

Pre-Modern Equality Income Distribution in the Kingdom of Naples (1811)

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In Modern societies, when per capita income is high, inequality is relatively low and vice versa. In past societies as well –most scholars mean- the relationship between per capita GDP and inequality was inverse. As a consequence, since per capita GDP was then low, inequality was high. The case-study of the Kingdom of Naples in 1811 shows that the opposite is true in this pre-modern society. Inequality was low because per capita GDP was low. The relationship inequality-product was then direct. The results reached on the Kingdom of Naples allow to reconsider the trend of inequality in Italy during the 18th and 19th century. In this long period inequality exhibits the ordinary Kuznets turned U trend: from the equality in poverty in pre-modern times, to a relatively high inequality in the first phase of the industrialization, to the equality in affluence later.

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We know very little about income distribution in pre-modern societies. Scarcity of direct information has been and always will be a hard-to-overcome obstacle for historical research on this topic. Nevertheless, two deeply-rooted opinions based on indirect information continue to hold sway in the literature:

- a. since today inequality is much higher in poor economies than in affluent ones, and since in the past per capita incomes were low, we must conclude that inequality prevailed in past agrarian societies. The contrast between the poor and the rich, the unequal distribution of land, the main resource, the existence of stark social hierarchies; all this suggests that there was a much higher degree of economic inequality back then than today. Inequality increased during the first phase of modern growth and diminished only later, in contemporary advanced societies -when, that is, per capita income had grown considerably. The turned U Kuznets curve in income distribution started from an already high level of inequality. Data available for Britain seem to confirm this viewpoint;¹
- b. since in times of demographic growth, such as the 16th and 18th centuries, real wage rates fell sharply while land rent rose, distributive inequality had to increase. Reconstructions of per capita GDP trends in pre-modern times show that, in those periods of wage decline, average incomes were declining as well; hence, the gap between the rich and the poor must have risen. Conversely, in periods of high wages and low land rent, such as the 15th century, income inequality must have been lower.²

Actually, there is very little direct information to support these two widely held opinions. Indirect data on land distribution, wages,

¹ Soltow (1968). See also Cipolla (1974), pp. 46 ff.

² See especially Abel's (1966) classic study. On the 15th century, see also Dyer (1969).

poverty seem, however, to unmistakably suggest that there existed, yesterday as today, an inverse relationship between per capita product and inequality. Several studies subscribe to the opinion that “the late medieval sources show a large measure of inequality and that this pattern persisted in the cities of the early modern period”.³

The view that deep inequality existed in past European societies, and that it kept growing from the late Middle Ages until the beginning of the 19th century, has been recently put forward by Hoffman, Jacks, Levin, and Lindert in a reconsideration of the theme of inequality in Europe, and between Europe and the rest of the world. Their opinion is that “humans were not yet starkly unequal when Vasco de Gama and Columbus set sail as their descendants were to become in the early nineteenth century”.⁴ Over the centuries, from Columbus and Vasco de Gama to Napoleon, “inequality within the nations of Western Europe has risen greatly”. “Income gaps” were particularly deep between 1790 and 1815,⁵ the period I’m concerned with in this paper.

It is indubitable that from the late Middle Ages to the early 19th century there was a rise in the percentage of poor families in Europe and that real wages declined in many regions. A society where workers are poor cannot be happy, like Adam Smith said; but is not necessarily more unequal. Economic inequality means that there is a high variance or a high standard deviation as to the average income in a particular society. A society where there are many poor families and a small group of wealthy aristocratic households is not necessarily characterized by high inequality. The viewpoint put forward in the following pages is that equality in poverty grew in Europe in the 18th century. In particular the period between 1750 and 1820, which Hoffman, Jacks, Levin and Lindert call the “inequalitarian era”, actually witnessed an increase and not a decrease of equality.⁶

The purpose of the present paper is to test the two opinions reported above on the basis of rich archival material concerning the Kingdom of Naples, the largest Italian state, in 1811. A perspective limited to a specific region over a short period of time (just one year) may seem inadequate to answer big questions such as those relating to inequality in past societies. Sometimes, however, focusing on a specific place and time can be much more rewarding than looking at a whole continent over a very long time span. The documents we will be dealing with have been marginally exploited so far,⁷ and only with reference to two areas of the Kingdom, Calabria⁸ and part of

³ Van Zanden (1995), p. 643.

