Regional value added in Italy, 1891–2001, and the foundation of a long-term picture

By EMANUELE FELICE

This article presents value added estimates for the Italian regions, in benchmark years 1891–1951, which are linked to those from official figures available from 1971 on, in order to offer a long-term picture of Italy’s regional development. Regional activity rates and productivity are also discussed and compared. Some basic questions about Italy’s economic history are briefly considered, including the origins and extent of the north–south divide, the role of migration and regional policy in shaping the pattern of regional inequality, and the positioning of Italy in the international debate on regional convergence, where it stands out because of the long-run persistence of its disparities.

Dino Campana, ‘La chimera’ (1913)

The aim of this article is to present and discuss the pattern of regional inequality in Italy, from the end of the nineteenth century to the present day. Value added estimates for the Italian regions, in benchmark years from 1891 until 1951, are linked to those from official figures available from 1971 on, in order to offer a long-term picture. It is worth noting that the 1891–1951 estimates are not entirely satisfactory, but at the present stage of research are comparable to those already available or forthcoming for other countries. Further refinements cannot be readily produced in the short run, but it seems reasonable to assume that they would not significantly change the overall pattern. At present, these estimates allow us to place the Italian case within an international context and to draw the basic lines of a long-term picture of regional economic disparities.

Different theoretical approaches share the belief that over the long run regional inequality is somehow self-correcting, although for various reasons the pace of convergence may proceed at a slower rate than expected. Both the cumulative

1 I am grateful to Carlo D’Ippoliti for scientific support, not to mention helpful comments. I also wish to thank Carlo Ciccarelli, Stefano Fenoaltea, Paolo Malanima, Daniel Tirado, Vera Zamagni, and three anonymous referees. The usual disclaimers apply.

2 Campana, Canti orfici, p. 25. ‘Keep watch of the bright stars in the seas of the sky. / I for your sweet mystery / I for your taciturn becoming’; idem, Orphic songs, p. 3.

3 A research team coordinated by Joan R. Rosés and Nikolaus Wolf and funded by the European Science Foundation (ESF) is working to produce regional GDP estimates for the European regions at NUTS 2, in benchmark years, approximately from the end of the nineteenth century (for an overview of the methodology, see Geary and Stark, ‘Examining’). Present estimates follow similar methods and assumptions, and rely upon a highly detailed sectoral breakdown.

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approach of the new economic geography,\(^4\) and the neoclassical school with its broad definition of capital and a limited role for diminishing returns,\(^5\) can easily be compatible with the inverted U-shaped function introduced almost half a century ago by Williamson.\(^6\) Williamson proposed extending the well-known Kuznets curve to the relationship between per capita value added and regional inequalities. This would imply that regional differences increased during the early stages of industrialization, and decreased after industrialization spread. This simple suggestion proved to be adequate to account for the pattern of regional inequality in the US economy,\(^7\) as well as in Spain,\(^8\) and, after allowing for an early start, in Britain too.\(^9\)

The first motive for studying the Italian case arises from the fact that the north-south divide is persistent over the long run, and thus Italy apparently does not adhere to the above framework. The lack of convergence has been widely recognized in Italy, so much so that over time it has given rise to a remarkable corpus of literature, including hundreds of books and scientific articles, although these are often inconclusive. It has also given rise to massive state intervention in favour of the south, apparently ineffective as well.

Furthermore, the problem of the south (questione meridionale) has been debated since the end of the nineteenth century, with the emergence of at least three different views regarding the historical pattern of regional inequality in Italy. The first view, prevailing up to the 1990s,\(^10\) held that at the time of Unification (1861) the north-central regions, due to a better geographical position, more favourable natural endowments, and higher human and social capital, were already more advanced, and thus a natural fit for industrialization.\(^11\) However, the opposite view has also been expressed, by Nitti in 1900\(^12\) and later by marxist scholars,\(^13\) as well as (to various degrees) by preeminent liberal historians.\(^14\) According to this view, the Mezzogiorno was exploited by the north.\(^15\) The dependency theory, or the core-periphery approach, maintains that the north–south divide emerged mostly in the immediate decades following Unification or, at the least, that the north-west was simply not a natural fit for industrialization. A third and more recent view seems to be better articulated. Arising from the scholars aligned with the Istituto meridionale di storia e scienze sociali (IMES), founded in 1986, together with the

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\(^{4}\) Krugman, ‘Increasing returns’.
\(^{5}\) For example, Barro and Sala-i-Martín, ‘Convergence’.
\(^{6}\) Williamson, ‘Regional inequality’.
\(^{8}\) Carreras, ‘Fuentes y datos’. New estimates by Martínez-Galarraga, ‘New estimates’, indicate stronger divergence in the first era of globalization, a finding in line with the work by Rosés, ‘Spain’, which discusses industrial location from the new economic geography perspective.
\(^{9}\) Crafts, ‘Regional GDP’.
\(^{10}\) It can be dated back to Fortunato (Il Mezzogiorno e lo stato, p. 541), who emphasized the ‘natural poverty’ of the South.
\(^{11}\) Cf. Cafagna, ‘Intorno alle origini’; idem, Dualismo e sviluppo.
\(^{12}\) Nitti, Scritti, pp. 449–52. For a convincing contemporary criticism of Nitti’s arguments, see Gini, L’ammontare e la composizione, pp. 268–77.
\(^{13}\) Following Gramsci, La questione meridionale, for example, Villari, ed., Il Sud nella storia d’Italia.
\(^{14}\) Romeo, Risorgimento e capitalismo.
\(^{15}\) In this article, the terms Mezzogiorno and south of Italy are equivalent and encompass all the southern regions (Abruzzi, Molise, Campania, Apulia, Basilicata, and Calabria) and the two main islands (Sicily and Sardinia).
review *Meridiana*, it argued, on the basis of some brilliant case studies,\(^\text{16}\) that although the south as a whole may have ranked somewhat lower than the centre-north in the second half of the nineteenth century, it was misleading to consider southern Italy as a uniformly backward area. The debate is ongoing. Recently Daniele and Malanima\(^\text{17}\) have suggested that at the time of Unification the south was approximately at the same level as the north, but their figures are most likely positively biased in favour of the south, as the authors themselves have recognized.\(^\text{18}\) Early calculations,\(^\text{19}\) based on a variety of different sources from the time period, suggest instead that in 1861 and 1871 the divide was already present and, perhaps more importantly, the opinion of contemporary analysts and policy makers confirmed this quite consistently as well.\(^\text{20}\) Moreover, at the time of Unification the south was dramatically backward in terms of social indicators, such as literacy and life expectancy.\(^\text{21}\)

