, we believe that the evidence provided in this paper allows to draw more general conclusions: when assessing the regional redistributive and risk sharing power of national fiscal policies, one should carefully take into account many different factors related to the existing policy regime, the main being the composition of government spending between current expenditure and public investment.

Keywords: fiscal policy, redistribution, risk sharing, regions
JEL codes: E62; H23; H50; R11

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1 Introduction

An important aspect in the assessment of fiscal policies concerns their effectiveness in moderating long-run income disparities (i.e. performing a redistribution function) and mitigating the impact of short-run shocks (risk sharing function) across regions within a country or states belonging to a federation. Income redistribution may aim at reducing inequalities in private consumption and endowment of local public goods or at supplying resources to promote regional development. For this reason it has long been recognized as a distinctive feature of budget policies (Ingram, 1959; Musgrave, 1983; Persson and Tabellini, 1996). The interest in the insurance properties of interregional fiscal transfers is relatively more recent. Motivated by the onset of European Monetary Union (EMU) and the weak design of EMU common fiscal policy, a fairly large literature on this issue has developed from mid–1990s on, considering mainly (but not only) federal countries.

The case of Italy represents a peculiarity because of its wide and persistent regional income differences, which call for public intervention for risk sharing or/and redistribution (Decressin, 2002). On the risk sharing side, regional disparities matter since they may involve a different degree of exposure to either positive or negative aggregate demand shocks. According to the literature (Mastromarco and Woitek, 2007; Basile et al., 2014) the business cycle is closer to the national business cycle in the North of Italy and more persistent in the South. Furthermore, Northern cycle tends to lead the Southern cycle, with the consequence that recovery from recessions is often delayed in Southern regions. In particular the 2008–14 crisis hit harder the South and the slow recovery experienced in 2015 has solely interested Northern regions (OECD, 2013; Lagravinese, 2015).

These facts motivate the interest in analyzing the role played by the public sector in smoothing the cycle, to understand whether fiscal policies behave in a pro-cyclical, anti-cyclical or neutral way, that is whether they amplify or mitigate regional shocks or simply

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1For a detailed technical definition of long-term redistribution and short-term stabilization, see for example Bayoumi and Masson (1995).
2Recent surveys are supplied by Cavaliere et al. (2006) and Arachi et al. (2010). More specifically on the Italian case, see Section 2 below.
are not relevant to GDP dynamics. Concerning the redistributive side, from the end of the Second World War, the Italian regional divide has urged a strong uninterrupted public commitment for territorial rebalancing, generating an ongoing debate on size and time extent of regional unbalances. Thus, while several studies (shortly reviewed in Section 2) have focused on the Italian case, the lack of data has limited available evidence to the 1980s onwards. Building on those previous contributions, this paper aims at assessing the redistributive and risk sharing functions accomplished by the public sector in Italy, with a specific focus on the comparison between the periods 1951–65 and 1983–92. The choice of these time spans is not due only to data availability, but also to strong diversity in a number of features: the nationwide economic cycle, the design of regional policy, the composition of public spending in terms of current and capital account expenditure. The first period (1951–65), characterized by the implementation of intense regional policies, corresponds to the beginning of a phase of unprecedented regional convergence going on up to mid–1970s, whereas in years 1983–92 the commitment of regional policies shrinks and the decreasing trend in per-capita income gap between Northern and Southern regions is abruptly reversed. Our estimates, somewhat unexpectedly, show that both redistribution and risk sharing are stronger in 1983–92 rather than 1951–65, a result which may be explained by the specific characteristics assumed by regional policies and public expenditure in the two periods.

The empirical investigation is based on the database built up by Giannola et al. (2014) who reconstruct comparable continuous time series of regional Net Fiscal Flows (NFFs) defined, for each Italian region, as the difference between public expenditures and revenues. Using two alternative definitions of NFFs, we are able to provide estimates of regional redistribution and risk sharing accomplished by current public expenditure as opposed to total public expenditure. Estimates are obtained by employing both simple pooled OLS and more advanced techniques suitable to deal with the presence of fixed effects, possible heteroscedasticity and residuals’ autocorrelation. As we will see, our findings for years 1983–92 turn out to be basically consistent with the ones obtained by the previous literature, while the lack of earlier investigations on 1951–65 prevents from similar comparisons.
The paper is organized as follows. Section 2 provides a short review of the literature with particular reference to Italy. Section 3 reports about empirical strategy and methods of our investigation. The dataset, sources and results are described in Section 4. In Section 5 we discuss our results providing an interpretation hinging on some major distinctive features of policies undertaken in the two periods. Section 6 is devoted to concluding remarks.

2 A short review of the literature on the Italian case

The debate on the interregional redistributive effects of fiscal policy in Italy originated from Pantaleoni (1891) and then went on with Nitti (1900), Bernardino (1928) and Zin-gali (1933). After the Second World War, the availability of more detailed data, allowing for regional sharing of fiscal revenues, spurred a number of other studies (De Meo, 1955; Stammati, 1955; Tarquinio, 1969; Forte et al., 1978; Geri and Volpe, 1985) dealing with the problem of evaluating the amount of redistribution operated through the public budget. However, only in the last two decades the issue has been envisaged in a more general context encompassing both redistribution and risk sharing, and addressed at a more rigorous quantitative level.