⁴ Hoffman, Jacks, Levin, Lindert (2002), p. 324.

⁵ Hoffman, Jacks, Levin, Lindert (2002), p. 351. See also Lindert (1998), p. 30.

⁶ I will return in the following pages to the topic of “real inequality” proposed by these scholars.

⁷ I used the already published statistics in Malanima (2000).

⁸ Villani (1981).

Puglia.⁹ They concern, however, the whole population of the Kingdom in 1811, i.e. 5 million people (1 million families). Since the economy of the Kingdom of Naples was still traditional at the beginning of the 19th century, this case-study can help us to shed light on inequality in personal income distribution before modern growth. At any rate, I will also be setting the economy of the Kingdom of Naples within the wider context of Italian economy in the 18th and 19th centuries.

In the following pages, I will first of all describe the background for my reconstruction (§ 1) and the material on which my research is based (§ 2). I will then discuss the results of my statistical processing of this material, and differences in personal distribution within the Kingdom of Naples (§ 3), and between city and countryside (§ 4). I shall then examine the relationship between inequality and per capita income in the Kingdom (§ 5), and set it in the framework of the coeval Italian economy (§ 6). In § 7, I will present a model to clarify the relationship between inequality and product. It will be possible, on the basis of the previous investigation, to shed some light on changes in income distribution in 19th and early 20th century Italy (§ 8). Moving from the particular to the general, we will discover, in conclusion (§ 9), that first-hand evidence forces us to deeply revise our opinions about pre-modern inequality.

1. *The Kingdom of Naples*. According to a statistical investigation¹⁰ on the Kingdom of Naples conducted in 1811, the population at that time was 4,983,604 inhabitants -947,071 families with an average of 5.25 members each.¹¹ The coeval Italian population, within current borders, was 18,700,000. The inhabitants of the Kingdom were hence 27 percent of the total population of Italy. Since the area of the Kingdom was 82,057 sq. km, the density was 58.6 per sq. km; lower than in the Centre and North of the peninsula, where it was 65, but much higher than in Europe as a whole (without Russia), where at the time it was around 30. The population of the Kingdom was distributed in 14 provinces, divided in a total of 43 districts and 2,184 villages and towns (Map).

Naples, the capital of the Kingdom, with its 314,967 inhabitants in 1814, was the third largest city in Europe after London and Paris. At the time, more than 6 percent of the whole population of the Kingdom lived in the capital. The other 13 main towns, each the chief town (*capoluogo*) of a province, were quite small compared to

⁹ On Capitanata, Cerrito (1984).

¹⁰ I will be drawing extensively here on this important investigation, coordinated by the statistician and economist Luca De Samuele Cagnazzi (1764-1852), professor of economics in the University of Naples from 1806 (on which Ciccolella (2000)). The materials of this statistical investigation on the population and economy of the Kingdom of Naples have been published in 4 volumes by Demarco (1988). On the issue of data collection in this investigation see Palomba (1984).

¹¹ Martuscelli (1979).



the capital. Their social and political importance was negligible (Table 1).¹² The largest of these towns were in Puglia (Foggia, Bari, Lecce) and near Naples (Salerno, Avellino); the smallest in the hilly and mountainous regions of the interior.

¹² Data on these towns are from Martuscelli (1979). We must also bear in mind that the percentage of peasants in these southern towns was often quite high. In some cases we could speak of agrotowns rather than true cities; cf. Malanima (2005).

Table 1. The provinces of the Kingdom of Naples and their population in 1811; the provincial chief towns and their population in 1814.

