



## Italy : escaping the high debt and low-growth trap

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# ITALY: ESCAPING THE HIGH-DEBT AND LOW-GROWTH TRAP

Céline Antonin, Mattia Guerini, Mauro Napoletano,  
Francesco Vona

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## ABSTRACT

With its public debt amounting to 132.1% of GDP and its negative productivity growth over the last twenty years, Italy appears to be the sick man of the European Union. In this Policy brief, we focus on its two main plights: high public debt burden on the one hand, sluggish GDP and productivity growth on the other hand. Both issues are intimately related: a slow growth limits the budgetary margins and casts doubts on public debt sustainability; the reduced fiscal space in turn weighs on growth and public investment.

The first part is dedicated to describing the history and causes of Italian public debt. A first phase, from the 1960s to the 1980s, was characterized by a positive but moderate growth of debt. A second phase saw the explosion of public debt, from 54% of GDP in 1980 to roughly 117% in 1994. The budget law of the Amato's government in 1992 initiated a third phase, marked by a significant fiscal consolidation effort, and the decrease of the public debt to GDP ratio. The Great Recession interrupted this consolidation era and a last phase began from 2008 on, when the public debt-to-GDP ratio consequently increased. In the second part, we review some of the structural weaknesses of the Italian economy. We notably emphasize the specialization bias towards low tech sectors, the “nanism” of Italian firms, the misallocation of talents and resources, the North-South divide and its related labor market consequences.

We conclude with four policy recommendations for a revival of growth in Italy. Our first proposal is technical and proposes a new European fiscal golden rule which would remove specific public investments from the computation of structural primary balance. Our second and third proposals are related to the regulation of the labor market, with the introduction of a minimum wage on the one hand, and the facilitation of retraining policies on the other hand. Last, we call for a revival of industrial policies in order to foster knowledge accumulation and firm learning. Our view is that Italy's fate is inextricably related to Europe's and that Italy needs more rather than less Europe.

## KEY WORDS

Italy; growth; productivity, public debt

## JEL

E60, E61, O40



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## Introduction

Characterized by a negative productivity growth over the last twenty years, Italy brings up the rear of growth in the European Union. In addition, Italy's public sector ranks as one of the most indebted in the world, with a debt amounting to 132.1% of GDP in 2018. The country which, after the second world war, became the symbol of the “economic miracle”—a period of unprecedented economic and employment growth, high productivity and real income increases—does not seem to find the way out of its doldrums. Today, the world tenth economic power conveys the image of a clay-footed colossus, prisoner of a low growth trap, a high debt burden and structural weaknesses that the Great Recession of 2008 have exacerbated further. In this Policy brief, we focus on the two main plights of Italy: high public debt burden on the one hand, sluggish GDP and productivity growth on the other hand. Both issues are intimately intertwined: the absence of growth increases the debt burden; the reduced fiscal space in turn weighs on growth and public investment, depriving the economy of one of its engines.

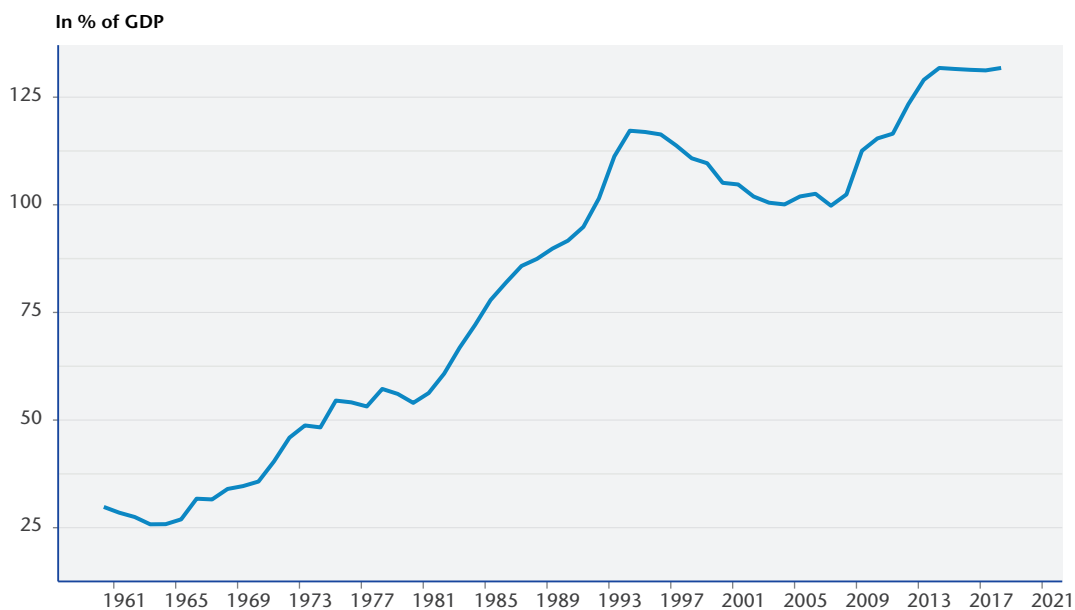
Our first goal is to retrace the history of the Italian public debt problem. We identify the origins of Italy's sizeable government debt, and we shed some light on the drivers affecting its evolution. We show that this evolution can be decomposed into four distinct phases. In the last phase, we document how a badly-timed fiscal consolidation policies contributed to both limiting GDP growth and raising public debt. Yet, the origins of the Italian economic decline are much more ancient. In the second part, we review some of the structural weaknesses of the Italian economy, notably a specialization bias towards low tech sectors, the “nanism” of Italian firms, the misallocation of talents and resources, the North-South divide and its related labor market issues.

We conclude the Policy brief with four policy recommendations which could help reigniting economic growth in Italy. Our suggestions include a technical proposal—creating a new European fiscal golden rule which would remove specific public investments from the computation of structural primary balance—as well as proposals to tackle labor market issues, with the introduction of a minimum wage and the facilitation of retraining policies. We also advocate a revival of industrial policies that should nurture knowledge accumulation and firm learning. Last, we consider that Italy's fate is inextricably related to Europe's and that Italy needs more rather than less Europe. Therefore, the country must play its part to the full in order to help reshaping Europe.

## At the roots of the explosion of public debt in Italy

Italy's public sector ranks as one of the most indebted in the world, with a debt amounting to 132.1 % of GDP in 2018. Discussions about Italy's public debt issue, and its potential disruptive consequences for the stability of the European Union, have for a long time occupied a central place in political and economic arenas. This Policy brief provides a short historical description of the Italian public debt problem. The goal is to identify the origins of Italy's sizeable government debt, and to shed some light on the drivers affecting its evolution.

Figure 1. Evolution of the Government Debt to GDP ratio



Source: AMECO database.

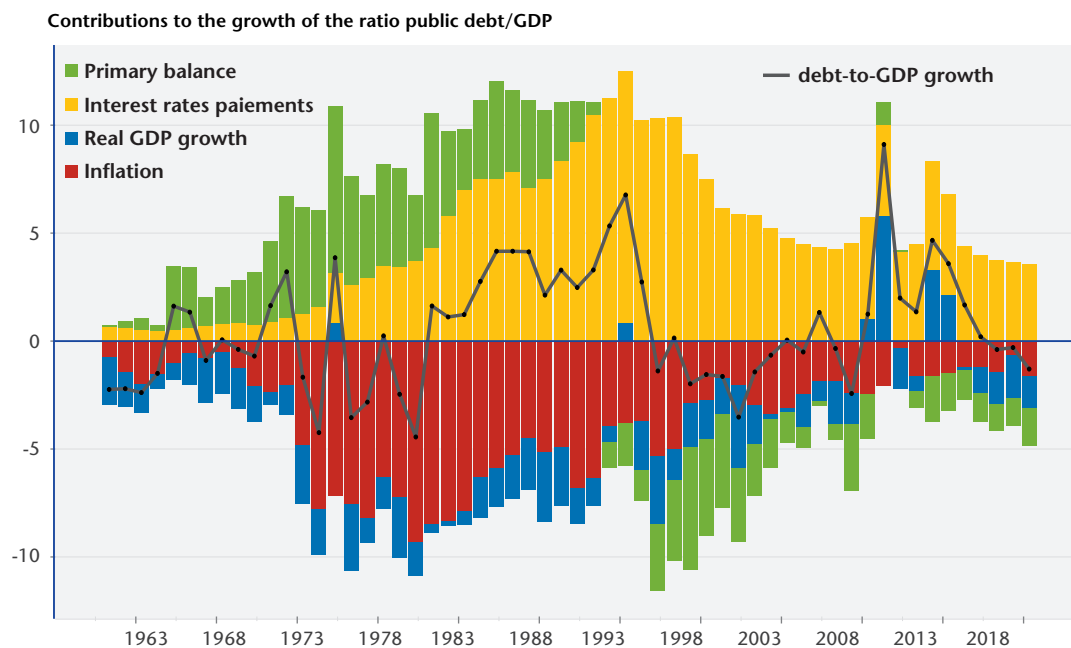
Figure 1 plots the historical time-series of the government debt-to-GDP ratio in Italy starting in the 1960s. We clearly identify four distinct phases in the history of Italian public debt. A first phase, between the early 1960s and 1980, was characterized by a positive but moderate growth of debt. A second phase, unfolding through the 1980s and until 1992, saw the explosion of public debt, from 54% of GDP in 1980 to roughly 117 % in 1994. The third phase, which began with the budget law of the Amato's government in 1992, coincides with a significant fiscal consolidation effort, and the public debt to GDP ratio eventually decreasing below 100% in 2007. The stabilization effort was however interrupted by the Great Recession and by its effects on public finances in the European Union. In the fourth phase, from 2008 on, the public debt-to-GDP ratio consequently increased, reaching the current level of 132.1% in 2018.