Some papers seek to deal with the problem of measuring regional risk sharing by testing the hypothesis of complete consumption risk sharing and then assessing how risk sharing is allocated among different channels, included fiscal policy. With reference respectively to the periods 1971–93 and 1983–94, Scorcu (1997, 1998) find pretty high correlations in consumption growth rates but less than perfect consumption risk sharing, since for several regions consumption comes out to be affected by regional and national GDP growth rates. In a similar vein, Dedola et al. (1999) make a comparison between the cases of Italy and UK with reference to years 1960 to 1994. Concerning the general degree of consumption insurance, they find that, on the whole, it is considerable in both countries, even if some Italian regions (Trentino Alto Adige, Lazio, Abruzzo, Molise, Basilicata, Sicily and Sardinia) show high dependence on aggregate income shocks, presumably due

\footnote{A survey on the main points of this earlier discussion is supplied by Giannola et al. (2014).}
to government transfers. More significant differences between the two countries emerge when Dedola et al. (1999) apply the variance decomposition due to Asdrubali et al. (1996). This latter analysis clarifies that, while public budget policies have no role in the UK and are responsible for about 13% of risk sharing in the United States, in Italy risk sharing due to fiscal policy amounts to about 20%, without considering the importance of public debt and interest payments on public debt in the capital markets channel which accounts for 2/3 of risk sharing.

Cellini and Scorcu (2002), focusing on years 1960–95 and dealing with both short and long run risk sharing, find that for Italian Southern regions the hypothesis of complete consumption risk sharing is always clearly rejected. According to these authors, especially for the long run, this result points out the little effectiveness of fiscal redistributive policies. Considering a longer span of time (1960–2001), Cavaliere et al. (2000) reach partly different conclusions, showing that most of regions turn out to be insured against both permanent and transitory income shocks. Therefore, the risk sharing mechanisms operating through financial markets and formal or non-formal institutions (government transfers, first of all) are able to neutralize regional output fluctuations over both short and long horizons.

Another strand of literature, inspired to the seminal work of Bayoumi and Masson (1995), estimates the weight of redistribution and risk sharing carried out by fiscal policy by directly referring to public expenditures and revenues. For the Italian case, Obstfeld and Peri (1998), with reference to years 1979–93, are the first to adopt this approach. They estimate at 8% and 3% of income respectively redistributive and stabilizing effects of transfers provided by the social insurance system in Italy against 19% and 10% of USA and 53% and 13% of Canada (which however takes into account all federal taxes, grants and transfers). Investigating risk sharing and redistribution among Italian regions over the period 1983–92, Decressin (2002) evaluates the interregional redistribution effect at about 25%–35% of GDP, while the amount of risk smoothed via the fiscal system is estimated to range from 10% to 15%, with a significant role played by public consumption. Although Decressin (2002) makes use of similar aggregates of taxes, contributions and welfare payments, for Italy and other countries (United Kingdom and France), again both redistribution and
short-term risk sharing turn out to be lower in Italy than elsewhere. Finally, Decressin (2002) also highlights the dramatic changes occurred throughout the considered decade in the distribution of public spending between current and capital expenditures.

A more recent contribution is due to Arachi et al. (2010) within a framework similar to Decressin (2002). The main outcome of this paper, focusing on years 1996–02, is that in Italy fiscal policies have exerted a redistribution effect among regions evaluated between 26% and 28% of GDP. Even worse, short-term risk sharing has often resulted in being even pro-cyclical with respect to regional specific income, thus amplifying the variability of annual GDP across Italian regions up to more than 30%. This evidence seems to be supported by European Commission (2006) providing evidence of pro-cyclical effects of fiscal policy in Italy and most industrialized countries. Finally, Giannola et al. (2014) estimate the extent of interregional redistribution over the span of time 1951–2010. Over the entire period, the redistributive impact of public financial flows is estimated to be rather weak (around 8%). However, results change dramatically when only the last 25 years are taken into consideration: from the mid–1900s onwards the size of estimated redistribution looks more substantial, ranging between 38.5% and 45.6% according to different estimation methods.

3 The empirical investigation

The main objective of our empirical investigation is to assess the role played by fiscal policies in the long-term income redistribution and short-term stabilization (risk sharing) among Italian regions. In our empirical models we regress regional output after public intervention on the same variable before public intervention. Our study has a peculiar comparative nature, since we consider and contrast two distinct periods, characterized by different features in so far as it concerns fiscal policy stance, composition of public spending in terms of current and capital account expenditure, and design of regional policy. The two periods also differ for a different pattern of regional convergence/divergence: in the first period an unprecedented regional convergence process took place, lasting until the
mid–1970s; in the second period, regional differences widened.

Among the studies shortly reviewed in the previous section, Decressin (2002) is perhaps the most related to ours; however, we depart from it in several respects. As a first step, we reproduce the analysis carried out by Decressin (2002) over the same time horizon (1983–92). Then, we also deal with the period 1951–65. For both periods, we study long-term interregional redistribution and short-term risk sharing, considering the whole set of public expenditures and the current account items only. Estimations are made by employing first standard panel estimation methods (as in Decressin, 2002) and then more complex techniques, suitable to fully account for possible heteroscedasticity or/and autoregressive structures of regressions’ residuals. This makes it clear how standard estimations may alter the evaluation of the degree of redistribution and insured risk among regions through the public budget.