New historical value added estimates can be valuable tools of analysis and may allow us to provide new insight to this century-long discussion. This article offers consistent estimates for a period spanning from the end of the nineteenth century until the present day, and reports significant changes in regional rankings. The new figures indicate that the north–south divide emerged mostly in the interwar years, and thus not as an immediate consequence of Unification. Furthermore, evidence of high diversification within southern Italy is found during the liberal age (1861–1913), which is in line with the most recent and more articulated view about the north–south divide.

Another subject that is worthy of consideration is the role of international openness, and in particular of emigration, in favouring convergence, a central matter in the globalization debate.\(^\text{22}\) This topic has also been discussed in Italy since the beginning of the twentieth century, yet with little quantitative evidence and with a focus on narrow periods or territories. In this article, a broad and long-term perspective, covering alternating periods of economic openness and restrictiveness, allows the importance of emigration to be highlighted. However, significant caveats are warranted, as value added estimates suggest that during the first period of globalization per capita benefits from migration were lower for the southern regions than for the rest of the country.

Over the second half of the twentieth century, two more arguments have emerged, making the study of the Italian case more appealing—and more demanding as well. First, there is the failure of state intervention. From the early 1950s to the early 1990s (but with precedents in the pre-First World War period and remnants up to the present day), a massive regional policy was pursued in the south, which rendered the lack of convergence even more remarkable and full of implications well beyond the field of economic history (for example, for economic policy). Using sectoral figures of productivity and activity rates, it is argued in this

\(^\text{16}\) For example, Lupo, *Il giardino degli aranci*.
\(^\text{20}\) For example, Sella, *Discorsi parlamentari*.
\(^\text{21}\) Felice, ‘I divari regionali in Italia’.
\(^\text{22}\) For international historical comparisons, see Williamson, ‘Globalization’; Taylor and Williamson, ‘Convergence’.
article that regional policy was indeed successful during Italy’s economic boom (in the 1950s and 1960s), and that this success was provisional and bound to be reversed.

The last motive for studying the case of Italy is related to social capital. From Banfield’s preeminent argument on amoral familialism in the 1950s,23 down to more recent studies by Putnam24 and Leonardi,25 Italy has been identified as a country that is largely characterized by regional differences in social capital and culture, in the sense of values and attitudes. These ‘social factors’ have been increasingly regarded as major determinants of differences in economic outcomes. As Landes puts it at the conclusion of his breathtaking volume The wealth and poverty of nations, ‘If we learn anything from the history of economic development, it is that culture makes all the difference’. A few lines later, however, he also adds that culture ‘frightens scholars. It has a sulphuric odor of race and inheritance, an air of immutability’.26 Was this the case in southern Italy? Did social capital have a significant impact on regional convergence (or lack thereof) over the long run? Was the Mezzogiorno doomed to be economically backward? Although examining the role of social capital is far from its scope, this article’s results may be useful in laying the groundwork for further research in this direction. Broadly speaking, the estimates presented here are consistent with the increasing importance attributed to social capital by scholars, with regard to economic outcomes over the course of the twentieth century.

The article proceeds as follows. Section I introduces the estimates of value added per capita. Section II presents the regional figures of productivity and labour force, in total and by sector, in order to provide a solid foundation for further analyses. The rest of the article turns to the questions raised in the introduction, moving from post-Unification Italy to the present day. Section III is devoted to reviewing critically the debate about the origins and extent of the north–south divide. Section IV then uses the new estimates in order to reinterpret the contributions of migration and regional policy, which may be regarded as the main determinants of convergence in the twentieth century. The final section highlights the implications of this article’s findings with regard to the current literature on regional convergence, and to the role of social capital.

I

Table 1 presents estimates of the regional value added in Italy, in benchmark years from the end of the nineteenth century on. Before discussing the results, a few notes on the choice of benchmark years (and thus on sources and methods) are warranted. The first four—1891, 1911, 1938, and 1951—are the only years, over the century following Unification, for which new and reliable value added national estimates are available.27 From these, new regional estimates have been produced

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23 Banfield, Moral basis.
24 Putnam, Making democracy work.
25 For example, Leonardi, Convergence, cohesion and integration.
26 Landes, Wealth and poverty, p. 516 (emphasis added).
27 Rey, ed., I conti economici 2; idem, ed., I conti economici 3.
by Federico for agriculture\textsuperscript{28} and by Felice for services and industry.\textsuperscript{29} The latter estimates have been improved upon here by incorporating the ‘second generation’ estimates by Ciccarelli and Fenoaltea for 1891 and 1911, which at present cover about half of the industrial sectors.\textsuperscript{30} Official figures are available,\textsuperscript{31} on a yearly basis, starting from 1971, but reporting the entire series would not be practical. Thus, again, benchmark years are used, with a split in 1981 in order to point out that the south’s convergence was reversed in the 1970s; from 1981 to 2001, there was no other significant discontinuity in the overall trend.

\textsuperscript{28} Federico, ‘Le nuove stime’, mostly based upon local data on production and prices.

\textsuperscript{29} Felice, ‘Il reddito delle regioni’, and idem, ‘Il valore aggiunto’, by and large based on a methodology analogous to the one formalized by Geary and Stark, ‘Examining’: in a very detailed sectoral breakdown, the national value added is allocated according to the regional employment, using wage data (less reliable for 1891 and 1911, see above) to allow for productivity differences.