Figure 2 shows how the different drivers of public debt and GDP (government primary deficit, interest expenditure as a fraction of nominal GDP, real GDP growth and inflation) contributed to the growth of the public debt-to-GDP ratio.<sup>1</sup> The chart indicates that the seeds of the rapid growth of the Italian government debt observed during the 1980s must first be found in the



high and persistent primary deficits that were accumulated by Italian governments since the mid-1970s, and that contributed significantly to debt growth in spite of a high real GDP growth, positive inflation and low interest rates favored by the monetary financing of public debt.

Figure 2. The drivers of Italian public debt growth



Note: The black line tracks the debt-to-GDP growth.  
Source: AMECO and OECD Economic outlook databases.

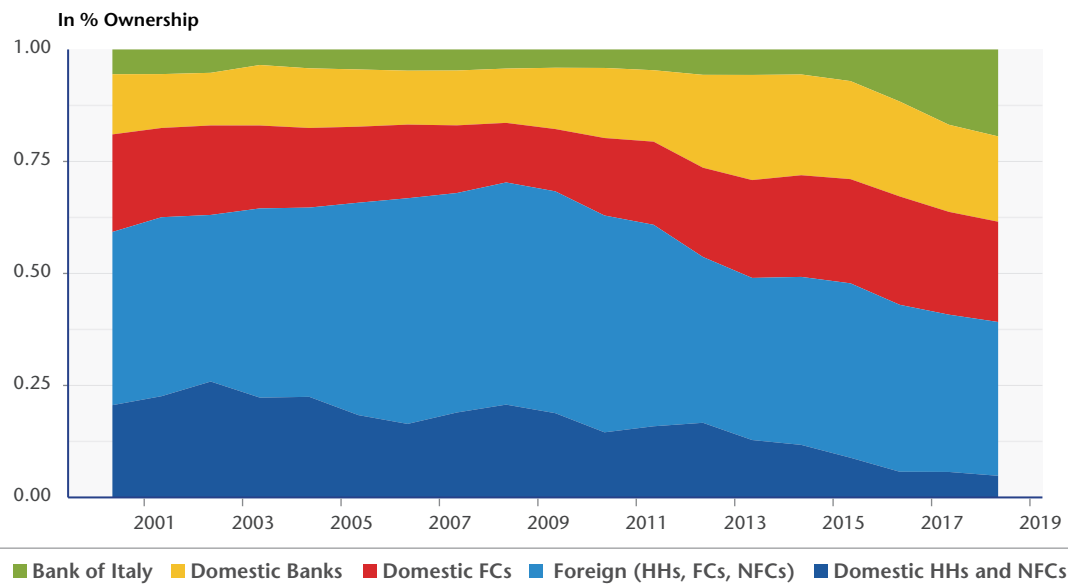
As it has been noted elsewhere (see Rossi, 2007 and Spaventa, 2013 among others) this fiscal profligacy stemmed from the inability of Italian governments to finance the increase in welfare state related government expenditures with a stable increase in tax revenues.<sup>2</sup> The fragile fiscal stance of the 1970s and 1980s alone would however not solely explain the explosion in public debt. A second, and equally important contribution, came from the robust rise in interest payments. The latter stemmed from two factors. First, after reaching a peak in 1976, with monetization accounting for 55 % of the borrowing requirements, the practice of monetary financing of debt began to decrease, following the so-called “divorce” between the Bank of Italy and the Ministry of Treasury in 1981. Second, in the framework of the European Monetary System (EMS), fixed exchange rates were implemented.<sup>3</sup> These policy choices aimed at disinflating the Italian economy and at pushing forward the European economic integration process. Yet they also resulted in a significant and prolonged increase in the real interest rate on public debt in Italy, starting from the 1980s.

1. Appendix A gives more information about the calculation of the different contributions and the time-series used.
2. Italian public spending rose from 30.4% of GDP in 1970 to 42.7 % of GDP in 1990.
3. This imposed a significant external constraint on Bank of Italy’s interest rate policy. In particular, the bank was forced to increase interest rates to dampen excessive devaluation pressures on the Italian lira (which were frequent in that period, especially at the end of the 1980s and at the beginning of the 1990s).

### Box 1. Who owns Italian government bonds?

At the end of 2018, most Italian government bonds were held domestically (67%). This is obtained by summing up the shares of, respectively, households and non-financial firms (5%), domestic banks (20%), other domestic non-bank financial firms (22%) and the Bank of Italy (20%). The latter increased its share of public bonds in the framework of the Quantitative Easing (QE) programs of the ECB (Figure Box 1). The remaining 33% share is held by non-residents (both financial and non-financial). The figure also shows how the government bonds holding structure evolved during the last 18 years. The share held by domestic households and non-financial firms underwent a slow but steady decline from an initial value of 20 % at the beginning of 2001. The bond share of foreigners followed a slightly different pattern. It first increased up to reach a peak of 50 % in the first half of 2010, before more than halving in the following years, as a consequence of the turmoil related to the sovereign debt crisis in Europe. It turns out that domestic households and non-financial firms at the beginning of 2000s were progressively replaced by domestic financial institutions and—even more so—by the Bank of Italy.

Figure Box1. Italian outstanding government bond holdings



Source: Bank of Italy.

On the one hand, a large domestically-owned share of government bonds represents a source of stability. Domestic investors are less likely to divest during an economic downturn. On the other hand, a large bond share held by domestic financial institutions, and banks in particular, implies a high interdependence between the domestic financial system and public debt, with possible negative effects on credit supply and on real economy in case of rising bond yields. Many efforts have been made at the European level since the 2008 crisis to curb the link between the banking and the government sector, notably by establishing the Banking union. Still, large increases in bond yields could trigger a credit crunch and a self-reinforcing vicious spiral if banks are overloaded with sovereign debt of their home country. Another problem lays in the sizeable portion of debt (20%) now held by the Bank of Italy, which should be redeployed on the market at the end of the QE, with uncertain consequences on yields. In light of these issues, policies increasing the share of debt held by domestic households (like in Japan) could be helpful in reducing the impact of fluctuations of government yields on credit supply.

The 1992 budget law by the Amato government marked a turning point in the history of Italian fiscal policy, and the beginning of a fiscal consolidation phase that lasted for more than a decade. Table 1 compares the structural primary balances of governments in the Euro 12 from 1995 to 2018; it gives an idea of the consolidation efforts made by the Italian governments during the 1990s as well as during the first decades of the 21<sup>st</sup> century. The structural budget balance is indeed the primary balance, corrected for the effect of the business cycle on tax revenues and government expenditures. It thus provides a concise measure of fiscal consolidation (or its lack thereof). On average, Italian governments persistently scored sizeable structural primary surpluses during the entire period considered. In addition, these surpluses were always much higher than the average in the Euro 12.

**Table 1. Average net lending (+) or net borrowing (-) excluding interests of general government adjusted for the cyclical component**

In % of GDP	1995-1999	2000-2004	2005-2009	2010-2014	2015-2018
<b>Austria</b>	0.230	1.147	-0.266	0.306	1.523
<b>Belgium</b>	5.783	5.458	1.663	0.014	1.193
<b>Finland</b>	3.196	5.610	2.500	-0.324	0.633
<b>France</b>	0.694	-0.226	-1.664	-2.150	-0.880
<b>Germany</b>	-0.533	0.026	0.984	1.494	2.124
<b>Greece</b>	2.454	-0.898	-7.976	-2.200	4.001
<b>Ireland</b>	4.849	0.936	-3.853	-3.931	-1.498
<b>Italy</b>	<b>5.168</b>	<b>2.006</b>	<b>0.321</b>	<b>2.081</b>	<b>1.987</b>
<b>Luxembourg</b>	4.364	2.375	1.453	1.824	1.618
<b>Netherlands</b>	2.051	0.884	0.145	-1.186	1.648
<b>Portugal</b>	0.242	-2.124	-3.226	-1.955	1.972
<b>Spain</b>	1.245	1.830	-2.489	-4.104	-0.739
<b>Euro 12</b>	2.479	1.419	-1.034	-0.844	1.132

Note: Adjustments based on trend GDP.

Source: AMECO database. Authors' calculations.

The main result of this fiscal consolidation was the reduction of the public debt-to-GDP ratio from a 117% peak (reached in 1997) to a value below 100% in 2007 (*cf.* Figure 1). Nevertheless, given the high level of outstanding debt at the beginning of the 1990s, such a reduction would have been impossible without the significant decrease in real interest rates on debt, which was observed starting from 1993 (see Figure 2). This steady trend was the outcome of the interest rates convergence triggered by the process that ultimately led to the introduction of the euro, and it is undoubtedly one of the greatest benefits that Italy has gained from the introduction of the common currency.