3.1 Long-term income redistribution

We assess the redistributive impact of fiscal policy by considering, as Decressin (2002), the Bayoumi and Masson (1995) equation:

\[
\ln \left( \frac{GDP - X_j}{GDP} \right)_{it} = \alpha_i + \gamma \ln \frac{GDP}{GDP_{at}} + \varepsilon_{it} \quad j = 1, 2
\]

where \(i, t\) and \(a\) respectively stand for region, year and national average, GDP is per capita income, \(X_{j=1}\) represents per capita NFF, defined as the difference between total revenues coming from and public non-interest expenditure targeted to region \(i\) at time \(t\), and \(X_{j=2}\) are per capita NFFs computed considering current expenditure only (i.e. excluding public investment expenditure). The estimated value for \(\gamma\) is an inverse indicator of the redistributive impact brought about by interregional NFFs, while the difference \(1 - \gamma\) can be interpreted as the size of such redistribution. As a matter of fact, if an increase of 1% in the relative regional per capita GDP involves a corresponding increase of 1% in disposable income GDP\(-X_j\), i.e. estimated \(\gamma\) equals unity, it means that the redistributive
impact of fiscal flows is zero. Conversely, if an increase of 1% in the relative regional per capita GDP involves a corresponding increase of only (say) 0.7%, then estimated $\gamma$ equals 0.7 and the weight of redistribution can be assessed at 30%.

For the sake of robustness, we also estimate the complementary equation of Bosch et al. (2002):

$$\ln \left( 1 - \frac{X^i_t}{GDP^i_t} \right) = \mu_i + \lambda \ln \frac{GDP^i_t}{GDP^{at}_i} + \eta_{it} \quad j = 1, 2$$

(2)

where $\lambda$ is a measure of the intensity of redistribution. In particular, if redistribution operates from the rich to the poor, estimated $\lambda$ takes negative values: the higher its absolute value, the stronger the impact of public intervention. Table 1 displays the estimated coefficients obtained through a pooled OLS model and through a panel FE estimation (carried out like in previous literature, i.e. Arachi et al. 2010 and Giannola et al. 2014). Given the macroeconomic nature of the data and the likely heteroscedasticity problems arising with OLS estimates, we finally resort to a two-step Feasible Generalized Least Squares (FGLS) model, estimating the panel at the first step by OLS and then using first-stage residuals to estimate the Variance-Covariance matrix. We account for heteroscedasticity across panels (i.e. estimated variances are allowed to be different for each country) and autocorrelation within panels, assuming that the error term in each region follows an AR(1) process. Focusing on the results deriving from this procedure, we are able to observe possible differences with respect to the standard estimation method earlier applied.

Bosch et al. (2002) demonstrate that $1 - \gamma = -\lambda$. When using estimation methods more complex than OLS, i.e. Panel Fixed Effect (FE) and Feasible Generalized Least Squares (FGLS), the estimated parameters may reproduce less accurately the theoretical relation between $1 - \gamma$ and $\lambda$. In other words, the estimate of the linear combination of parameters $\hat{\lambda}$ might slightly differ from the linear combination of the estimated parameters $1 - \hat{\gamma}$ (hence $\hat{\lambda} \neq 1 - \hat{\gamma}$). Note that also a panel FE model can be represented as a FGLS on the model expressed in first differences (see Arellano 2003).

Due to the short sample and the related difficulties in estimating a region-specific autocorrelation coefficient, we restrict the autocorrelation parameter to be identical across regions.
3.2 Risk sharing: income stabilization

In line with Decressin (2002) and Arachi et al. (2010), we estimate risk sharing through the test equation proposed by Bayoumi and Masson (1995):

\[ \Delta(GDP - X_j)_{it} = \theta_i + \beta \Delta(GDP)_{it} + \epsilon_{it}, \quad j = 1, 2 \]  

(3)

where \( \Delta(GDP)_{it} \) and \( \Delta(GDP - X_j)_{it} \) are the annual changes respectively in per capita GDP and per capita disposable GDP (i.e. net of NFF).

In addition, along the lines of the pioneering contributions by Cochrane (1991) and Mace (1991) on test regression of complete insurance, further developed in several ways by Asdrubali et al. (1996) and others, in order to identify the contribution of each channel to risk sharing, we gauge the extent of risk sharing via fiscal channel by estimating an equation of the type:

\[ \Delta(GDP - X_j)_{it} = \nu_t + \beta \Delta(GDP)_{it} + u_{it}, \quad j = 1, 2 \]  

(4)

where \( \nu_t \) are time fixed effects accounting for common shocks (obtained by subtracting to right and left hand side variables their time averages). In both equations (3) and (4), the interpretation of the coefficient \( \beta \) is simple: if \( \text{cov}\{\Delta(GDP)_{it}, \Delta(GDP - X_j)_{it}\} \) were equal to \( \text{var}(\Delta(GDP)) \), and consequently \( \hat{\beta} \) equal to 1, the fiscal channel would play no role in absorbing shocks to income; otherwise if \( \text{cov}\{\Delta(GDP)_{it}, \Delta(GDP - X_j)_{it}\} < \text{var}(\Delta(GDP)) \) it means that \( \Delta(GDP - X_j)_{it} \) reacts to income changes \( \Delta(GDP)_{it} \) less than one to one so that the variability of the latter is partially absorbed by the fiscal system. Therefore, \( 1 - \hat{\beta} \) represents the fraction of income shocks absorbed by the fiscal channel. This simple set-up is the same as the one applied by Bayoumi and Masson (1995),

\footnote{See Asdrubali et al. (1996) and Sorensen and Yoshia (1998). Equations (3) and (4) are consistent with the assumption of CARA preferences.}
Decressin (2002), Arachi et al. (2010) and similar to that earlier employed by Sachs and Sala-i-Martin (1992).