\textsuperscript{30} Fenoaltea, ‘Textile production’; Ciccarelli and Fenoaltea, ‘Mining’; idem, ‘Chemicals’; idem, ‘Utilities’; idem, ‘Construction’; idem, ‘Metalmaking’; idem, ‘Shipbuilding’, as well as some still unpublished data (quarries, non-metallic mineral products, clothing and white goods, and the hat industry), for which I am deeply grateful to the authors. The ‘first generation’ estimates (Fenoaltea, ‘Peeking backward’) allocated national production according to regional employment, without allowing for productivity differences; the new generation estimates make use of other information as well, such as horsepower or regional production when available. For further details on sources and methods and a critical review of the results, see Felice, ‘Regional value added’.

\textsuperscript{31} Svimez, \textit{I conti del Mezzogiorno}; ISTAT, \textit{Conti economici}; idem, ‘Sistema di indicatori’. From 1951 to 1971 methodology significantly changed, but the estimated trend of value added is confirmed by that of other indicators, that is, the inter-sectoral distribution of the workforce and, within the industrial sector, installed horsepower as recorded in Istituto Centrale di Statistica (ISTAT), \textit{III Censimento Generale}; idem, 5\textsuperscript{o} \textit{Censimento Generale}.

\begin{table}
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\hline
\textbf{Region} & \textbf{1891} & \textbf{1911} & \textbf{1938} & \textbf{1951} & \textbf{1971} & \textbf{1981} & \textbf{2001} \\
\hline
Piedmont & 1.08 & 1.15 & 1.39 & 1.47 & 1.21 & 1.17 & 1.15 \\
Aosta Valley & 1.58 & 1.35 & 1.25 & 1.24 & & & \\
Liguria & 1.44 & 1.54 & 1.68 & 1.62 & 1.16 & 1.09 & 1.09 \\
Lombardy & 1.15 & 1.19 & 1.39 & 1.53 & 1.34 & 1.30 & 1.30 \\
North-west & 1.16 & 1.22 & 1.43 & 1.52 & 1.28 & 1.23 & 1.24 \\
Trentino-Alto A. & n.a. & n.a. & 0.95 & 1.06 & 1.01 & 1.12 & 1.29 \\
Veneto & 0.80 & 0.86 & 0.84 & 0.98 & 0.99 & 1.08 & 1.13 \\
Friuli-V. Giulia & n.a. & n.a. & 1.19 & 1.11 & 1.00 & 1.09 & 1.12 \\
Emilia & 1.06 & 1.08 & 1.04 & 1.12 & 1.14 & 1.29 & 1.23 \\
Tuscany & 1.03 & 0.97 & 1.01 & 1.05 & 1.05 & 1.10 & 1.09 \\
The Marches & 0.88 & 0.81 & 0.79 & 0.86 & 0.91 & 1.05 & 0.99 \\
Umbria & 1.02 & 0.92 & 0.96 & 0.90 & 0.93 & 0.98 & 0.96 \\
Latium & 1.57 & 1.49 & 1.19 & 1.08 & 1.07 & 1.04 & 1.13 \\
Centre/north-east & 1.01 & 1.00 & 0.99 & 1.04 & 1.04 & 1.11 & 1.13 \\
Abruzzi & 0.66 & 0.68 & 0.58 & 0.58 & 0.80 & 0.84 & 0.84 \\
Campania & 0.97 & 0.94 & 0.82 & 0.69 & 0.71 & 0.67 & 0.65 \\
Apulia & 1.02 & 0.85 & 0.72 & 0.65 & 0.75 & 0.72 & 0.67 \\
Lucania & 0.74 & 0.73 & 0.57 & 0.47 & 0.75 & 0.68 & 0.73 \\
Calabria & 0.67 & 0.70 & 0.49 & 0.47 & 0.67 & 0.64 & 0.64 \\
Sicily & 0.93 & 0.85 & 0.72 & 0.58 & 0.70 & 0.68 & 0.66 \\
Sardinia & 0.94 & 0.92 & 0.83 & 0.63 & 0.85 & 0.71 & 0.76 \\
South and islands & 0.88 & 0.84 & 0.70 & 0.61 & 0.73 & 0.70 & 0.68 \\
Italy (2001 euros) & 1,313 & 2,064 & 2,596 & 2,940 & 10,027 & 13,199 & 19,928 \\
Yearly growth rate (%) & n.a. & 2.29 & 0.85 & 0.96 & 6.33 & 2.79 & 2.08 \\
\hline
\end{tabular}
\caption{Regional per capita valued added in Italy, 1891–2001 (Italy = 1)}
\end{table}

Notes: Based on the borders of the time and on current population.

Sources: See text.
Before entering into the details of the findings, figure 1 aims to provide the reader with basic information about the Italian regions, as well as to illustrate the border changes that took place from the First World War to the Second World War. It also incorporates the usual economic and social (not administrative) classifications into macro-areas: the north-west (the traditional industrial triangle), the centre/north-east, and the south and islands (the Italian Mezzogiorno).

The main findings can be summarized in a few sentences. The starting point was not one of great divergence; in other words, the north–south divide was not particularly prominent in 1891 or even in 1911. In the first half of the twentieth century, however, differences increased. The north-west pulled ahead first, and reached its peak by the middle of the twentieth century. The central and north-eastern regions successfully caught up between 1938 and the present day, and by 2001 were not far behind the north-west. The Mezzogiorno mostly fell behind in 1911–51, especially during the interwar years, and although it began to converge during Italy’s economic boom (1951–71), it fell back again, although to a lesser extent, from the 1970s on.

The figures also suggest that, in order to analyse the pattern of regional inequality, Italy is better divided into three rather than two macroeconomic areas. Within both the centre/north-east and the Mezzogiorno, regional differences were very high in 1891 and 1911. However, the three-part classification took shape only in the interwar years when, in contrast to an increasing divergence at the national level, a process of convergence within the three macro-areas took place.