The fiscal consolidation efforts in the 1990s and the early 2000s were completely wiped out by the 2008 Great Recession and the consequent sovereign debt crisis in Europe. The Italian public debt-to-GDP ratio rose sharply in few years from roughly 100 % in 2007 to 131 % in 2014, and

it has been fluctuating around that value since then. It is worth noticing that: (i) this upsurge of 31 percentage points in public debt occurred in half of the time that it took to reduce the same ratio by 20 percentage points (see *supra*); (ii) the increase in the debt-to-GDP ratio occurred despite the significant structural primary fiscal surpluses accumulated by the Italian governments (see the last two columns of Table 1). The main causes of this debt resurgence were the rise in real interest rate on debt, observed during the 2008-2012 period as a consequence of the sovereign debt crisis (see Figure 2), and the low GDP growth rates (negative real GDP growth gave a positive contribution to debt growth during that period). The formula calculating the evolution of the debt-to-GDP ratio (see Appendix) helps understanding why a small increase in the average real interest rate or a small reduction in nominal GDP growth bring about rapid increases in the debt-to-GDP ratio. An increase in primary deficit-to-GDP (e.g. a 1-point increase) contributes to accelerating the growth of the debt-to-GDP ratio by the same order of magnitude as the increase itself (thus 1 point). The contributions of either a 1-point increase in the average interest rate or a 1-point reduction in nominal GDP growth are instead proportional to the size of the current debt-to-GDP ratio (and thus higher than one if the ratio is higher than 100%). Hence, in presence of an already high public debt-to-GDP ratio, even small increases in either the average real interest rates on debt or small reductions in the real GDP growth are able to water down any austerity efforts made by governments (even significant ones).

In a period of structural primary surpluses, low inflation and with central bank interest rates already close to the zero lower bound, the only way to reduce Italian public debt is an increase in real GDP growth. Unfortunately, as the black line in Figure 3 shows, the real growth of Italian GDP has been weak since the 2000s and even negative in 2008-09 and 2012-13, positively contributing to the growth of debt. Figure 4 also sheds light on the sources of growth by displaying the contributions of the different aggregate demand components to real GDP growth since 1996. One first important feature is that the positive (modest) contributions of aggregate demand to Italian growth, both before and after the strains of the Great Recession, mainly came from domestic components like private consumption and investment. In contrast, the positive contribution of exports was almost always compensated by the negative contribution of imports.<sup>4</sup>

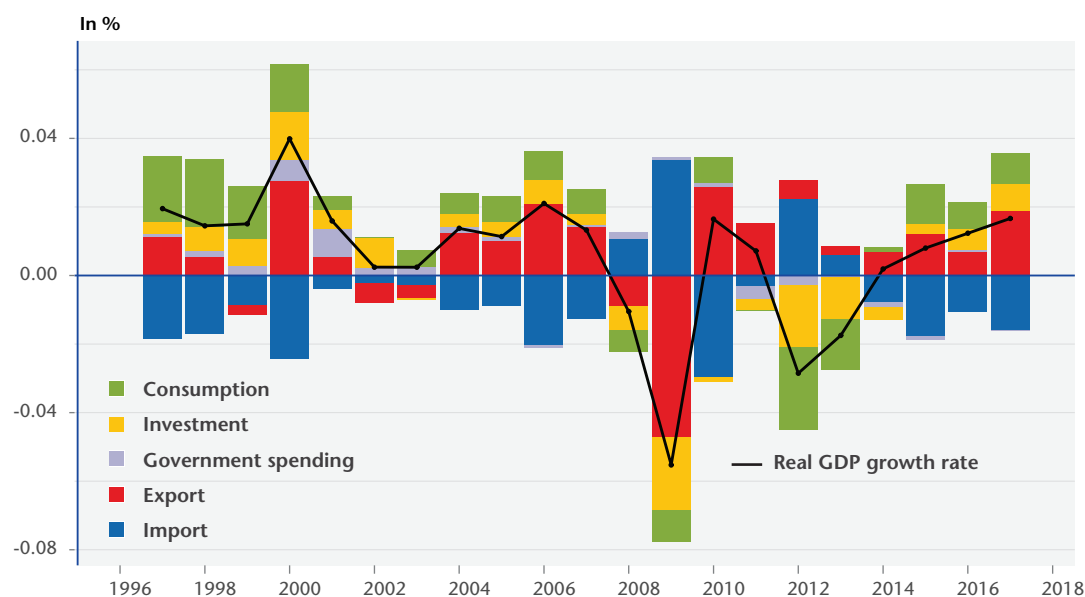
A second feature is that the contributions of domestic demand to GDP growth until 2008 mainly came from private consumption and only moderately from the positive dynamics of investment. Yet these dynamics dramatically reverted in 2008, and the significant negative contributions of investment and consumption largely explain the double-dip recession that Italy experienced from 2008 to 2014.

A final important fact documented by Figure 4 is the near-zero contribution of government consumption to aggregate demand since 2008. Clearly, this is the outcome of a combination

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4. Hence, Italy was unable to grow *via* external demand in the period considered, despite the market integration opportunities offered by the introduction of the euro in 2000. This reveals a structural weakness of the Italian productive system, which has lost international market shares since the Great Recession of 2008 (a theme we discuss in more detail *infra*).

Figure 3. Contributions of aggregate demand components to real GDP growth, 1996-2017



Source: FRED database.

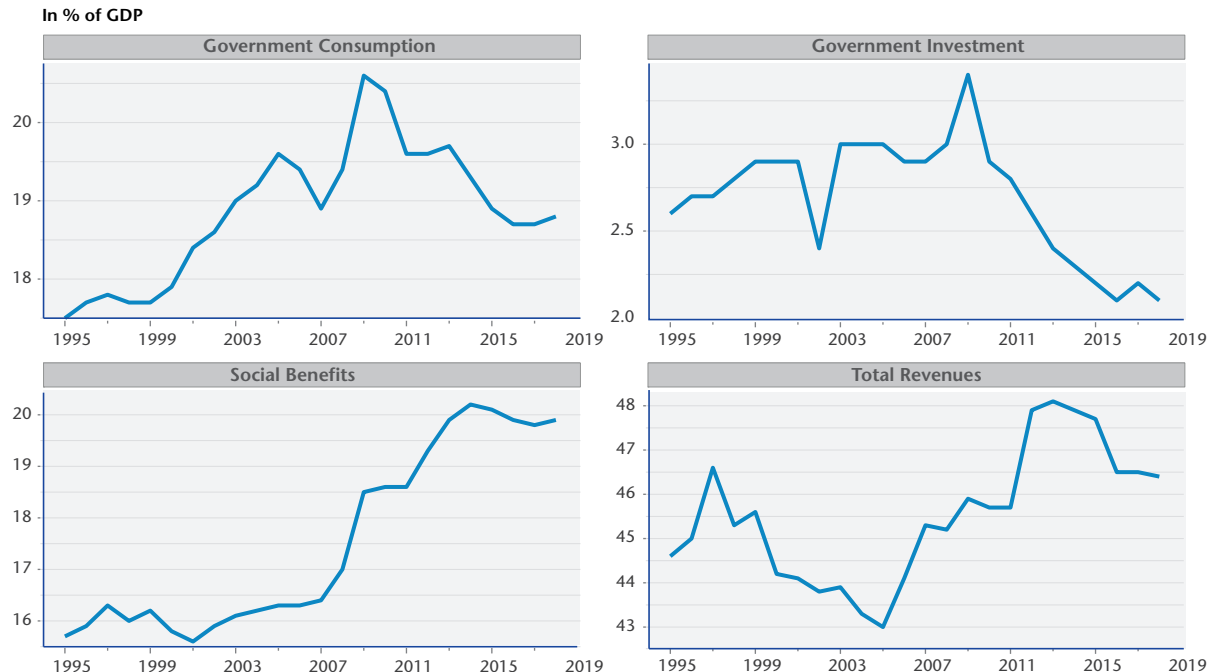
between the already high debt-to-GDP ratio and the austerity efforts imposed by fiscal rules in the European Union. However, fiscal austerity did not have an impact solely on government consumption. Government investment also plummeted more than GDP since 2009 (Figure 4). Interestingly, the figure shows how that reduction was partly justified, in a regime of heavy constraints imposed on fiscal policy, in order to have more room to finance the increase in social benefits expenditure over GDP—due to the increase in unemployment benefits—from 2008 on.<sup>5</sup> Finally, a further negative stimulus to aggregate demand came from the tax burden, that significantly increased over GDP between 2005 and 2013.

Hence, the fiscal austerity aggravated the fall in aggregate private demand by implying a reduction in government consumption and investment and a significant increase in the fiscal pressure in the period between 2009 and 2013. Sampognaro (2018) estimates that Italian consolidation efforts made from 2008 to 2017 reduced Italian GDP by 4 points, among which 3.5 points were related to national consolidation and 0.5 point was due to the fiscal consolidation of trade partners. In addition, austerity was *self-defeating* as it produced a rise in the ratio of public debt-to-GDP that dismantled the consolidation efforts of the 10 years before.

One explanation for the EU myopia as regards the adverse impact of fiscal consolidation is the systematic undervaluation of fiscal multipliers, i.e. the impact of fiscal policy on GDP growth, in crisis times (Blanchard and Leigh, 2013). Most theoretical and empirical arguments bring support to the claim that the size of fiscal multipliers depends on several factors: the institutional

5. Another important item that we do not show here is the compensation of employees, which remained stable in relationship to GDP on the entire 1995-2017 period.