Like in the analysis of redistribution effects of the fiscal policy described in the previous section, in order to obtain results comparable with the reference literature, i.e. Decressin (2002) and Arachi et al. (2010), we first estimate Equations (3) and (4) by applying the panel fixed effects model. Then, in line with Asdrubali et al. (1996) and the related international risk sharing literature, we employ a two-step FGLS model accounting for heteroscedasticity across panels and first-order autocorrelation within panels.

4 Data and results

4.1 Data

The data employed in our empirical investigation concern two different periods respectively covering years 1951–65 and 1983–92. For the latter span of time, we use the same data as Decressin (2002). For regional public accounts, the data source is ISTAT (1996), while data on regional GDP are retrieved from ISTAT regional general statistics.

The data used for the first period are drawn from Giannola et al. (2014), who consistently merge data coming from different sources, in order to build up a series comparable with the data available for more recent years. In particular, Giannola et al. (2014) start from Tarquinio (1969), collecting cash-flow data on public revenues and payments recorded by Provincial Treasuries and reported in the Summary Statistics of the Ministry of Treasury (Conto Riassuntivo), and complement those data with additional information on Central Treasury revenues and expenditures and capital public expenditure. In fact, the main

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7 Arachi et al. (2010) rely on a modification of the test equation introduced by Melitz and Zumer (2002): instead of including time averages values of the variables (through the inclusion of time fixed effects), they include their trends.

8 Sachs and Sala-i-Martin (1992) is the first contribution exploring the role of federal fiscal transfer system in the United States in smoothing regional income shocks. Like Bayoumi and Masson (1995), it uses regional personal income rather than gross state GDP.
shortcoming of Tarquinio (1969) is the omission of payments settled by Central Treasury (Tesoreria Centrale), which according to Geri and Volpe (1985) implies that only 45% of total public expenditure was actually attributed to regions, and the other 55% remained out of the picture. To cope with this problem, Giannola et al. (2014) correct the original data by distributing revenues and expenditures of Central Treasury to regions proportionally to residing population. Moreover, as Tarquinio (1969) also omits capital expenditures, data are further adjusted by resorting to additional information from Italy's Ministry of Economy and Finance (2011) and Picci (2002). From the former source, the value of public investment at the national level for the years 1951 to 1965 is retrieved, and then a share of it is attached to each region, according to the allocation of public investments estimated by Picci (2002).

The over time evolution of per capita regional NFFs (evaluated at 2010 Euro prices) for years 1951–92 is illustrated by Figure 1 where the usual aggregation of Italian regions in four macro-regions is employed. Donor (recipient) macro-regions are above (below) zero. As one can see, North-West and Mezzogiorno (i.e. the South) increasingly assume opposite roles as structural donor and recipient. For North-East and Centre, the variability of NFF indicators is definitely lower. North-East initially exhibits NFFs close to 0, while later moving on an increasing trend. For the regions of Centre, the NFF is negative and close to the figures of the South up to the beginning of the 1970s; then it turns to be positive and increasing.

In the subsequent analysis we will first provide a quantitative assessment of the capability of NNFs to moderate long-run income disparities and to mitigate the impact of short-run shocks across regions. We will do so by assessing the redistributive and risk sharing functions of NFFs in the two periods 1951–65 and 1983–92. Then, we will discuss our results, making an attempt to provide an explanation of the weak link between the

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9 This aggregation splits the country in four macro-regions named North-West (Piedmont, Aosta Valley, Lombardy, Liguria), North-East (Veneto, Trentino Alto Adige, Friuli Venezia Giulia, Emilia Romagna), Centre (Tuscany, Umbria, Marche, Lazio) and Mezzogiorno (including Molise, Abruzzo, Campania, Basilicata, Puglia, Calabria, Sicilia, Sardinia).
size of interregional transfers and the evolution of the North-South divide based on the different “quality” of public policies in the 1950s–1960s and in the 1980s.

4.2 Results

Table 1 reports our estimates of long-run redistribution. The table is divided into two panels each presenting results respectively for periods 1951–65 and 1983–92. The first three columns concern estimates obtained by the Bayoumi and Masson (1995) equation, while the last three ones show the results of estimation of the Bosch et al. (2002) equation. Pooled OLS, Panel Fixed Effect and two-step Feasible Generalized Least Squares estimates are presented respectively in columns (1) and (4), (2) and (5), (3) and (6).