Previous regional estimates, such as the ones by Zamagni for 1911, Esposto for 1891 and 1911, and Tagliacarne for 1951, apart from relying on the now outdated national accounts, differed significantly in sources and methods, and thus

32 Zamagni, Industrializzazione e squilibri.
33 Esposto, ‘Estimating’.
34 Tagliacarne, ‘Calcolo del reddito’.

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it would be hard (and essentially incorrect) to derive a long-term pattern of regional inequality from them. If one persists, however, the picture that emerges is considerably different from the one sketched above; southern Italy was much more uniformly backward in the liberal age, and the north–south divide would remain more or less unchanged until the 1950s.\footnote{For a comprehensive comparison, see Felice, ‘Il reddito delle regioni’, pp. 22–6; idem, ‘Il valore aggiunto’, pp. 84–92.}

Was there convergence in the long run? An initial answer is provided in table 2, which reports estimates of regional inequality following the index proposed by Williamson,\footnote{Williamson, ‘Regional inequality’.} which can be taken as a measure of sigma convergence (the decrease of dispersion).\footnote{The index has a rationale similar to the variance or the standard deviation, but should be regarded as more appropriate for analysis of regional convergence in value added per capita, since it weights deviations with the share of population (small regions have a minor impact), according to the formula [1]:

\[
D = \sqrt{\sum_{i=1}^{n} \left( \frac{y_i - \bar{y}}{y_m} - 1 \right)^2 \cdot \frac{p_i}{p_m}}
\]

where \(y\) is income per capita, \(p\) is population, and \(i\) and \(m\) refer to the \(i\)-region and to the national (or macro-regional) total, respectively. The index is insensitive to changes in the number of regions.}

Although regional rankings changed, over the long run we may conclude that sigma convergence was not present; that is, there was no decrease of dispersion. This evidence does not invalidate the possibility of beta convergence—in other words, that the most backward regions grew faster than the most advanced ones; beta convergence is a necessary condition of sigma convergence, not vice versa. In table 3, beta convergence has been tested via two different panel models: random effects and fixed effects. The standard formula for growth regressions is \(\Delta VA = f(\Delta VA', X)\), where \(\Delta VA\) is the growth rate between \(t\) and \(t + n\) and \(X\) is a set of other variables which are supposed to affect (conditional) convergence. Since we have no other structural variables, it is only possibly formally to test unconditional convergence, assuming either that the omitted variables differ between cases but are constant over time (fixed effects model), or that they are random (random effects model: some omitted variables may be constant over time but vary between cases, and others may be fixed between cases but vary over time).

In the random effects model, the coefficient of the explanatory variable is negative, but insignificant with the robust option; that is, after heteroscedasticity is controlled for. If we pass to the fixed effects model, the negative coefficient becomes significant, even after allowing for heteroscedasticity,\footnote{In both models, results do not change after controlling for serial correlation (Durbin Watson test, autocorrelation of residuals).} thus indicating unconditional convergence. Results from the Hausman test lead us to reject the

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<tr>
<td>Italy</td>
<td>0.194</td>
<td>0.208</td>
<td>0.302</td>
<td>0.362</td>
<td>0.226</td>
<td>0.240</td>
<td>0.250</td>
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<tr>
<td>North-west</td>
<td>0.094</td>
<td>0.101</td>
<td>0.070</td>
<td>0.031</td>
<td>0.057</td>
<td>0.064</td>
<td>0.067</td>
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<tr>
<td>Centre/north-east</td>
<td>0.214</td>
<td>0.193</td>
<td>0.136</td>
<td>0.074</td>
<td>0.063</td>
<td>0.082</td>
<td>0.067</td>
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<tr>
<td>South and islands</td>
<td>0.149</td>
<td>0.108</td>
<td>0.156</td>
<td>0.118</td>
<td>0.066</td>
<td>0.069</td>
<td>0.082</td>
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Sources: See text.
null hypothesis,\textsuperscript{39} which means that the random effects estimator is inconsistent, while the fixed effects estimator is both consistent and efficient, and should thus be preferred.\textsuperscript{40} However, it is worth noticing that the explanatory power of the unconditional model is very weak, as indicated by the low $R^2$. Furthermore, in the fixed effects model ($\Delta V_{Ai} = b_1 V_{Ai} + a_i + u_{Ai}$; or $\Delta V_{Ai} = b_0 + b_1 V_{Ai} + \gamma_2 D_{2i} + \ldots + \gamma_n D_{ni}$, where $D_i = 2, n$ are regional dummies) the constant terms ($\gamma_i$) for the southern regions are negative and usually significant at the 5 per cent level, whereas those for the northern regions are positive.\textsuperscript{41} This suggests that indeed conditional convergence was at work; in other words, that a persistent negative conditioning variable (such as geographical position, culture, social capital, or even a mix of these factors) may have prevented the poorest regions from growing faster, but of course the specific variable remains unknown. Regarding the random effects model, it is worth noting that the inconclusiveness is due to the different paths between the centre/north-east and some of the poorest southern regions (which converged), and the rest of the south (which did not). It goes

\begin{table}
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\hline
 & \textit{Random-effects GLS regression} & & \textit{Fixed-effects (within) regression} & \\
 & \text{Normal} & \text{Robust} & \text{Normal} & \text{Robust} \\
\hline
Lag VA per capita & \(-0.0054\) & \(-0.0054\) & \(-0.0226\) & \(-0.0226\) \\
Standard error & \(0.0028^*\) & \(0.0033\) & \(0.0056^{***}\) & \(0.0056^{***}\) \\
Constant & \(0.0048\) & \(0.0048\) & \(0.0215\) & \(0.0215\) \\
Standard error & \(0.0029\) & \(0.0036\) & \(0.0055^{***}\) & \(0.0055^{***}\) \\
$R^2$ & \(0.026\) & \(0.026\) & \(0.026\) & \(0.026\) \\
No. of obs. & 107 & 107 & 107 & 107 \\
\hline
\end{tabular}
\caption{Convergence in value added per capita (panel data)}
\end{table}

Coefficients (\textit{b-F}) & \textit{Normal} & \textit{Robust} & \textit{Normal} & \textit{Robust} \\
(b-F) & \(-0.0226\) & \(-0.0054\) & \(-0.0226\) & \(-0.0226\) \\
Constant & \(0.0056^{***}\) & \(0.0056^{***}\) & \(0.0215\) & \(0.0215\) \\
$R^2$ & \(0.0055^{***}\) & \(0.0055^{***}\) & \(0.026\) & \(0.026\) \\
No. of obs. & 107 & 107 & 107 & 107 \\
\hline
$\chi^2(1)$ & \(12.75\) & \(12.75\) & \(12.75\) & \(12.75\) \\
Prob $> \chi^2$ & \(0.0004\) & \(0.0004\) & \(0.0004\) & \(0.0004\) \\
\hline
\end{tabular}
\caption{Convergence in value added per capita (random-effects GLS vs. fixed-effects regression)}
\end{table}

Notes: Dependent variable: average growth rate of value added per capita. Both the dependent variable and the explanatory variable (value added per capita) are expressed relative to the Italian average—that is, to the mean weighted with the size (population) of each observation (region).