<i>Provinces</i>	<i>Population</i> (1811)	<i>Cities</i>	<i>Population</i> (1814)
Province of Napoli	637,920	NAPOLI	314,967
Capitanata	250,694	Foggia	20,687
Terra di Bari	338,202	Bari	18,662
Principato Citra	427,856	Salerno	17,012
Terra d'Otranto	301,527	Lecce	14,072
Principato Ultra	325,615	Avellino	13,467
Abruzzo Citra	242,869	Chieti	12,666
Abruzzo Ultra I	174,327	Teramo	10,198
Terra di Lavoro	547,515	Capua	8,910
Basilicata	392,105	Potenza	8,862
Calabria Citra	351,835	Cosenza	7,989
Molise	296,531	Campobasso	7,667
Abruzzo Ultra II	244,804	Aquila	7,425
Calabria Ultra	451,804	Monteleone	7,050

Statistics detailing the composition of the Kingdom's population by occupation are available for the period from 1812 to 1815 (Table 2).¹³ Although of course the criteria employed only partially correspond to our own, these statistics provide a valuable glimpse on the structure of the economy.

Table 2. The active population of the Kingdom of Naples by occupation in 1814 (% on the active and total population).

	<i>Number</i>	<i>% of the</i> <i>active pop.</i>	<i>% of the</i> <i>population</i>
1 Landowners	815,762	29.17	16.22
2 Liberal arts	38,669	1.38	0.77
3 Priests, monks and nuns	46,610	1.67	0.93
4 Peasants	1,457,662	52.13	28.98
5 Craftsmen and servants	249,749	8.93	4.97
6 Sailors and fishermen	34,208	1.22	0.68
7 Beggars	153,633	5.49	3.05
	2,796,293	100.00	55.60

The active population was 55.6 percent of the total, about the same as in the first censuses of the national Italian state at the end of the 19th century. A large majority were employed in the primary sector. Since the landowners –the first group in the table- were

¹³ Data on demography and professions are from Martuscelli (1979) and, for the following decades, in Demarco (2000), p. 206.

mostly small farmers cultivating their land themselves, if we sum landowners, peasants, and fishermen -lumped together with sailors- it will appear that 81 percent (2,273,424 inhabitants) of the active population was employed in agriculture and fishing, i.e. in the primary sector. This estimate is undoubtedly too high; however, if we allow for a number of large and medium landowners who did not cultivate their lands themselves, and subtract sailors, we would still obtain a value close to 80 percent of the total active population; a percentage confirmed by the 1824 census.¹⁴ We know, furthermore, that, at the end of the century, the labour force employed in Italian agriculture amounted to 40 percent of the total population;¹⁵ according to our statistics, in 1811 it was 45 percent in the Kingdom of Naples.

These data highlight a typical feature of southern Italian economy -confirmed, as we will see, by the other documents discussed here- viz. the very small amount of the population employed in crafts and the liberal arts, that is, of the middle classes. In England, the practitioners of the liberal arts accounted for 3.3 percent of the total in 1695-99, and craftsmen and merchants for 9 percent,¹⁶ while the labour force in agriculture is estimated at 56 percent of the total population.¹⁷ All considered, Italy at the beginning of the 19th century was much more backward than England one century before.¹⁸

The Italian per capita income in 1800-20 was about the same as shortly after the national unification in 1861: around 320-360 lire, expressed in 1861 constant prices.¹⁹ From what we know about wages, it is hard to say whether there was a clear-cut gap between northern and southern Italy at the beginning of the 19th century;²⁰ indeed, recent statistical processing of wage series seems to indicate that there was no such gap.²¹ Even in the first few decades after the unification, the Po Valley was not much more industrialized than southern Italy.²² The current backwardness of the South is the result of northern industrialization at the end of the 19th century.²³

¹⁴ See Petroni (1826) and Lepre's comments (1979).

¹⁵ See the statistical data collected in ISTAT (1986).

¹⁶ Arkell (2006).

¹⁷ Maddison (2001), p. 95.

¹⁸ Italy, however, was also more advanced at the end of the 17th century than at the beginning of the 19th. In the time of Gregory King the difference between England and Italy was not so deep. See Malanima (2006).