Figure 4. Evolution of government expenditure components and total tax revenues in relation to nominal GDP, 1995-2018



Source: Eurostat data.

context, product market competition, the degree of openness, the degree of financial constraints. Yet, fiscal multipliers also depend on the cyclical phase of the economy and they are in particular higher during recessions than expansions. (e.g. Creel *et al.*, 2011, Auerbach and Gorodnichenko, 2012). Italy experienced a considerable recession in 2008; De Nardis and Pappalardo (2018) show that the size of multipliers in the crisis period (2008-2014) was larger than in the pre-crisis period (1970-2007), both on the expenditure and the revenue sides. Several papers (for instance Creel *et al.*, 2011; Coenen *et al.*, 2012; Ferraresi *et al.*, 2015; De Nardis and Pappalardo, 2018) also show that expenditure multipliers—related to public consumption and investment—are significantly larger than multipliers in downturns;<sup>6</sup> and it was precisely government expenditure which underwent the biggest adjustment in Italy (Figure 5).

## Italy's chronic low-growth problem and its drivers

It would however be incomplete to attribute low growth in Italy only to a badly-timed austerity, one that in particular did not take into account the cyclical situation of the economy. Indeed, GDP growth in Italy has been significantly lower than in other countries for many years, notably before the Great Recession.

6. See Heyer (2012).

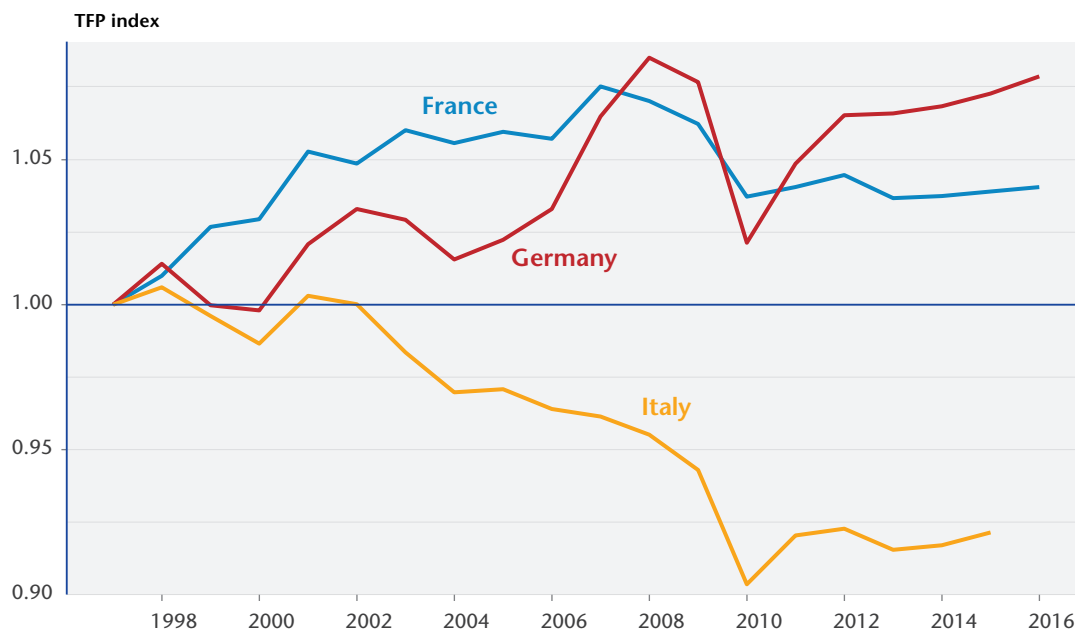
Table 1. Average real GDP annual growth rates

In %	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010-2014
Germany	3.692	3.177	1.807	2.894	1.493	2.604
France	4.992	4.000	1.141	2.364	1.461	1.952
Italy	4.814	5.063	1.810	2.496	0.881	0.642

Source: University of Groeningen Penn World Table dataset.

As Table 2 reveals, average real GDP growth rates in Italy began to decelerate already in the 1980s (i.e. in correspondence with the explosion of the public debt, see *supra*). Nevertheless, in those days, average growth rates were still comparable to Germany's and France's. The growth trajectories of Italy and its neighbors instead became divergent in the 2000s. Italy's average real growth has indeed been below 1% since 2000 and far below Germany's and France's.

Figure 5. Comparison of Total Factor Productivity (TFP) dynamics



Source: EU-KLEMS data.

Another signal about the Italian growth decline can be grasped by looking at the evolution of productivity, which is a simple indicator of a country's structural performance, one that in particular captures the efficiency by which inputs are used to generate output. Figure 5 reveals how Italian total factor productivity (TFP) experienced a cumulative decline of 7.9% over the last 20 years.<sup>7</sup> This contrasts with the efficiency gains experienced by France and Germany, where productivity increased by 4.1% and 7.9% respectively.

7. A more extensive sectoral comparison between Italy and EU economies is presented in Guerini *et al.* (2018).

The above-documented Italian decline is the result of country's specific structural factors hindering its growth potential. Some of them, like the dualism between the North and the South, have plagued the country almost since its foundation. Others, like the small size of firms and the excessive specialization in low tech sectors play a key role in explaining the weak investment and export dynamics that we mentioned above. We discuss each of these factors in more detail below.

### *Specialization bias towards low-tech sectors*

Italian industrial specialization has historically been concentrated in low-tech sectors wherein the competition of low-wage countries, such as China, became particularly stronger in the 2000's. A study by Bugamelli *et al.* (2012) shows that the Italian industrial structure is indeed unbalanced towards traditional and low-value added sectors. These sectors also have little technological content as well as a low demand for innovative technologies. This limits the extent to which newly created knowledge can be applied, e.g. through downstream and upstream linkages, to other high-value added uses (renewable energy machineries, robotics, bio- and nano-technologies, ...). For instance, the broad textile sector (including clothing, leather and shoe sectors) accounts for around 14 % of total manufacturing value added in Italy whereas it only accounts for 5% in France and 3% in Germany. On the contrary, the sectors more prone to innovate (e.g. ICT, radio-television machineries, chemicals and pharmaceuticals) account for around 16% of manufacturing value added in Italy, while they represent 20% and 21% in France and Germany respectively.

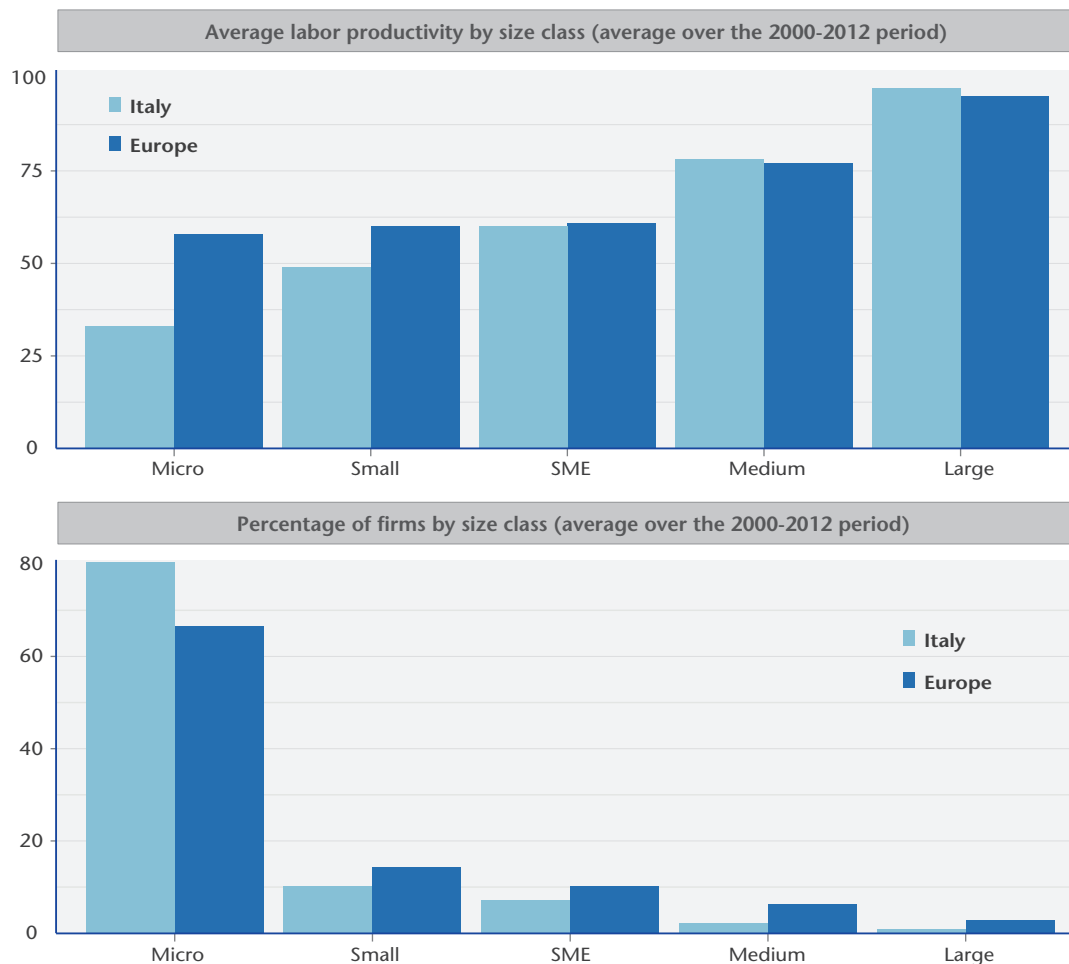
### *The “nanism” of Italian firms*

Italian firms are too small on average to compete in international markets and to trigger a virtuous circle of productivity and employment growth. The small-size bias of Italian manufacturing companies compared to EU competitors is well-illustrated by Figure 6, reproduced from a recent work by Berlingieri *et al.* (2018). What clearly emerges is that the share of micro-firms (below 9 employees) is much larger in Italy than in other European countries (bottom panel). In addition, small and medium Italian firms are much less productive than their European counterparts (top panel). The productivity gap disappears only for large enterprises. The net effect on aggregate productivity depends therefore upon the relative balance between small and large firms. Since the medium and large firms in Italy represent less than 3% of all the population and the micro and small firms account for around 90% of the whole population, the aggregate effect is a lower productivity with respect to the EU partners.