* significant at the 10% level; ** significant at the 1% level.

Source: Elaborations from tab. 1.

\textsuperscript{39} The test statistic (12.75) is greater than the critical value of a chi$^2$ (1df, 5%) = 3.84.

\textsuperscript{40} The fixed effects model is also preferable to the pooled OLS (POLS) regression, as shown by results from the F-test comparing the fixed effects model with the OLS regression, according to the formula [2]:

\[ F_{(n-1, n-k)} = [(R_p^2 - R_u^2)/(n-1)]/[(1-R_p^2)/(nT-n-k)] \]

where the subscript ‘u’ refers to the fixed effect model with dummies (unrestricted regression), and the subscript ‘p’ to the POLS model (restricted regression). Under the null hypothesis, POLS is more efficient. In our case, $R^2_p = 0.2958, R^2_u = 0.0265$: $F$ (18, 106) is 2.2520, slightly above the $F$ (18, 106) value at 1%, thus the null hypothesis must be rejected. The coefficient from the POLS regression is negative (-0.0045), significant at the 10% level but insignificant after heteroskedasticity is controlled for.

\textsuperscript{41} The constant terms for regions are the following (** significant at the 5% level): Piedmont 0.0026, Aosta Valley –0.0014, Liguria 0.0016, Lombardy 0.0050, Trentino-Alto Adige 0.0057, Veneto 0.0008, Friuli-V. Giulia 0.0013, Emilia 0.0035, Tuscany 0.0003, The Marches –0.0014, Umbria –0.0025, Abruzzi –0.0054, Campania –0.0080**, Apulia –0.0080**, Lucania –0.0086**, Calabria –0.0089**, Sicily –0.0085, Sardinia –0.0081**. Latium is excluded and used as a pivot region.
without saying that future tests of conditional convergence—for example, by adding estimates of human capital and/or social capital—may provide more solid results, and should be regarded as a priority on the agenda for research into Italy’s regional imbalances.

II

Value added per capita can be decomposed into two components: value added per worker and the activity rate (the labour force as a share of the total population).\footnote{As from equation [3]: $Y/P = Y/L\times L/P$, where $Y$ is value added, $P$ is population, and $L$ is labour.}

Regional differences in activity rates are shown in table 4. In 1891 southern Italy scored the lowest activity rate and the gap between north and south was bound to increase through most of the twentieth century, with the exception of the years 1938–51 and the 1970s. To be fully understood and explained, data from table 4 must be jointly read with those from table 5, which displays the distribution of labour force by sector—agriculture, industry, and services. The population censuses included underemployment which, with some remarkable exceptions, was more frequent in agriculture than in the rest of the economy.\footnote{For example, the early population censuses (1871 and 1881), which recorded high female underemployment in the textile sector. Cf. Zamagni, ‘Century of change’, pp. 37–8.} This can explain why in southern Italy the activity rate sharply declined from 1951 to 1971, when the share of agricultural employment fell dramatically.

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Table 4. Activity rates, 1891–2001 (Italy = 1)

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<tbody>
<tr>
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**Note:** In 1911, Trentino-Alto Adige and Friuli-V. Giulia were not part of the Italian state. For that year, their figures (in parentheses) are only indicative.

**Sources:** Felice, *Divari regionali*, p. 137; for 1891 and 1938, see tab. 4.
It should be noted that in 1951 southern regions still had, as a whole, the same percentage of workers in agriculture as in 1891 or 1911. Even when considered alone, this datum could account for the Mezzogiorno lagging behind during the first half of the twentieth century. The share of industrial workers in the south remained below the national average throughout the twentieth century. Even in the decades of convergence, while industrialization made some progress, it stopped well short of reaching the levels seen elsewhere. The premature halt left higher shares of workers in agriculture and services, as well as (at least according to the official figures) lower activity rates.

The estimates of value added per worker are shown in the following tables, as a total (table 6) and separately for agriculture, industry, and services (table 7). During the liberal age, southern Italy boasted higher per worker production in agriculture. This primacy is the essential reason for the south’s relatively high ranking in value added per capita in 1891 and 1911.44 In the first half of the twentieth century, the north-west scored an impressive rise in per worker productivity as well. Along with industrialization, this improvement was a major reason behind the north’s rise in total per worker productivity in the same period.

Unlike agriculture, in 1891 the north–south productivity differences in industry were remarkable: manufacturing, still relatively small at the time, was already modern in part of the north-west, mostly traditional in the rest of Italy, and yet

44 In terms of total factor productivity, however, in agriculture the centre-north and the Mezzogiorno were approximately at the same level; Federico, ‘Ma l’agricoltura meridionale’, pp. 331–5. That is, the former scored higher per hectare productivity than the south as early as 1891; Felice, Divari regionali, p. 133.