Starting from the 1983–92 sample (Panel b), the values of estimated coefficients come out to be quite stable, regardless the estimation technique, almost always significant at 5% level of confidence, and clearly consistent with previous literature. Considering the whole set of public primary expenditures and revenues, the weight of interregional redistribution is assessed to be between 19.36% and 30.51%, i.e. at values very close to those obtained by Decressin (2002), who refers to the same period, and consistent with results by Dedola et al. (1999), Arachi et al. (2010) and Giannola et al. (2014), who deal with different time spans. In particular, it is worthwhile to remark that our assessment substantially coincides
Table 1: Amounts of redistribution among Italian regions: subsamples 1951–65 and 1983–92

<table>
<thead>
<tr>
<th>panel a</th>
<th>1951–65</th>
<th>1983–92</th>
</tr>
</thead>
<tbody>
<tr>
<td>explicative variable</td>
<td>explicative variable</td>
<td>explicative variable</td>
</tr>
<tr>
<td>( \ln \left( \frac{GDP_{it} - X_{it}}{GDP_{at} - X_{it}} \right) )</td>
<td>( \ln \left( 1 - \frac{X_{it}^{1}}{GDP_{it}} \right) )</td>
<td>( \ln \left( 1 - \frac{X_{it}^{1}}{GDP_{it}} \right) )</td>
</tr>
<tr>
<td>Dependent variable</td>
<td>( \lambda )</td>
<td>( \lambda )</td>
</tr>
<tr>
<td>( 1 - \gamma )</td>
<td>( 1 - \gamma )</td>
<td>( 1 - \gamma )</td>
</tr>
<tr>
<td>( 0.1825*** )</td>
<td>( -0.1824*** )</td>
<td>( -0.1824*** )</td>
</tr>
<tr>
<td>( 0.1563*** )</td>
<td>( -0.1453** )</td>
<td>( -0.1453** )</td>
</tr>
<tr>
<td>( 0.1033 )</td>
<td>( -0.0897*** )</td>
<td>( -0.0897*** )</td>
</tr>
<tr>
<td>285</td>
<td>285</td>
<td>285</td>
</tr>
<tr>
<td><strong>N. obs.</strong></td>
<td><strong>Robust standard errors in parentheses. Estimated equations</strong></td>
<td><strong>Bayoumi and Masson (1995)</strong></td>
</tr>
<tr>
<td><strong>Estimation methods</strong></td>
<td>Columns (1) and (4) reports pooled OLS estimates. Columns (2) and (5) apply standard panel fixed effect estimations with robust standard errors as in [Decressin (2002)]. Columns (3) and (6) are panel estimates (including regional dummies) which allows for heteroscedasticity by using two-step Feasible Generalized Least Squares (FGLS). Therefore, we estimate the panel at the first step by applying ordinary least squares and use the estimated residuals to calculate the Variance-Covariance matrix. We account for heteroscedasticity across panels (the estimated variances is different for each country) and autocorrelation within panels, assuming that the error term in each country follows an AR(1) process. Due to the short sample and the related difficulties in estimating a country-specific autocorrelation coefficient, we restrict the autocorrelation parameter to be identical across regions.</td>
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*** \( p < 0.01 \), ** \( p < 0.05 \), * \( p < 0.1 \). Robust standard errors in parentheses. Estimated equations: Bayoumi and Masson (1995).
with the one by Decressin (2002), even if we apply a technique which allows to exploit the longitudinal and time dimension of the data on 190 observations (like Arachi et al. 2010) against the simple cross-section analysis on a restricted sample of 20 observations adopted by Decressin (2002). When only current public expenditures are considered, results are almost unaltered and the range of estimated redistribution is restricted between 22.92% and 27.12%. As a result, one could argue that in this period interregional redistribution occurred almost exclusively through current expenditure, which implies that it mainly served the purpose of consumption rebalancing, with little room for investment financing. If then one focuses on FGLS estimates, the conclusion is even sharper, as the coefficient relative to current expenditure is higher than the one concerning overall expenditure. In this case, our estimation indicates that the contribution of the capital component was even negative, i.e. that through this channel redistribution was an anti Robin Hood one: from the poor to the rich.

When moving to the period 1951–65, the picture considerably changes. For these latter years, our exercise shows that redistribution was much lower. Again coefficients display some variability across estimation techniques, pointing out that standard procedures tend to slightly over-evaluate redistribution. More importantly, now interregional redistribution can be evaluated from 10.36% to 18.25% for the overall aggregate of primary public expenditure (i.e. 9 to 12 percentage points less than in 1983–92) and from 3.76% to 13.45% for current expenditure only (14 to 19 percentage points less than in 1983–92). Therefore, two issues emerge moving from the first (1951–65) to the second (1983–92) period. First, the size of interregional redistribution notably increases. Secondly, the importance of current expenditure seems to strongly rise. As a matter of fact, while in 1983–92 the role of capital expenditure is negligible or even counter productive for redistribution, in 1951–65 capital expenditure is responsible for a high proportion of interregional redistribution amounting to 64%-72%, according respectively to FGLS and Panel Fixed Effect estimates. Concerning risk sharing, results are summarized in Table 2. With respect to

\[ 1 - \frac{1 - \hat{\gamma}_1}{1 - \hat{\gamma}_2} \]

\( \hat{\gamma}_1 \) and \( \hat{\gamma}_2 \) are the estimated parameters of Equation 1 obtained when respectively using total expenditure and current expenditure (see Table 1, panel a, Columns 14).
long-run redistribution, the values of coefficients are remarkably lower (with one relevant exception) although always statistically significant at 1% level of confidence. Nevertheless, especially in the period 1983–92, the role of fiscal policy in smoothing out idiosyncratic risk is not negligible at all, being evaluated between 9% (Equation 3) and 14% (Equation 4) when considering overall public primary expenditure, and between 12% (Equation 3) and 20% (Equation 4) taking into account current expenditure only. Again, our results are similar to the ones presented by Decressin (2002), and again (like in the case of FGLS estimates of redistribution) the capital component of public expenditure seems to play a perverse role, by amplifying rather than mitigating the effects of shocks.