Three possible explanations may account for the nanism of Italian firms and their low productivity. First, “historical accidents” played a key role. One example is the dismantlement of the oligopolistic core in the 1990s, also as a consequence of privatization programs (Dosi and Guarascio, 2016). Another one is the historically persistent specialization in small-scale artisanal productions (De Cecco, 2008). Second, a recent empirical work by Dosi *et al.* (2012) suggests the co-existence of a group of dynamic firms with a generally bigger ensemble of much less technologically advanced and small firms. The latter firms nonetheless survive quite comfortably, due to the exploitation of local markets niches. However, the small size of these



Figure 6. Per capita value added in the manufacturing sector, per macro-region



Source: Authors' elaboration from Berlingeri *et al.* (2019).

niches is unlikely to trigger significant firm learning and technological spillovers, thus amplifying the technological gap of Italian manufacturing with respect to other European countries. Finally, a third important explanation is credit constraints, which are on average stronger for small firms (see Bottazzi *et al.*, 2014), therefore limiting their growth possibilities.

### *Talents' and resources' misallocation*

Italy is characterized by a chronic problem of misallocation and underutilization of talents. This is evident from several well-known indicators, revealing extremely high levels of corruption (Transparency International, 2018), incidence of tax evasion (Buehn and Schneider, 2012) and of shadow economy (Medina and Schneider, 2018) compared to similar countries in Europe.<sup>8</sup>

8. <https://www.transparency.org/cpi2018>.

Distortions in the allocation of opportunities are exemplified by the high social immobility in Italy compared to other EU countries (see Franzini *et al.* 2014).<sup>9</sup> Raitano and Vona (2015) show that this high social immobility is mainly explained by non-meritocratic channels such as nepotism, political patronage and family labor market networks. The resulting perception of injustice has led a large number of Italian graduates to migrate in other countries where non-meritocratic mechanisms are weaker (Güell *et al.*, 2018). Moreover, the prevalence of these channels in the Italian labor market undermines the incentives to invest in human capital, therefore creating a persistent under-supply of skills needed to increase specialization in high-tech sectors (Bartelsman *et al.*, 2015). Another aspect of misallocation is the historical propensity of Italian entrepreneurs to privilege financial over real investments. De Cecco (2008) argues that the origin of this can be traced back to 17th century, when Tuscany lost its lead as the European financial center and thus the financial sector remained oversized compared to the real economy. Furthermore, Crainz (2003) documents how, following the nationalization of the Italian electricity sector in 1962, the former owners of electricity companies chose to invest their receipts abroad or in financial assets rather than in expanding the productive capacity of domestic firms.

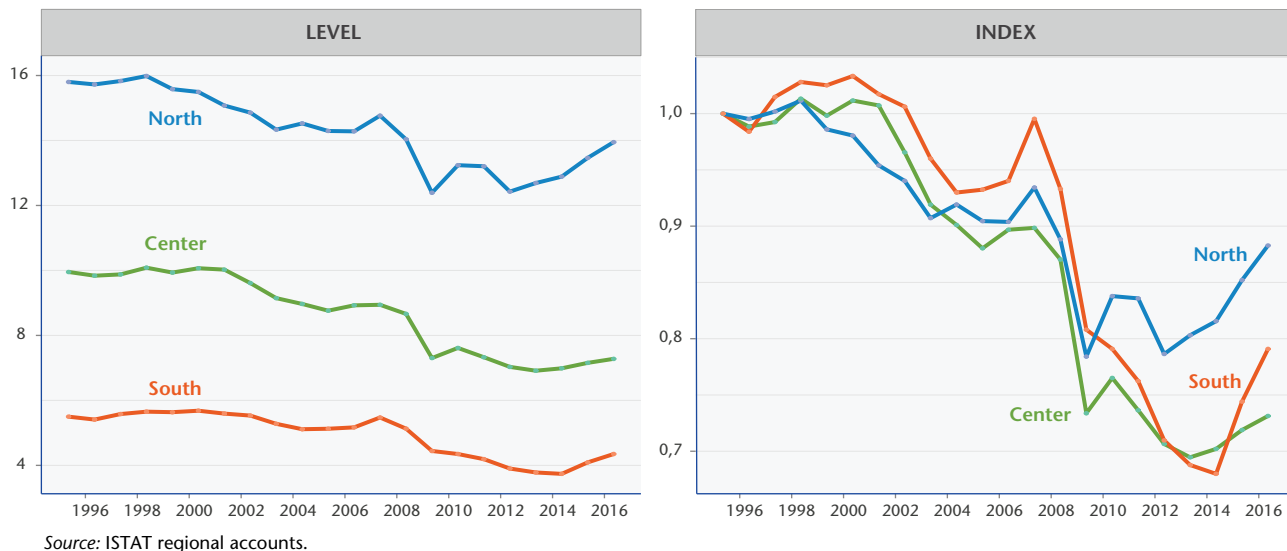
### *The North vs. South divide*

The above-mentioned factors hindering Italy's growth potential are stronger in Southern regions than in Northern ones. In addition, the North vs. South divide, which has characterized the country almost since its foundation has become more pronounced in the aftermath of the Great Recession. Figure 7 gives an idea of the increased North-South divergence in response to the crisis. In the 1995-2016 period, the value added per worker (a proxy for labor productivity) in manufacturing fell by more than 20 % in the South, and only by 11 % in the North. This result is even more striking if one considers that the initial level of productivity was already approximately three times higher in the North (15 802 euros in 1995) than in the South (5 499 euros in 1995). The investments per worker after 2008 have also collapsed much more in the South than in the North. And with respect to the 1995 levels, the overall effect has been a 16 % increase in the North and a zero gain in the South.<sup>10</sup> Not surprisingly, the differential resilience to the crisis of Northern and Southern regions mapped into a wider and persistent gap in several labor market outcomes. For instance, the North-South gap in unemployment rates increased by 25 % after the Great Recession. Such a gap is even larger among those younger than 24 years. Finally, we also observe a substantial worsening of the historical North-South gap in the incidence of irregular labor and in labor force participation (see figure A1 in the appendix).

9. Italy is also an outlier in the so called "Great Gatsby curve" (see Krueger, 2012) which shows the positive correlation between the cross-sectional and the intergenerational inequalities.

10. Martucci (2016) shows that also public investments dynamics in infrastructures diverged between North and South of Italy. Since the 1990s, public investment has been falling in the South and rising in the North, further amplifying the Italian dualism (see also the SVIMEZ 2014 report at <https://www.svimez.info>).

Figure 7. Per capita value added and gross fixed capital formation in the total economy



The ISTAT data also documents an increase in the North-South real wage gap (a 30 % increase in the North, and a 5 % decline in the South over 1995-2016). However, the comparison of real wage levels using a national deflator might be misleading as living costs are significantly different across Italian regions. A recent work by Boeri *et al.* (2019) corrects for this bias and shows that real wages are lower in the North than in the South. This would indicate the absence of relationship between wages and productivity (high in the North and lower in the South), that can be related to the centralized system of collective bargaining and the lack of diffusion of the two-tier wage negotiation system, mostly occurring at the local and firm levels. Boeri *et al.* (2019) show that a decentralization of the bargaining system similar to the German one would instead give a big boost to investment and employment in the South. However, such a result rests on the strong assumption that real wages are at the market clearing level in the North. As a result, this proposal is tantamount to cutting wages in the South. Such a cut, combined with the tight constraints already existing on Italy's fiscal policy, could exacerbate the effects on growth and public debt of adverse macroeconomic shocks (like the one of the Great Recession discussed above). More generally, it is difficult to believe that wage cuts would be enough to incentivize investment in the South of Italy, whose economy seem to be stuck in a low-employment, low-productivity trap, mostly due to the strong incidence of factors like the talents' misallocation discussed above and to the complete absence of complementary production factors that makes investment worth (e.g. physical and infrastructural capital, technical skills and firm capabilities).

## Policy recommendations to reignite economic growth in Italy

Escaping the high-debt low-growth trap is no easy task. The variety and the persistence of factors which are responsible for the Italian decline make it difficult to believe in recipes that address only some aspects of the problem. The recent political economy debate in Italy is characterized by a sharp division between two factions: those who attribute the causes of Italian economic decline to the straitjackets imposed by the European fiscal rules and by the common monetary policy, and those instead who stress the positive aspects of fiscal consolidations and point to the excessive rigidities of labor and product markets as the main cause of the country's low growth.