¹⁹ This estimate of per capita GDP is based on a currently in progress revision of the Italian national accounts. The difference between the lower and the higher estimate depends on the different percentage of services in GDP. This percentage is comparatively higher in S. Fenoaltea's recent estimates (2005a and 2005b) than in the earlier ISTAT series.

²⁰ Only from the end of the 19th century onward is it possible to define the North-South GDP gap in quantitative terms.

²¹ Malanima (2006).

²² Fenoaltea (2001).

²³ See, however, Esposto (1997), who believes that the North-South gap must have already existed before the Unification.

Hence, for the beginning of that century, a per capita income of about 320-360 1861 Italian lire seems a likely estimate for the South as well as the North.

This estimate is indirectly confirmed by the 1811 investigation²⁴ referred to above. In the final report, in fact, the ordinary expense for food for a family of 5 is recorded, on the basis of a simple basket and the current prices of each province. Although some variability existed, values were mainly concentrated in the range between 125 and 160 ducats.²⁵ The average for all the 14 provinces was 155 ducats (a ducat was worth 4.25 Italian lire).²⁶ Since towns were not taken into consideration in the part of the investigation concerning expense for food, if we were to include them we would have to bring this average up to at least 180 ducats per family.²⁷ Multiplied by the population, the result would roughly represent the agricultural product per family in the Kingdom. If, assuming a structural composition similar to that of the Italian economy in 1860-70, we estimate the agricultural product of the Kingdom of Naples in 1811 at a little less than half the gross product, we will obtain a per family GDP of 380 ducats, i.e. 76 ducats or 323 Italian lire per capita. This sum corresponds to 150 days of a mason's wage or 200 of an agricultural labourer's in early-19th-century southern Italy.²⁸

Even allowing for the inevitable margins of uncertainty in such estimates, the result seems compatible with our present knowledge about incomes and product in 19th-century Italy.²⁹ Thus, the Kingdom of Naples' GDP in 1811 would have been around 370-380 million ducats. Since we know that, in the same period, state monopolies and direct and indirect taxes amounted to 26 million,³⁰ they must have represented 6.5-7 percent of the whole product. A similar percentage is recorded for the Italian states on the eve of the Unification: their public revenues amounted to 6.5-7.5 percent of GDP.³¹

2. *The French financial reform.* From 1806 to 1815, the Kingdom of Naples was under French rule. Joseph Bonaparte replaced Ferdinand IV of Bourbon as king from 1806 to 1808. He was followed by Joachim Murat, who reigned from 1808 to 1815. As early as 1806, Joseph Bonaparte inaugurated an anti-feudal politics mainly based on a tax reform, and Murat followed in his footsteps. Thus, the French period witnessed a true modernization of the

²⁴ Demarco (1988).

²⁵ To check agricultural prices in the Kingdom, I mainly used Romano (1965) and Storchi (1991).

²⁶ In the Kingdom of Naples the monetary system was based on the ducat, corresponding to 10 *carlini* or 100 *grana* (1 *carlino*=10 *grana*).

²⁷ Judging by the information provided by the 1811 statistics.

²⁸ See the series of 18th and 19th wages in Italy in Malanima (2006).

²⁹ Several data on incomes from different kinds of work are presented by Saladino (1957), p. 200.

³⁰ Bianchini (1971).

³¹ Malanima (2002), p. 313.