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**Table 6. Value added per worker, 1891–2001 (Italy = 1)**

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<td>1.35</td>
<td>1.14</td>
<td>1.12</td>
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<td>0.97</td>
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<td>n.a.</td>
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<td>1.00</td>
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<td>1.03</td>
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<td>1.02</td>
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<td>0.90</td>
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<td>1.09</td>
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<td>0.66</td>
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<td>0.71</td>
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<tr>
<td>South and islands</td>
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<td>0.91</td>
<td>0.81</td>
<td>0.69</td>
<td>0.84</td>
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<td>0.88</td>
</tr>
<tr>
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<td>6,986</td>
<td>27,043</td>
<td>33,704</td>
<td>54,211</td>
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<td>1.20</td>
<td>7.00</td>
<td>2.23</td>
<td>2.40</td>
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Sources: See text and tab. 4.
Table 7. Value added per worker in agriculture, industry, and services, 1891–2001 (Italy = 1)

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<th></th>
<th>Agriculture</th>
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<td>0.98</td>
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<td>Lombardy</td>
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<td>0.91</td>
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<td>North-west</td>
<td>0.76</td>
<td>0.90</td>
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<td>Trentino-Alto A.</td>
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<td>n.a.</td>
<td>0.68</td>
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<td>Veneto</td>
<td>0.71</td>
<td>0.88</td>
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<td>Emilia</td>
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<td>1.24</td>
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<td>Tuscany</td>
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<td>The Marches</td>
<td>0.93</td>
<td>0.91</td>
<td>0.91</td>
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<tr>
<td>Umbria</td>
<td>1.26</td>
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<tr>
<td>Latium</td>
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<td>Lucania</td>
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<td>South and islands</td>
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<td>0.98</td>
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<tr>
<td>Italy (2001 euros)</td>
<td>1,900</td>
<td>2,677</td>
<td>3,479</td>
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Sources: Felice, Divari regionali, p. 132; for 1891 and 1938 see tab. 4 and text.
very backward in some regions of the south. For the period between the First World War and the Second World War, the north-west’s rise in total value added per worker must be attributed primarily to the rising share of the labour force in industry and services, rather than to increasing productivity differences across industries. In the early stages, it was industrialization that mattered, following the established arguments of Kuznets and Denison.45

In services, until the Second World War, productivity differences were approximately in between those found in agriculture and industry. As expected, by 1951 this had become the sector in which regional disparities were least pronounced, with the growth of public administration playing an important role in this result.

The contribution of productivity and activity rates to the regional trends of value added per capita, in benchmark years, can be calculated via log transformation.46 Results are shown in table 8, which is limited to value added per worker (productivity) and to the three macro-areas. On the whole, productivity played a pre-eminent role until the 1960s, and it accounted for all of the south’s convergence during the golden age (it is worth reminding the reader that changes in productivity were also the result of an employment shift from agriculture to industry and services). However, it was of minor importance in the rise of the centre/north-east in the second half of the twentieth century, and in all of Italy since the 1970s.

Over the long run, sigma convergence in productivity—as well as beta convergence, which is its precondition—is confirmed by the Williamson index of dispersion for per worker value added, as shown in table 9. Conversely, in activity rates there was divergence, concerning the whole period, the second half of the twentieth century, and the last two decades. Whereas until the Second World War the movements of the two indices were synchronized, in the second half of the twentieth century they moved in opposite directions; when there was convergence in per worker productivity, there was divergence in activity rates, and vice versa. Value added per worker and activity rates also counterbalanced each other (and to a greater degree than the national average) at the regional level; with few exceptions, those regions which gained in the former, lost in the latter, and vice versa, so that the picture in terms of value added per capita remained more or less stable. The fundamentals, however, did not.

45 Kuznets, Modern economic growth; Denison, Why growth rates differ.
In Italy, the origins and extent of the north–south divide have been the subject of debate ever since the late nineteenth century, when the _questione meridionale_ was first raised by the press, historians, and economists. For 1891 and 1911, the data presented here indicate a modest north–south divide, in contrast to sharp disparities within the _Mezzogiorno_. Out of the three hypotheses outlined in the introduction, the most recent one, which regards southern Italy as being highly diversified, seems to be more in line with present estimates. Meanwhile, the second hypothesis, arguing that after Unification the south was exploited by the north, could be accepted only if it were to focus on the interwar period, rather than on the liberal age as it does, since the data presented here support the view that most of the divide occurred in the interwar years. Of course, data for the 30 years after Unification (1861) are missing, and thus this period is not well understood. However, even if we were to take the optimistic figures presented by Daniele and Malanima for 1861, which assign the same per capita income to the south as the centre-north, the main finding—that divergence occurred mostly in the interwar years—would remain unchanged.

The remarkable north–south divide in social indicators, and in finance and infrastructure, that was already present around the time of Unification is additional evidence in favour of the first hypothesis, arguing that the north-west was a natural fit for industrialization. This view does not necessarily differ from the most recent one, holding that southern Italy was economically diversified. Nor does it differ in general from the estimates in this article. In pre-industrial societies, rankings in per capita GDP tend to depend heavily on agriculture, and thus on the amount of land and population density, but do not necessarily reflect technological advancements or the economic potential of a region.

It is worth adding that, in the long run, the estimates presented here do not justify some of the arguments that accompany the most recent approach, namely those that deny the historical category of the _Mezzogiorno_ and even its relative

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backwardness and which, probably unwillingly, have paved the way for the recent turn-around in the political debate, marked by the emergence of a ‘northern problem’, or *questione settentrionale*. On the contrary, a long-term perspective confirms the worries and criticism expressed by those who continue accurately to regard southern Italy as an unresolved problem and warn against overlooking its economic and social specificities. Indeed, during the twentieth century the *Mezzogiorno* established itself as an economic category of its own.

## IV

Along with value added per capita, figures on productivity and activity rates may help to shed some light on the potential determinants of convergence. Of these, migration is an obvious possibility; in the regions of origin, it should favour a rise in value added per worker, since the wages of those who remain tend to increase and, less obviously, because those who emigrate usually come from less productive jobs. However, as long as migration predominantly involves (male) workers, as is usually the case, in the home regions the rise in value added per worker may be partially offset by a decline in activity rates. Broadly speaking, the stronger the rise in per worker productivity with respect to the decline in labour force participation, the more beneficial emigration is to the home country.

During the liberal age a massive international emigration (*grande emigrazione*) took place, with great numbers leaving the southern regions, and in particular the poorest ones: Abruzzi, Lucania, and Calabria. However, it also heavily involved important areas of the centre/north-east, above all Veneto. From 1891 to 1911, all four of these regions improved in terms of value added per capita and value added per worker (Abruzzi, Calabria, and Lucania were the only ones in the south), whereas their decline in activity rates was relatively modest.