We think that such a polarized debate is not very fruitful. Indeed, this polarization originates from considering demand and structural factors as completely separated, which is, in our view, misleading. It is clear that Italy's low growth problem began much before the introduction of the common currency (see also Manasse *et al.*, 2014 and the discussion *supra*). At the same time, it is clear that some of the problems, like the regional dualism, are too profound to be solved solely by reforms targeting rigidities, but require instead active industrial policies with the essential support of government-sponsored investments (in education, research and innovation, infrastructures, etc.). In addition, one should not undermine the role that a badly-timed and self-defeating austerity played in exacerbating the impact of the Great Recession on Italy's growth, regional disparities, and public debt.

The chicken-egg problem is that, on the one hand, austerity prevents the use of fiscal levers to tackle some structural problems of the country. On the other hand, disregarding the role of structural problems may undermine the effectiveness of expansionary fiscal policies and of public investments in particular. It follows that an approach considering interactions between demand and structural (i.e. supply-driven) factors would be more useful in addressing the Italian low growth problem and, relatedly, its high debt one. The policy recommendations that follow are inspired by this approach.<sup>11</sup>

### **1 Remove public investments from the computation of the structural primary balance that is relevant for the excessive deficit procedure**

The Stability and Growth Pact (SGP) should be modified to exclude some specific forms of government investment expenditures from the computation of the excessive deficit procedure, while current expenditure should be balanced over the course of the business cycle (see Dervis and Saraceno, 2014; Saraceno, 2016; Creel and Saraceno, 2010). This modified *Golden Rule*, which is intertemporally fairer than current fiscal rules in the SGP, would allow a high debt country like Italy to use certain types of investments both as a cyclical lever to compensate the fall of aggregate demand during a recession, and as a long-term instrument to address the country's structural problems. Fiscal discipline would be enforced as current expenditures should remain balanced.

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11. See Amendola and Gaffard (2019) and Dosi *et al.* (2017) for examples of policy design considering the interactions between short-run and long-run drivers of growth.

Besides the above golden rule, additional resources for investments could stem from savings on unproductive current expenditures (e.g. Cottarelli's spending review, see Cottarelli, Sole 24 Ore, 2015). These savings should amount to 34 billion euros in total, and could already free significant resources for investment as they would correspond to 1% of Italy's nominal GDP and to 10% of the country's current total expenditure for gross fixed capital formation.<sup>12</sup>

## **2 Associate public investments to industrial policy and notably mission-oriented public programs.**

A standard critique towards additional public expenditure programs, as those that would for instance be implied by a modified golden rule is that they will ultimately end up in a waste of resources, especially in Italy, characterized by high levels of corruption in some areas. A similar critique is that those investment programs, like the generous fiscal expansions of the 1970s, would not result in an increase in long-term growth. To address these critiques, *public investment should be associated to industrial policies* targeting the structural problems exposed in the previous section. The main goal of these industrial policies should be nurturing knowledge accumulation and developing capabilities in certain sectors (see Cimoli, Dosi and Stiglitz, 2009). They could also be implemented *via* mission-oriented programs targeting specific objectives (Mazzucato, 2018a and 2018b), and should be supported by a long-term financial commitment from the public sector (see Amendola and Gaffard, 2018).<sup>13</sup> An example is the green transition that had large multiplier effects at the local level in the United States (see e.g. Vona *et al.*, 2019).

Clearly, to be effective, the above mentioned industrial policies must also be combined with a substantial improvement of the quality of Italian public administration. This is to ensure that the funds mobilized by such policies are not captured by rent-seekers, criminal firms and politically-connected incumbents. This is particularly relevant for industrial policies aimed at tackling the Italian dualism, whereby Southern companies are usually infiltrated by criminal organizations (the recent scandal of wind farms is an example). The creation of special development zones, initially isolated by the influence of local actors and with special fiscal and regulatory status, could be a solution to trigger a change in Southern regions and create a critical mass of dynamic entrepreneurs and capabilities.

## **3 Introduce minimum wage and reinforce retraining policies**

As of 2019, 22 out of the 28 EU countries have an official minimum wage; Italy does not. This self-exclusion of Italy from the EU standard practice, is partly justified by the fact that the Italian labor market is already characterized by a collective "tripartite" wage bargaining at the industry level between workers' unions and firms' confederations, with the government playing the referee between the two parties. Since the collective agreement is automatically extended to

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12. The comparisons refer to the years of the last available observation for nominal GDP (2018) and Gross Fixed Capital Formation (2017).

13. In particular, the government shall avoid satisfying the shareholders interested in short-term financial gains and shall stick to its long-run mission.

everybody, this should in principle guarantee an outcome close to a minimum wage. However, the tripartite bargaining sign has shown some weaknesses over the last years, with a substantial increase of non-compliance rates and the emergence of contracts signed by unions with little representation in the firms (see e.g. Garnero *et al.*, 2015 as well as Lucifora and Naticchioni, 2018). The most vulnerable (i.e. unskilled) workers are the most penalized by the proliferation of these “atypical” labor market contracts.

Introducing a national, statutory minimum wage, determined by using the same tripartite fashion as collective agreements, is a way to solve these problems. Sector- and firm-level bargaining should be anchored to the minimum wage, which would then constitute a lower bound to all other agreements and all types of contracts. In addition, a minimum wage would sustain aggregate demand through higher wages to workers who are likely to be more credit constrained and thus with a higher propensity to consume.

Finally, to be effective, the minimum wage should be combined with a convincing and well-enforced sanction mechanisms for non-compliance, and by giving an active monitoring role to unions. In addition, it should be complemented by effective retraining programs for displaced and unemployed workers. The design of training interventions should also be radically rethought, by reallocating funds to centers with better capabilities to provide good quality training such as technical schools and universities.

#### 4 Italy needs more Europe not less Europe

To reignite growth and solve its public debt problem *Italy needs more Europe not less Europe*. First, abandoning the euro, with a consequent huge devaluation of the currency, would have disastrous consequences on Italy’s interest rates and on the government debt burden, which is denominated in euros. Second, and more importantly, most policies reigniting Italy’s growth require the active participation and cooperation of the European Union to be effective. For instance, the introduction of a golden rule of fiscal policy needs re-discussing the entire framework of fiscal rules in the EU. The EU could also be helpful in mobilizing additional funds for Italy, *via* a common investment plan for the area (e.g. a Juncker’s plan substantially rethought with stronger participation of public actors). Third, even industrial policies nurturing learning and firm capabilities seem infeasible without the explicit cooperation of European authorities in light of the existing norms constraining support to national firms. The same industrial policies would probably be more effective if they were part of a global industrial policy agenda of the entire union, rather than being the exclusive focus of single countries.

In conclusion, Italy cannot solve its economic problems without the help of Europe, but the solution of these problems requires an active role of Italy (which is a founding country of the union) to a process of overall reform of European policies. This process should ultimately converge towards a fully-fledged federal state in Europe, and in particular one with common fiscal policy and redistributive mechanisms across states. Indeed, a good deal of the conundrums Europe is experiencing, like those associated with migration, economic slackness and populist pressures for disintegration, originate from the incompleteness of the European construction. In this respect, it can be helpful to adapt Dani Rodrik’s famous trilemma to the

European Union (see Rodrik, 2000, 2007). The trilemma states the impossibility of having at the same time globalization, democracy, and the nation state. In a situation where globalization, i.e. international economic integration, seems irreversible, preserving democracy requires abandoning sovereignty and moving towards a federal state. Europe's democracies are instead stuck in a limbo between the nation state and federalism, where the solution to single countries' problems (like Italy's low growth one) now require the active cooperation among states, but where such a cooperation is difficult or absent. Yet, for federalism not to be perceived as a mere technocratic idea, the European political project must be revived. This in particular requires deepening the democratic side of Europe and binding together countries with shared European values.

## References

- Amendola, M. & Gaffard, J.-L. (2019), *Le désordre et la raison – Une économie politique de la mondialisation*, ISTE editions.
- Antonin, C. (2013), "Du miracle économique à la stagnation", *Questions internationales*(59).
- Auerbach, A. J. & Gorodnichenko, Y. (2012), "Measuring the output responses to fiscal policy", *American Economic Journal: Economic Policy* 4(2), 1–27.
- Bartelsman, E.; Scarpetta, S. & Schivardi, F. (2005), "Comparative analysis of firm demographics and survival: evidence from micro-level sources in OECD countries", *Industrial and corporate change* 14(3), 365–391.
- Berlingieri, G.; Calligaris, S.; Costa, S. & Criscuolo, C. (2018), "Sulla produttività pesa la dimensione di impresa", *www.lavoce.info*.
- Blanchard, O. J. & Leigh, D. (2013), "Growth forecast errors and fiscal multipliers", *American Economic Review* 103(3), 117–20.
- Boeri, T.; Ichino, A.; Moretti, E. & Posch, J. (2019), "Wage Equalization and Regional Misallocation: Evidence from Italian and German Provinces", Technical report, National Bureau of Economic Research.
- Boeri, T. & Lucifora, C. (2014), "Salario minimo e legge delega", *www.lavoce.info*.
- Bottazzi, G.; Secchi, A. & Tamagni, F. (2014), "Financial constraints and firm dynamics", *Small Business Economics* 42(1), 99–116.
- Buehn, A. & Schneider, F. (2012), "Shadow economies around the world: novel insights, accepted knowledge, and new estimates", *International tax and public finance* 19(1), 139–171.
- Bugamelli, M.; Cannari, L.; Lotti, F. & Magri, S. (2012), "Il gap innovativo del sistema produttivo italiano: radici e possibili rimedi", *Bank of Italy—Occasional Papers*(121).
- Card, D. & Krueger, A. (1994), "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania", *The American Economic Review* 84(4), 772–793.
- Cimoli, M.; Dosi, G. & Stiglitz, J. (2009), *Industrial policy and development: The political economy of capabilities accumulation*, Oxford University Press.