Moreover, exactly as observed for redistribution, things significantly change when the focus moves to 1951–65 period. In this case, three points are remarkable: i) coefficients are always less than 10% or, when estimated applying Equation 3, less than 5.33%, which means that fiscal policy performs its risk sharing function to a limited extent; ii) current expenditure has an even smaller impact on risk sharing than total primary expenditure, as coefficients in the second line of Table 2 are lower than (in one case substantially equal to) coefficients in the first line, which means that not only redistribution but even risk sharing is carried out through public investments; iii) unlike what happens in 1983–92, current expenditure has a larger impact on risk sharing than on long-run redistribution, which is mainly operated through capital expenditure, i.e. through policies aimed at strengthening social and economic infrastructures and the productive capacity of lagging regions.

\footnote{As robustness check we conducted a test of parallelism for both the redistribution and the risk sharing analysis in order to verify the statistical difference between the estimated coefficients within the two subgroups 1951–65 and 1983–92. The null hypothesis of parallelism is always rejected.}

\footnote{In the case of risk sharing our estimation is made with the same number of observations as Decressin (2002).}
Table 2: Amounts of risk sharing among Italian regions: subsamples 1951–65 and 1983–92

<table>
<thead>
<tr>
<th>Panel a) 1951–65</th>
<th>Panel b) 1983–92</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equation 3</strong></td>
<td><strong>Equation 4</strong></td>
</tr>
<tr>
<td><strong>Explicative variable</strong></td>
<td><strong>Dependent variable</strong></td>
</tr>
<tr>
<td>$\Delta(GDP)_{it}$</td>
<td>$1 - \hat{\beta}$</td>
</tr>
<tr>
<td>$\Delta(GDP - X_{1j})_{it}$</td>
<td>0.0533***</td>
</tr>
<tr>
<td>(0.042)</td>
<td>(0.023)</td>
</tr>
<tr>
<td>$\Delta(GDP - X_{2j})_{it}$</td>
<td>0.0262***</td>
</tr>
<tr>
<td>(0.038)</td>
<td>(0.016)</td>
</tr>
<tr>
<td><strong>N. obs.</strong></td>
<td>266</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Equation 3</strong></th>
<th><strong>Equation 4</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explicative variable</strong></td>
<td><strong>Dependent variable</strong></td>
</tr>
<tr>
<td>$\Delta(GDP)_{it}$</td>
<td>$1 - \hat{\beta}$</td>
</tr>
<tr>
<td>$\Delta(GDP - X_{1j})_{it}$</td>
<td>0.0889***</td>
</tr>
<tr>
<td>(0.044)</td>
<td>(0.029)</td>
</tr>
<tr>
<td>$\Delta(GDP - X_{2j})_{it}$</td>
<td>0.1178***</td>
</tr>
<tr>
<td>(0.031)</td>
<td>(0.018)</td>
</tr>
<tr>
<td><strong>N. obs.</strong></td>
<td>171</td>
</tr>
</tbody>
</table>

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors in parentheses. **Estimated equations**: Equation (3): $\Delta(GDP - X_{1j})_{it} = \theta_1 + \hat{\beta} \Delta(GDP)_{it} + \epsilon_{it}$ for $j=1,2$; Equation (4): $\Delta(GDP - X_{2j})_{it} = \nu_t + \hat{\beta} \Delta(GDP)_{it} + u_{it}$ for $j=1,2$. Where GDP is the Gross Domestic Product per capita; $X_1$ represents the NFF in per capita terms (defined as the difference between total revenues and public non-interest expenditure) and $X_2$ is the NFF per capita computed excluding investment expenditure (only current expenditure is included). **Estimation methods**: Columns (1) and (3) apply standard panel fixed effect estimations with robust standard errors as in Decressin (2002). Columns (2) and (4) allows for heteroscedasticity by using two-step Feasible Generalized Least Squares (FGLS). Therefore, we estimate the panel at the first step by applying ordinary least squares and use the estimated residuals to calculate the Variance-Covariance matrix. We account for heteroscedasticity across panels (the estimated variances is different for each region) and autocorrelation within panels, assuming that the error term in each region follows an AR(1) process. Due to the short sample and the related difficulties in estimating a country-specific autocorrelation coefficient, we restrict the autocorrelation parameter to be identical across regions.