State.³² The financial reform was based on a land tax (*contribuzione fondiaria*), a tax on crafts (*contribuzione delle patenti*) and a personal tax on each inhabitant of the Kingdom (*contribuzione personale*).³³ Our knowledge of income distribution is based on the register of this last tax.³⁴ It is important to understand the criteria employed in this document to establish the degree of reliability of the information it provides.³⁵

The personal tax was imposed by a decree of 29 September 1809.³⁶ Every inhabitant of the Kingdom (including the nobility and the members of religious orders) was subject to this tax, with the sole exception of poor families (*indigenti*), which, however, could not exceed one sixth of the population of each village or town. These poor families, however, were also reported in the tax registers. A general committee (*commissione generale*) was established in Naples to coordinate the preliminary work and oversee the several phases of the complex census of 1 million families and religious institutions and their incomes. The preparation of the register for each village and town was the task of the local councils (*consigli dei decurioni*);³⁷ hundreds, that is, of local bodies all over the state. The mayor and district council of each village or town were responsible for overseeing the various stages of the preparatory work and decide about doubtful cases. The registers were then transferred from the local municipal councils to the district councils, and then to the Ministry of Finances in the capital.

Families were divided into 9 income classes (actually 8 classes plus the exempted poor families) according to the level of income. In those times it was not easy to ascertain the income of a family. The decree devoted particular attention to this complex matter.³⁸ Fines were established for families included in the wrong class. Whoever informed the authorities about some irregularity in the position of a family in the 9-class system was entitled to half the fine.

In the tax register, the population of each village, town, or city, is first subdivided according to the criteria defined by the law. The tax-exempt poor families are then listed in a separate column: 14.5 percent of the total population falls under this heading, much more than the beggars who, as we have seen above, only represented 3

³² Davis (1994).

³³ On the Kingdom's finances in this period, see Ostuni (1992) and Ermice (2005), as well as Demarco (2002), pp. 16 ff.

³⁴ On the criteria used to compute income distribution, see the Appendix.

³⁵ The *Contribuzione personale* register is in Naples, State Archives, *Ministero Finanze*, 2814.

³⁶ *Decreto che fissa l'importo della contribuzione diretta per l'anno 1810* (n.° 470); and *Decreto che fissa in principale per l'anno 1811 la contribuzione sì fondiaria che personale* (n.° 727); both in *Collezione* (1806-15).

³⁷ On these councils, see Demarco (2002), p. 32.

³⁸ The criteria established in the law are presented in the following Appendix on the sources.

percent of the population. The population is then distributed among the other 8 classes.³⁹

Previous scholars have never doubted the trustworthiness of this personal tax register.⁴⁰ Doubt is, however, justified. It was obviously in a family's interest to be assigned to a lower class and hence be liable for a lower personal tax. There is no direct way to verify the reliability of our register. All we can say is that it was prepared by hundreds of local bodies independently from one another; that fines were established for improper class attributions; and that it could have been in the locals' interest to inform the authorities about irregularities. We also know that the local municipal councils did not take full advantage of the norms regulating exemption for poor families. By the terms of the decree, as much as 16.6 percent of families could have been exempted, whereas only 14.5 actually were. As we shall see, the picture emerging from this document agrees with other information available on that period, and especially with the 1811 statistical investigation.

3. *Personal income distribution.* The first interesting observation we can make about the tax register is the frequency distribution of the 9 classes throughout the whole Kingdom (Table 3 and Figure 1). The histogram shows a long queue on the right, while 90 percent of the total families are grouped on the left in the 1st and 2nd classes: 90 families out of 100 were almost indistinguishable from an economic viewpoint (Figure 2).⁴¹ Of the other 10 families, 7 enjoyed an income slightly above bare subsistence, 2 were well-to-do, and only 1 was truly rich.