The positive consequences of emigration for some of the poorest southern regions have been recognized by Italian scholars since the early twentieth century. In cross-country comparisons, a well-established body of literature has emphasized the positive impact of the great emigration on the home regions. Although, by and large, present estimates for 1891 and 1911 support this literature, it is worth warning against misjudging what figures and indicators (value added per capita) actually mean; we must consider that the cumulative impact of emigration on the population was huge, so much so that the percentage of value added (out of the national total) of Abruzzi, Calabria, and Lucania declined.

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48 This was at least the rule during both the first era globalization (1870–1913) and the golden age (1951–73). The evidence that southern emigrants were ‘positively selected’ (for example, with higher human capital) is weak at best (see Felice, *Divari regionali*, p. 47).
49 For figures, see ibid., p. 46.
50 For example, Groce, *Storia*, p. 207.
51 For example, Williamson, ‘Globalization’; Taylor and Williamson, ‘Convergence’.
52 From 1891 to 1911, the gross cumulative impact (not considering returns) in the south was about 36%, peaking at almost 60% in Abruzzi, Lucania, and Calabria; in Veneto it was around 90% (but here returns were higher). Elaborations come from Felice, *Divari regionali*, p. 46; Ministero di Agricoltura, Industria e Commercio (MAIC), *Censimento della popolazione del Regno d’Italia al 31 dicembre 1881*; idem, *Censimento della Popolazione del Regno d’Italia al 10 febbraio 1901*; idem, *Censimento della popolazione del Regno d’Italia al 10 giugno 1911*.
53 From 3 to 2.8 in Abruzzi, 1.2 to 1 in Lucania, and 2.9 to 2.8 in Calabria.

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Conversely, the percentage of Veneto increased. This finding may indicate that in the south the benefits per emigrant were lower than in the rest of the country, a discrepancy which in turn could be due to a number of reasons (for example, lower levels of education or preferences for far-away lands with lower returns and lower per capita remittances), all indicative of the fact that the southern regions were still too backward and peripheral to benefit from emigration, as did other areas closer to the core.

In the interwar years international emigration came to a halt, and the south fell back, mostly due to value added per worker. After the Second World War, a huge emigration outflow, mostly from the southern regions, recommenced and lasted approximately until the 1970s. It was now directed not only to foreign countries, but also towards the north-west—thus possibly ‘doubling’ its impact on regional convergence, now affecting both sides. Value added estimates indicate that in this case, the benefits from emigration were more substantial. For example, in terms of productivity the south visibly improved in all the three sectors.

Yet there must be something more: from 1951 to 1971, convergence in industrial productivity was so impressive (see table 7) that it can hardly be explained by migration alone. What is more, at the same time in the south the industrial labour force also increased, and at a rate never before (or later) seen. The other possible explanation is changes in policy, namely the massive regional policy pursued by the state through the public agency Cassa per il Mezzogiorno, created in 1952. This was probably the largest regional scheme set up by a western European country, at least in terms of the total amount of funds, throughout the Cold War period. During the 1960s the Cassa per il Mezzogiorno concentrated on the industrial sector, supporting heavy industries with high capital/labour ratios (namely engineering and chemicals) and financing about one-fifth of the south’s industrial employment in 1971. Given this premise, the south’s convergence in industrial productivity, as well as its industrialization, does not come as a surprise. The joint effect of emigration and regional policy resulted in unprecedented gains with respect to the rest of Italy. This is all the more outstanding since it took place during Italy’s economic boom, when the centre-north also grew at a remarkable speed.

In the 1950s and 1960s, however, regional policy did not create the conditions for autonomous development. The very choice of supporting capital-intensive activities, instead of promoting tourism for example, in an area so abundant in labour as the Mezzogiorno, turned out to be short-sighted—a mistake probably

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54 From 7.8 to 8.8. On the whole, the share of value added declined from 34.8 to 32.2 in the Mezzogiorno, whereas it increased from 34.2 to 34.7 in the centre-north, where the cumulative impact (not considering returns) was indeed slightly higher (39%, against 36 in the south).
55 O’Rourke and Williamson, ‘Around the European periphery’, stigmatized the performance of Italy as disappointing compared to other European countries; given its huge levels of emigration, it could have done better in terms of convergence in per capita and per worker GDP. This conclusion would probably be different if we could divide the south from the rest of the country.
56 The expansive demographic policy of the fascist regime may also have had a negative impact, in so far as it raised the birth rates of the poorest in the south; see Bevilacqua, Breve storia dell’Italia meridionale, pp. 172–9.
57 For figures, see Cao-Pinna, ‘Quadro generale’, p. 42.
59 Elaborations from Cassa per il Mezzogiorno, Bilancio 1970, p. 73; idem, Bilancio 1966, p. 63; idem, Bilancio 1964–65, p. 208.
attributable to the economic milieu of the time.\textsuperscript{60} These faults became clear during the 1970s crisis, which involved the collapse of a large part of the new heavy industries in the south. The top-down strategy having failed, and lacking a new or consistent approach, regional policy was redirected towards unproductive expenditures, in such a way that it probably even favoured the enforcement of organized crime and the decline of social capital.\textsuperscript{61}

\textbf{V}

How does the Italian case rank in light of the literature on regional convergence and the evidence from other countries? Cross-country convergence research is abundant, but in the case of regional analysis, particularly in the long run, data are scarce and the interpretative framework is not very elaborate. The inverted U-shaped function for the relationship between per capita value added and regional inequalities\textsuperscript{62}—rising divergence during the early stages of industrialization, and convergence after industrialization spread—seems to fit quite badly with the Italian case. Here, over the long run regional imbalances persisted. More specifically, they increased in years of hardship, and tended to decrease when the economy boomed, which also corresponded to faster industrialization. As in cross-country comparisons, within Italy a ‘differential of contemporaneity’ was probably at work; in other words, negative shocks had a greater impact on the weakest regions.\textsuperscript{63} The common institutional framework and the national state did play some role, as we have seen, through migration and regional policy. Not by chance, both were reduced or ineffective in years of hardship. Conversely, during the economic boom, top-down industrialization in the south was prompted and even forced by state intervention—something that could not be accounted for by models based on concurrence and market rules. However, it is probably due to this very reason that the south was also more susceptible to subsequent downturns.