5 Interregional redistribution and the North–South gap

One of the main results of the previous Section is that the size of interregional redistribution has considerably increased in Italy moving from years 1951–65 to 1983–92. Given the deep, long-lasting dualism of the Italian economy, a natural candidate explanation of
this evidence might be an increased commitment of regional policy. Indeed, implementing policies to promote the development of lagging regions often involves a rise in redistribution, because a larger total investment expenditure has to be backed by increases in domestic or/and outside saving, this latter including private (i.e. direct investments by Northern firms and credit flows by Northern banks) and public components, i.e. NFFs. However, as we will see, a check of facts leads to rule out the conjecture that greater redistribution was driven by policy deepening. Rather, comparing our results of Table 1 with the evolution and composition of public expenditure, we observe a moderate redistribution in the first period (1951–65), when a sustained commitment in regional policy for Southern regions took place contributing to originate a process of regional convergence, and a greater redistributive impact of public budget in the second period (1983–92), corresponding to a clear downsizing in the amount of resources devoted to regional policy.

An outlook on the amount of resources allotted to the Mezzogiorno through regional policies during the periods 1951–65 and 1983–92 is supplied by Table 3 pointing out two major facts. First, the total financial effort of regional policies in terms of share of national GDP increased until the second half of 1970s and then sharply decreased (see last column). Second, from mid-1970s on, the dynamics of the two components of public expenditure, i.e. “Public investment and business incentives” and “Payroll tax reductions”, were quite diverging with the former declining from 0.90% to 0.57% of Italian GDP and the latter

<table>
<thead>
<tr>
<th>Years</th>
<th>Public investment and business incentives</th>
<th>Payroll tax reductions</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in 2008</td>
<td>As % of Italian GDP</td>
<td>in 2008</td>
</tr>
<tr>
<td>1951-1957</td>
<td>1.519</td>
<td>0.73</td>
<td>–</td>
</tr>
<tr>
<td>1958-1965</td>
<td>2.321</td>
<td>0.74</td>
<td>–</td>
</tr>
<tr>
<td>1966-1970</td>
<td>2.329</td>
<td>0.74</td>
<td>361</td>
</tr>
<tr>
<td>1971-1975</td>
<td>5.808</td>
<td>0.9</td>
<td>1.969</td>
</tr>
<tr>
<td>1976-1980</td>
<td>7.119</td>
<td>0.9</td>
<td>3.643</td>
</tr>
<tr>
<td>1981-1986</td>
<td>5.974</td>
<td>0.65</td>
<td>5.089</td>
</tr>
<tr>
<td>1987-1993</td>
<td>6.305</td>
<td>0.57</td>
<td>6.215</td>
</tr>
</tbody>
</table>

Source: [Bianchi et al. (2012)](https://www.economics.it/). Total expenditure for the Special Aid Program in the Southern regions by Mezzogiorno National Agency plus total payments by central government for other programs. Data include expenditure for: general infrastructures, sector-specific infrastructures, support to private investment in the form of both capital and interest subsidies.
rising from 0.33% to 0.55%.

Information summarized in Table 3 testifies the implementation of sizable supply-side oriented regional and development policies during the period 1951–65. In those years, the inception of Special Aid Program (SAP) intervention for the development of Mezzogiorno explicitly aimed at pushing Southern Italy to start industrialization and reduce its gap, through public financial support to infrastructures and business subsidies. On the other hand, years 1983–92 marked an important switch in the regional policies’ regime from supply-side interventions to demand-targeted measures. That change involved a drop in total resources granted to regional policies along with a clear increase in the share assigned to payroll tax reductions, as documented by Table 3. The new policy strategy, based on the idea that endogenous development may be triggered by active participation of local agents in policy programs, aimed at supporting local demand to stimulate local supply. However, the high trade integration between North and South of Italy brought about increased imports from the North, crowded out local industrial activities, and contributed to enlarge the gap in the following decades.

The evolution of the North-South divide between 1950 and 1992 is depicted in Figure 2, representing the time path of relative Southern GDP (the national average per capita GDP is set equal to 100). The graph clearly shows that from (late) 1950s to mid-1970s, a relatively long period of substantial regional convergence took place. That was the time of the so-called Italian economic miracle: between 1951 and 1965, per capita GDP grew at yearly rates close to 5%, and even more in the Southern regions and the North-East. The convergence process was driven by a sustained accumulation process in Mezzogiorno, largely due to the location of large – often state-owned – manufacturing plants operating

\[13\text{The decreasing trend experienced by total resources allotted by regional policies to the South occurred in correspondence with the progressive decline of the activities of Cassa per il Mezzogiorno (Southern National Agency, SNA) in the 1981–86 period and the ending of extraordinary intervention in 1987–93. In 1986, Law 64 abolishes the SNA; between 1992 and 1995 (Law 488/1992, Decree 96/1993 and Law 104/1995), the SAP is abolished too and replaced by ordinary regional policies, operating for all depressed areas of the country, more consistent with the European Cohesion Policy framework.}\]
mainly in heavy industry. After the Southern relative GDP reached its maximum value in 1972–74, in the following decade a stage of stability in regional disparities occurred. Then, from mid-1980s to 1992 – the last year covered by our investigation – the North-South gap deepened again.