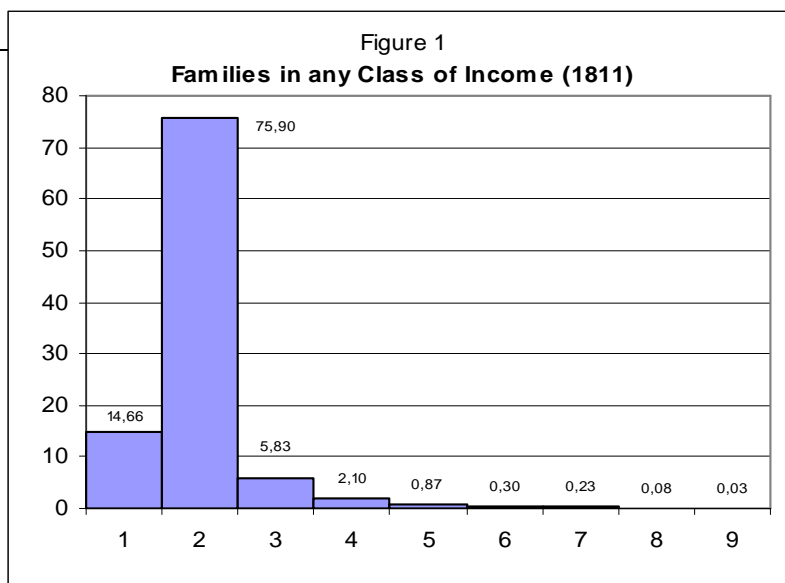
Table 3. Number of families in each of the 9 classes in 1811.

Classes	Number of families
1	138,887
2	718,819
3	55,196
4	19,934
5	8,205
6	2,818
7	2,153
8	797
9	<u>262</u>
	947,071

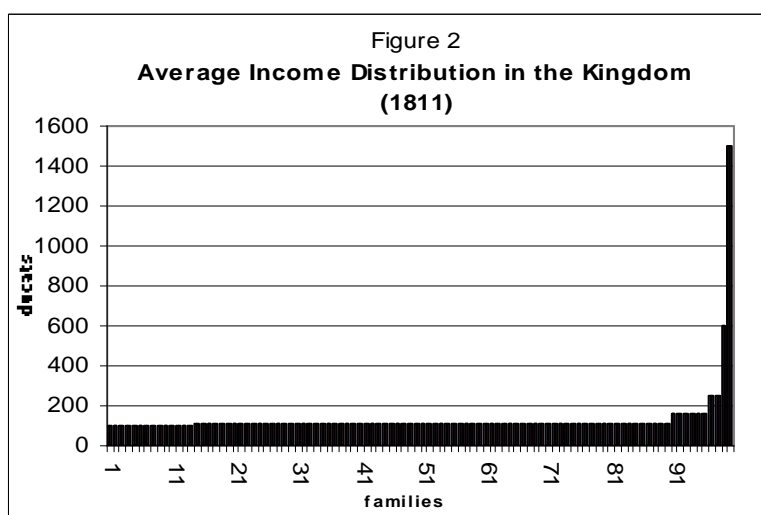
³⁹ The register is incomplete as regards the population of the capital, only 55 percent of which is included. In the following pages, however, I refer to the total population of the capital, calculated by interpolation.

⁴⁰ Villani (1981) and Cerrito (1984).

⁴¹ Figure 2 shows the values of the wages of some public employees -one of the criteria used to distribute the population in the 9 classes- on the vertical axis.



The top of the social hierarchy of the Kingdom was represented by 262 very wealthy noble families, of which 232 lived in Naples, the capital.⁴² We know the names of 200 of them. In the Kingdom as a whole there were about 2,000 really rich households in 1811, or 0.22 percent of the total.⁴³ The exiguity of the middle classes -merchants, rich artisans, professionals- is especially striking and has been several times singled out by past scholars. There were less than 500 merchants in the state, 200 of whom in Naples.⁴⁴ Merchants accounted for 0.5 percent of the population in 1824. High labour incomes were very little represented in the Kingdom of Naples.



⁴² For a social analysis of the Neapolitan nobility, see especially Montroni (1996).

⁴³ The names of the Neapolitan noble families and the big landowners of the Kingdom of Naples are listed by Saladino (1957), pp. 173-91.

⁴⁴ Saladino (1957).

Classes 3 through 9 only comprised about 90,000 families, or one tenth of the total population. If we look at the data for each individual province, we find that the distribution is homogeneous throughout the Kingdom, with some specific differences on which we will return later. In any case, in every district the intermediate classes are always relatively small.