- Coenen, G.; Erceg, C. J.; Freedman, C.; Furceri, D.; Kumhof, M.; Lalonde, R.; Laxton, D.; Lindř, J.; Mourougane, A.; Muir, D. & others (2012), "Effects of fiscal stimulus in structural models", *American Economic Journal: Macroeconomics* 4(1), 22–68.
- Crainz, G. (2003), "Il paese mancato: dal miracolo economico agli anni Ottanta (Vol. 2)", Donzelli Editore.
- Creel, J.; Hubert, P. & Saraceno, F. (2012), "The European fiscal compact: a counterfactual assessment", *Journal of Economic Integration*, 537–563.
- Creel, J. & Saraceno, F. (2010), "European fiscal rules after the crisis", *Journal of Innovation Economics Management*(2), 95–122.
- De Cecco, M. (2012), "Una crisi lunga mezzo secolo: le cause profonde del declino italiano", *Economia italiana* 3.
- De Felice, A. & Martucci, I. (2016), "Consumer Spending in Italy between Economic Crisis and Gambling", *Rivista economica del Mezzogiorno* 30(2-3), 503–528.
- Dervis, K. & Saraceno, F. (2014), "An investment new deal for Europe", *Brookings Blogs-Up Front* (September3).
- Dosi, G.; Grazzi, M.; Tomasi, C. & Zeli, A. (2012), "Turbulence underneath the big calm? The micro-evidence behind Italian productivity dynamics", *Small Business Economics* 39(4), 1043–1067.
- Dosi, G. & Guarascio, D. (2016), "Oltre la 'magia del libero mercato': il ritorno della politica industriale", *Quaderni di rassegna sindacale* 17(3), 91–103.
- Dosi, G.; Napoletano, M.; Roventini, A. & Treibich, T. (2017), "Micro and macro policies in the Keynes+ Schumpeter evolutionary models", *Journal of Evolutionary Economics* 27(1), 63–90.
- Ferraresi, T.; Roventini, A. & Fagiolo, G. (2015), "Fiscal policies and credit regimes: a TVAR approach", *Journal of Applied Econometrics* 30(7), 1047–1072.
- Garnero, A.; Kampelmann, S. & Rycx, F. (2015), "Sharp Teeth or Empty Mouths? European Institutional Diversity and the Sector-Level Minimum Wage Bite", *British Journal of Industrial Relations* 53(4), 760–788.
- Güell, M.; Pellizzari, M.; Pica, G. & Rodriguez Mora, J. V. (2018), "Correlating social mobility and economic outcomes", *The Economic Journal* 128(612), F353–F403.
- Guerini, M.; Napoletano, M. & Nesta, L. (2018), "Convergence of productive structures and synchronization of industrial cycles in the European Union", *Revue de l'OFCE*(4), 127–147.
- Heyer, É. (2012), "A review of the recent literature on fiscal multipliers: size matters!", *OFCE le Blog* 21.
- Krueger, A. (2012), "The rise and consequences of inequality", *Presentation made to the Center for American Progress, January 12th*. Available at <http://www.americanprogress.org/events/2012/01/12/17181/the-rise-and-consequences-of-inequality>.
- Lucifora, C. & Paolo, N. (2018), "The 'Jobs Act' and Industrial Relations: a lost Opportunity?", *Economia Italiana*.
- Manasse, P.; Nannicini, T. & Saia, A. (2014), "Italy and the euro: Myths and realities", [www.voxeu.org](http://www.voxeu.org).
- Mazzucato, M. (2018), *Mission-Oriented Research & Innovation in the European Union: A problem-solving approach to fuel innovation-led growth*, Publications Office of the European Union.
- Mazzucato, M. (2018), "Mission-oriented innovation policies: challenges and opportunities", *Industrial and Corporate Change* 27(5), 803–815.



- Medina, L. & Schneider, F. (2018), "Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?", *International Monetary Fund - IMF Working Papers*(18/17).
- de Nardis, S. & Pappalardo, C. (2018), "Fiscal Multipliers in Abnormal Times: the Case of a Model of the Italian Economy", *Ufficio Parlamentare di Bilancio*.
- Raitano, M. & Vona, F. (2015), "Measuring the link between intergenerational occupational mobility and earnings: evidence from eight European countries", *The Journal of Economic Inequality* **13**(1), 83–102.
- Rodrik, D. (2000), "How far will international economic integration go?", *Journal of economic perspectives* **14**(1), 177–186.
- Rodrik, D. (2007), "The inescapable trilemma of the world economy", *Dani Rodrik's weblog* **27**.
- Rossi, S. (2007), *La politica economica italiana, 1968-2007*, GLF editori Laterza.
- Sampoganro, R. (2018), "Les effets de la politique budgétaire depuis 2008 dans six économies avancées: The impact of budgetary policy in six advanced countries since 2008", *Revue de l'OFCE* **155**(1).
- Saraceno, F. (2017), "When Keynes Goes to Brussels: A New Fiscal Rule for the EMU?", *Annals of the Fondazione Luigi Einaudi. An Interdisciplinary Journal of Economics, History and Political Science* **51**(2), 131–157.
- Spaventa, L. (2013), "The growth of public debt in Italy: past experience, perspectives and policy problems", *PSL Quarterly Review* **66**(266), 291–324.
- Vona, F.; Marin, G. & Consoli, D. (2018), "Measures, drivers and effects of green employment: evidence from US local labor markets, 2006–2014", *Journal of Economic Geography*, *forthcoming*.

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## APPENDIX

### Data Sources and Authors' Calculations

#### Figure 1

General government consolidated gross debt. Excessive deficit procedure. Based on the European System of Accounts ESA 2010.

[https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/macro-economic-database-ameco\\_en](https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/macro-economic-database-ameco_en)

#### Figure 2

The decomposition presented in the figure is based on the following law of motion for government debt

$$B_t = B_{t-1}(1 + i) - S_t$$

Where  $B_t$  is the debt of year  $t$ ,  $B_{t-1}$  is the debt of the year before,  $i$  is the (average) interest on debt and  $S_t$  is primary balance of the government in year  $t$ . We can now divide both sides of the equation by the nominal GDP,  $P_t Y_t$ , to have an expression for the debt-to-GDP ratio

$$\frac{B_t}{P_t Y_t} = \frac{B_{t-1}}{P_t Y_t} (1 + i) - \frac{S_t}{P_t Y_t}$$

We can now express nominal GDP as follows:

$$P_t Y_t = P_{t-1}(1 + \pi)Y_{t-1}(1 + g) = P_{t-1}Y_{t-1}(1 + \pi)(1 + g)$$

Where  $\pi$  is the inflation rate and  $g$  is the growth rate of real GDP. By using the last expression one can write the equation of the debt-to-GDP ratio as follows

$$\frac{B_t}{P_t Y_t} = \frac{B_{t-1}}{P_{t-1} Y_{t-1}} \frac{(1 + i)}{(1 + \pi)(1 + g)} - \frac{S_t}{P_t Y_t}$$

Finally, by subtracting  $\frac{B_{t-1}}{P_{t-1} Y_{t-1}}$  on both sides of the above equation one gets:

$$\frac{B_t}{P_t Y_t} - \frac{B_{t-1}}{P_{t-1} Y_{t-1}} = \frac{B_{t-1}}{P_{t-1} Y_{t-1}} \left[ \frac{(1 + i)}{(1 + \pi)(1 + g)} - 1 \right] - \frac{S_t}{P_t Y_t}$$

which then leads to

$$\frac{B_t}{P_t Y_t} - \frac{B_{t-1}}{P_{t-1} Y_{t-1}} = \frac{B_{t-1}}{P_{t-1} Y_{t-1}} \left[ \frac{i - \pi - g - (\pi g)}{(1 + \pi)(1 + g)} \right] - \frac{S_t}{P_t Y_t}$$

Finally, denote by  $b_t = \frac{B_t}{P_t Y_t}$  the debt-to-GDP ratio and by  $d_t = \frac{S_t}{P_t Y_t}$  the primary balance-to-GDP ratio, we can write the above expression as follows

$$\begin{aligned}\Delta b_t &= b_t - b_{t-1} \\ &= -d_t + b_{t-1} \frac{i}{(1+\pi)(1+g)} - b_{t-1} \frac{\pi}{(1+\pi)(1+g)} - b_{t-1} \frac{g}{(1+\pi)(1+g)} - \theta_t\end{aligned}$$

In this way the growth of the debt-to-GDP ratio  $\Delta B_t$  is decomposed in a contribution stemming from the primary balance-to-GDP  $d_t$ , in the contribution of inflation  $b_{t-1} \frac{\pi}{(1+\pi)(1+g)}$  in the one stemming from real growth  $b_{t-1} \frac{g}{(1+\pi)(1+g)}$  and residual term

$\theta_t = b_{t-1} \frac{(\pi g)}{(1+\pi)(1+g)}$  which is small as long as  $g$  and  $\pi$  are between zero and one and that therefore can safely be ignored.