Figure 2: Mezzogiorno per capita GDP (Italy = 100)

If regional policies do not seem to satisfactorily explain the dynamics of interregional redistribution, an alternative interpretation is connected to the massive rise in public expenditure occurred throughout the considered span of time. This phenomenon was due to several facts (generous changes in pension plan design, for example) and primarily to a reform of local government financing system based on centralization of revenues from municipalities to the national government and the establishment of Regional Governments, involving a strong decentralization of expenditure (in particular health and transportation expenditures).\textsuperscript{14} As a consequence, the public expenditure to GDP ratio, which was around 25% in 1950, 30% in 1960, and 33% in 1970, jumped to 41% in 1980, up to 56%\textsuperscript{14}

\textsuperscript{14}A wide literature (Weingast et al., 1981; Persson and Tabellini, 2000; Velasco, 2000; Pisauro, G., 2001; Rodden et al., 2003; Rodden, 2006) has proved that the blend of decentralized expenditure decisions and a centralized financing might be highly detrimental for fiscal discipline. In particular, the well known common-pool argument points out that in this case the budget constraint is softened and regional governments are induced to overspend (specifically on the Italian case, see Bordignon, 2000; Giarda, 2011; Padovano, 2012; Buiatti et al., 2014).
Furthermore, the weight of local administrations’ expenditure remarkably increased: according to Giarda (2011), from 19% of total expenditure (1951) to 29% (1980). Importantly, the institutional break connected to the creation of Regional Governments triggered in each region a rise of public expenditure approximately proportional to regional population, while revenues were collected by central government in accordance with regional income. In this way, the new setting of local finance significantly favored the escalation of differences in regional NFFs (see Figure 1), i.e. of interregional redistribution.

In addition, in 1983–92 the new policy stance made interregional redistribution to operate mainly through current expenditure, as shown by the evidence summarized in Table 1 (lower panel). This is mirrored in the trend of the capital component of public expenditure which displays a strong decrease as a share of total public expenditure. On this point, Italy’s Ministry of Economy and Finance (2011) reports that between 1950 and 1995 the capital public expenditure dramatically decreases from 47% (1950) of total expenditure (net of interests and debt reimbursements) to 39% (1960), 19% (1970), and 11% (1995). Since capital expenditure is the component of public outlays most relevant to development and regional policies, its reduction over time further demonstrates that in 1983-92 interregional redistribution was very little functional to the purpose of territorial rebalancing.

Summarizing, redistributive transfers are not necessarily functional to promote growth and territorial rebalancing but may end to merely serve the purpose of financing higher consumption in destination regions. This seems to have happened in our case: public policies at work in the 1980s deployed larger resources but were less effective in reducing the North-South development gap. They operated a kind of redistribution that may be defined as a “low-quality” one, as compared to the one prevailed in the 1950s–1960s.

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15Other sources deliver consistent information: Giarda (2011) estimates that primary expenditure was 22.5% of GDP in 1951, 27.6% in 1960, 31.8% in 1970, 36.9% in 1980, 43.2% in 1990. According to ISTAT (2010), primary government expenditure increased from 37% to 44% of GDP between 1980 and 1993.
6 Concluding remarks

The aim of this paper was to investigate the role of public policies in Italy over a long time horizon, by providing an assessment of both the redistribution and the risk sharing functions of interregional NFFs. Although based on Italian data relative to specific time periods, we believe that the evidence provided in this paper allows to “learn from the past” and draw more general conclusions: when assessing the regional risk sharing and redistributive power of national fiscal policies, one should carefully take into account many different factors related to the existing policy regime, the main being the composition of public spending (public current expenditure vs public investment). In detail, our main contributions can be summarized as follows.

First, we fill a relevant gap in the literature on the Italian case: the lack of quantitative evidence for the 1950s and the 1960s, when the SAP for the development of the Mezzogiorno supported a sustained process of regional convergence. By doing so, we significantly enrich available evidence, so far limited to the 1980s onwards, that is to years of regional divergence. Second, we overcome possible statistical bias and inefficiency in estimations of previous evidence available for the 1980s by employing more suitable estimation techniques properly accounting for heteroscedasticity and residuals’ autocorrelation. Third, and more importantly, we adopt a comparative approach contrasting results obtained for two periods (1951–65 and 1983–92), characterized by strong differences with respect to the degree of regional convergence, the composition of public spending, and the design of regional policies. This allows us to argue that redistribution operated by the public sector in the 1980s was larger than 1951–65, but it actually financed higher consumption rather than development of lagging regions.

According to our results, in the 1980s interregional redistribution occurred almost exclusively through current expenditure, mainly serving the purpose of consumption rebalancing, with little room for investment financing. Two main issues emerge from the comparison of these results with those obtained for the previous period. First, a clear increase seems to occur in the size of interregional redistribution: from 10%-18% in the 1950s and
1960s to 19%-30% in the 1980s. Second, the importance of current expenditure seems to strongly increase moving to 1983–92 while, in 1951–65, capital expenditure is responsible for a higher proportion of interregional redistribution.

As far as risk sharing is concerned, the role of fiscal policy in smoothing out idiosyncratic risks is noteworthy. However, in 1983–92 the capital component of public expenditure seems to play a perverse role, by amplifying rather than mitigating the effects of shocks (i.e. public investments tends to go to regions benefited from positive rather than hit by negative shocks). When the focus moves to 1951–65, three points are remarkable: i) the fiscal policy performs its risk sharing function to a limited extent; ii) public current expenditure has an impact on risk sharing smaller than total primary expenditure, i.e. even risk sharing is carried out mainly through public investments; iii) current expenditure has a larger impact on risk sharing than on long-run redistribution, which is mainly operated through capital expenditure, i.e. through policies aimed at strengthening the productive capacity of lagging regions.

References