Nevertheless, even after taking into consideration the effects of migration and regional policies, something more must be said in order to reconcile the Italian case with international models. In fact, and here we come to a second discrepancy, southern Italy was also expected to converge during recent decades. The fact that this did not happen is by far the main anomaly of the Italian case. Neoclassical cross-country models would search for an explanation in the role of conditioning variables, such as low levels of social capital or institutional failure. But models for regional convergence are not well equipped to deal with conditioning variables, since they usually assume—as is normally the case—that these have a limited role across the regions of a particular country over the long run, characterized by a common institutional framework and by many similar social and cultural features. The main difficulty in reconciling the Italian case with international models lies in this assumption, which may simply be untrue for the Italian regions, especially with reference to social capital. In fact, if we limited the analysis to a comparison between the north-west and the centre/north-east, where it could reasonably be assumed that

\textsuperscript{60} Fenoaltea, ‘I due fallimenti’, pp. 351–2.
\textsuperscript{61} This line of causation was first denounced by Trigilia, \textit{Sviluppo senza autonomia}, and since then has received the attention of many authors (for example, Bevilacqua, \textit{Breve storia dell’Italia meridionale}, pp. 126–32).
\textsuperscript{62} Williamson, ‘Regional inequality’.
\textsuperscript{63} Pollard, \textit{Peaceful conquest}, pp. 184–90.
conditioning variables or fixed effects were not at stake, we would have a pattern approximately in line with predictions made by the international literature.

By and large, our historical picture seems to support what today is the most popular explanation for the persistent backwardness of the south, that is, lower social capital, and the somehow correlated institutional failure and pervasiveness of organized crime. The southern regions characterized by relatively low levels of organized crime (Abruzzi, Lucania, and Sardinia) are in fact the only ones to have (slowly) converged in recent decades. Furthermore, the evidence presented in this article, pointing to the fact that the recent divergence in the south is due to decreasing activity rates, gives more strength to the social capital explanation, for two reasons. Firstly, a backward society relying on (amoral) familism, as southern Italy supposedly is, tends to maintain lower employment rates, in primis of female workers. This is even more true if it is no longer an agricultural economy, where rural housewives may be counted in the labour force. Secondly, workers in illegal activities, which expanded in the south during recent decades due to the rise of criminal organizations, as well as a widespread moral and social attitude of resistance to state control, often go unconsidered in the official accounts, resulting in inaccurately lower activity rates.

Perhaps even more importantly, historical estimates can be useful for debating the role of social capital over the long run, as well as for addressing the endogeneity problem: was low social capital a cause or rather a product of economic backwardness? Since the most recent estimates confirm that a sharp north–south divide in social capital was already present, at least in 1901 and probably before, whereas value added figures indicate that in 1891 and 1911 important regions of the south were close to the Italian average, it may be argued that at the end of the nineteenth century social capital and economic performance were not as strongly correlated as they are now. For the same reason, over the course of the twentieth century the causal link seems to go from social capital to economic conditions, rather than vice versa. However, at present this is no more than an admittedly speculative hypothesis.

VI

The region is among the main stage-sets of economic history, but it is not an easy subject to analyse, due to the widespread lack of data, and in particular of official value added figures for the period before the Second World War. Bypassing value added estimates may be a possible solution, trying for instance to make the best use of information about the sectoral labour force, which in most western countries has been available on a regional basis since the second half of the nineteenth century. The other solution is to estimate regional value added through indirect procedures, based on employment and wage data, as well as on a wide array of other available sources such as production, equipment, or taxation. This article has taken the latter approach, but the results have been integrated with information on the labour force.

64 For example, Lyon, ‘Making capitalism work’; Leonardi, Convergence, cohesion and integration.
65 For the role of social capital in liberal Italy, see A’Hearn, ‘Institutions’; idem, ‘Could southern Italians cooperate?’. Also see Galassi, ‘Measuring social capital’, who strongly emphasizes the endogeneity problem.
66 Nuzzo, ‘Un secolo di statistiche sociali’.
67 Putnam, Making democracy work, pp. 121–51.
The estimates presented here offer a long-term pattern of regional inequality in Italy, which differs from those previously available in three main aspects. Firstly, estimates of regional value added suggest that at the end of the nineteenth century the north–south divide in Italy was relatively modest; within southern Italy regional disparities were remarkable, but on average this area as a whole was not far below the rest of the country. However, this finding is at odds with our information about literacy, life expectancy, transport infrastructure, and the credit sector, which instead points towards a clear disparity in favour of the north. According to the available data, per worker productivity in agriculture had an important role in determining the south’s relatively high ranking in value added.

Secondly, the north–south divide formed mostly during the years 1911–51, with industrialization and the rise in productivity being its major determinants. This finding supports the (not so abundant) literature on regional development for this period; in the north the First World War may have helped the industrial triangle to forge ahead, while later the demographic, agrarian, anti-migratory, and autarkic policies of the fascist regime may have further hampered the prospects of economic progress in the south. Up to the present, however, the interwar period has been relatively neglected by scholars. It probably deserves more attention, given its relevance for the pattern of regional inequality in Italy.

When linked to the official figures for 1971—and here we come to the third aspect—the estimates presented here for 1951 indicate that the south converged in the 1950s and 1960s, mainly thanks to increases in productivity. Conversely, it fell back during the last three decades (1971–2001), due to the decreasing share of (official) activity rates. On the other hand, it must be noted that the centre/north-east, which was also highly diversified in the decades following Unification, converged towards the north-west throughout the second half of the twentieth century, and particularly in the 1970s. In this case, the relative increase in activity rates played a major part, whereas relative improvement in industrial productivity was less important.

In short, over the long run the exception to regional convergence in Italy was the Mezzogiorno. There is evidence that during the period 1951–71 this area advanced thanks to value added per worker, particularly in the industrial sector. This supports the view that the massive regional policy, which focused on top-down industrial plants, at the time had a positive impact. The other determinant was massive migration, which also may have exerted some (probably minor) impact in the liberal age. Finally, the data are consistent with the view that social capital grew in importance during the twentieth century and eventually determined the failure of the south. However, much more research on this subject is needed, particularly concerning regional estimates of social capital in the liberal age.

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