The economic series for the primary deficit  $S_t$  and the interest payment on debt ( $B_{t-1}i$ ), come from the database "OECD Economic Outlook No. 104 (Edition 2018/2)", OECD Economic Outlook: Statistics and Projections

<https://doi.org/10.1787/5434ee69-en>

The economic series for the government debt is the same used in Figure 1. General government consolidated gross debt. Excessive deficit procedure. Based on the European System of Accounts ESA 2010.

[https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/macro-economic-database-ameco\\_en](https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/macro-economic-database-ameco_en)

Furthermore, to be consistent with the definition of public debt (which is based on excessive deficit procedures), we took the series for the computation of nominal GDP, real GDP growth and inflation from the same AMECO database cited supra

[https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/macro-economic-database-ameco\\_en](https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/macro-economic-database-ameco_en)

More precisely, we used as nominal GDP,  $P_t Y_t$ , the GDP at current prices, EU member states: excessive deficit procedure (UVGDH) taken from the same AMECO database

Real GDP growth,  $g$ , is obtained as the year-to-year variation in the Gross domestic product at 2010 reference levels (OVGD)

Finally, the inflation rate  $\pi$  is obtained as the year-to-year variation in the implicit price deflator of the nominal GDP series employed (price deflator:UVGDH/ OVGd)

### Figure 3

GDP growth and its contributions. All the original series from FRED have quarterly frequency, are seasonally adjusted and are measured at chained 2010 euros. The annual data have been computed as the average across four quarters. The contribution  $\hat{X}$  to GDP growth for each variable  $X = \{C, I, G, X, M\}$  has been computed as the product between the growth rate of the

variable  $X$  and the share of  $X$  with respect to GDP in the previous period. For example, the contribution of consumption at time  $t$  is:

$$\hat{C}_t = \frac{C_t - C_{t-1}}{C_{t-1}} \frac{C_{t-1}}{GDP_{t-1}}.$$

<https://research.stlouisfed.org>

#### Figure 4

Main revenue and expenditure items of the general government sector, notified by national authorities in the ESA 2010 transmission programme. Data are presented percentages of GDP. (Eurostat code: gov\_10a\_main).

[https://ec.europa.eu/eurostat/data/database?p\\_p\\_id=NavTreeportletprod\\_WAR\\_NavTreeportletprod\\_INSTANCE\\_nPqeVbPXRmWQ&p\\_p\\_lifecycle=0&p\\_p\\_state=normal&p\\_p\\_mode=view&p\\_p\\_col\\_id=column-2&p\\_p\\_col\\_count=1](https://ec.europa.eu/eurostat/data/database?p_p_id=NavTreeportletprod_WAR_NavTreeportletprod_INSTANCE_nPqeVbPXRmWQ&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-2&p_p_col_count=1)

#### Figure 5

Comparison of Total Factor Productivity (TFP) dynamics. For each country we have used the variable “TFPva\_I” from the EU-KLEMS dataset which represents Total Factor Productivity (TFP) between 1996 and 2016. We have then transformed the variable into an index number for each country, dividing by the 1996 value (hence 1996 = 1 for all the countries). The dashed line at the unity y-value allows therefore to better grasp evolution from the 1996 reference year.

<http://www.euklems.net>

#### Figure 6

Share of firms (top) and average productivity (bottom) in different firm-size categories. The figure is a mere reproduction of Figure by Berlingieri *et al.* (2018).

<https://www.lavoce.info/archives/52364/sulla-produttivita-pesa-la-dimensione-impresa>

#### Figure 7

Per capita value added index in the manufacturing sector per macro regions (left) and per capita gross fixed capital formation index in the total economy per macro-regions (right). Nominal series available from ISTAT have been deflated by the national PPI (not region-specific and sourced from FRED) and divided by the population of the macro-area (region-specific).

<http://dati.istat.it/?lang=en#>

#### Table 1

Net lending (+) or net borrowing (-) excluding interest of general government adjusted for the cyclical component. The adjustment are based on trend GDP. Excessive deficit procedure. Values presented are computed as the average across the years above mentioned.

[https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/macro-economic-database-ameco\\_en](https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/macro-economic-database-ameco_en)

**Table 2**

Average real GDP annual growth rates. Output-side real GDP at chained PPPs from the Penn World Tables. Values presented are computed as the average across the years above mentioned.

<https://www.rug.nl/ggdc/productivity/pwt/>

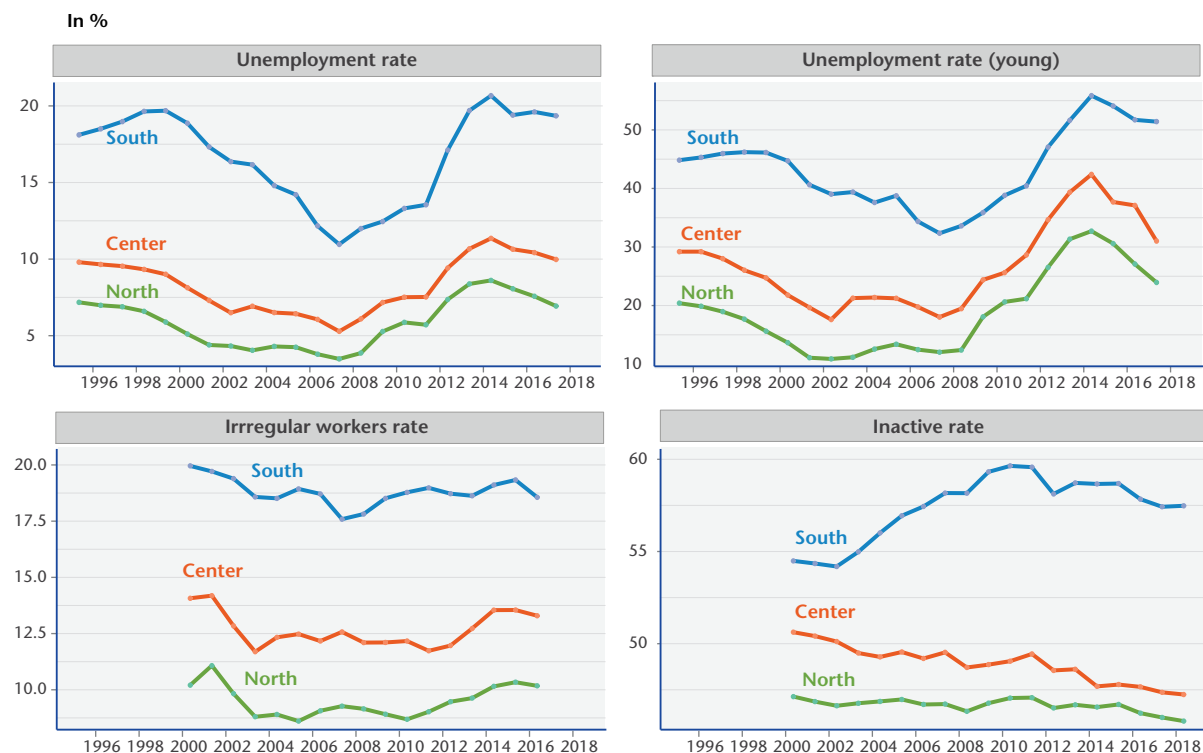
**Figure Box.1**

Shares of outstanding Italian government bonds across 5 different institutional categories: 1) Bank of Italy; 2) banks (foreign and domestic); 3) other financial institutions (foreign and domestic); 4) foreign households and non-financial corporations; 5) domestic households and non-financial corporations. Series “General government debt by holding sector” (TCCE0200)

[https://www.bancaditalia.it/statistiche/basi-dati/bds\\_index.html?com.dotmarketing.htmlpage.language=1](https://www.bancaditalia.it/statistiche/basi-dati/bds_index.html?com.dotmarketing.htmlpage.language=1)

## Appendix – Additional figures

Figure Appendix. Labour Markets Regional statistics



Source: ISTAT Regional Accounts.

## ABOUT OFCE

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The Paris-based Observatoire français des conjonctures économiques (OFCE), or French Economic Observatory is an independent and publicly-funded centre whose activities focus on economic research, forecasting and the evaluation of public policy.

Its 1981 founding charter established it as part of the French Fondation nationale des sciences politiques (Sciences Po), and gave it the mission is to “ensure that the fruits of scientific rigour and academic independence serve the public debate about the economy”. The OFCE fulfils this mission by conducting theoretical and empirical studies, taking part in international scientific networks, and assuring a regular presence in the media through close cooperation with the French and European public authorities. The work of the OFCE covers most fields of economic analysis, from macroeconomics, growth, social welfare programmes, taxation and employment policy to sustainable development, competition, innovation and regulatory affairs..

## ABOUT SCIENCES PO

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Sciences Po is an institution of higher education and research in the humanities and social sciences. Its work in law, economics, history, political science and sociology is pursued through ten research units and several crosscutting programmes.

Its research community includes over two hundred twenty members and three hundred fifty PhD candidates. Recognized internationally, their work covers a wide range of topics including education, democracies, urban development, globalization and public health.

One of Sciences Po's key objectives is to make a significant contribution to methodological, epistemological and theoretical advances in the humanities and social sciences. Sciences Po's mission is also to share the results of its research with the international research community, students, and more broadly, society as a whole.

## PARTNERSHIP

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