As we have seen above, the number of liberal arts practitioners and craftsmen in the Kingdom is quite small. Craftsmen, together with servants (whose number, as we know, was quite large in pre-modern societies), accounted for 5.1 percent of the population. We know how hard it is to determine the quantitative importance of craftsmen and manufacturers in the traditional world. The importance of part-time industrial work -and even proto-industrial production for the market- in private homes is usually underrated or completely overlooked. The Kingdom of Naples is no exception. Some information can be gleaned, however, from the tax on patents (*contribuzione delle patenti*) established in 1810. The register compiled for the purpose of collecting this tax⁴⁵ lists the craftsmen of every village and town, although without mentioning their specific occupation. In the Kingdom as a whole the percentage of craftsmen was quite low: only 2.15 percent of the population. Including the family members of each craftsman, who were often engaged in the same activity as the head of the family (but not recorded), would yield a higher figure. A percentage of 2.15 is, however, compatible with our data on occupations in 1811, where craftsmen and servants, lumped together, represent 4.97 percent of the whole population,⁴⁶ since we know that in 1824 the percentage of servants per province ranged from 1 to 3 percent.⁴⁷

As to differences between the 14 provinces, if we disregard, for the moment, the province of Naples,⁴⁸ the richest province was Capitanata⁴⁹ in fertile Puglia; the poorest Molise in the hilly and mountainous interior of the state (Table 4). While the percentage of poor families –the first class- was almost the same in the two provinces, the main differences were in the third and fourth classes, which were much better represented in Capitanata than in Molise.

Table 4. Percentage of families in each class in Capitanata and Molise (1811).

	Capitanata	Molise
1	16.165	15.432
2	67.199	82.874
3	11.571	1.031
4	3.528	0.376

⁴⁵ Naples, State Archives, *Ministero Finanze*, 2813.

⁴⁶ See Table 1 above.

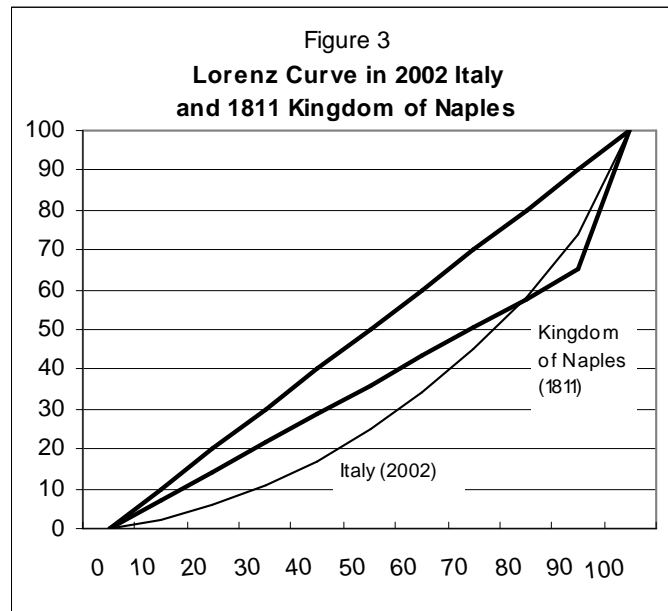
⁴⁷ Petroni (1826).

⁴⁸ I will discuss Naples and its province further on.

⁴⁹ On this subject, see Cerrito (1984).

5	1.111	0.179
6	0.223	0.057
7	0.150	0.035
8	0.048	0.010
9	0.006	0.005

A comparison with contemporary inequality will help us to put in perspective inequality in the Kingdom of Naples in 1811.⁵⁰ In 2000, the Gini index for Italy was 0.360, while for other Western European countries it was comprised between 0.300 and 0.380.⁵¹ In Italy, the Gini index has never fallen below 0.300 since the late 19th century.⁵² In 1811, however, it was as low as 0.267 in the Kingdom of Naples (Figure 3). A provisional conclusion would have to be that the personal distribution of income was more equalitarian in pre-modern Italy than nowadays.



4. *City and countryside.* In the Kingdom of Naples, both family incomes and inequality were much higher in cities than in the

⁵⁰ The method I have used to calculate the Gini index is explained in the Appendix.

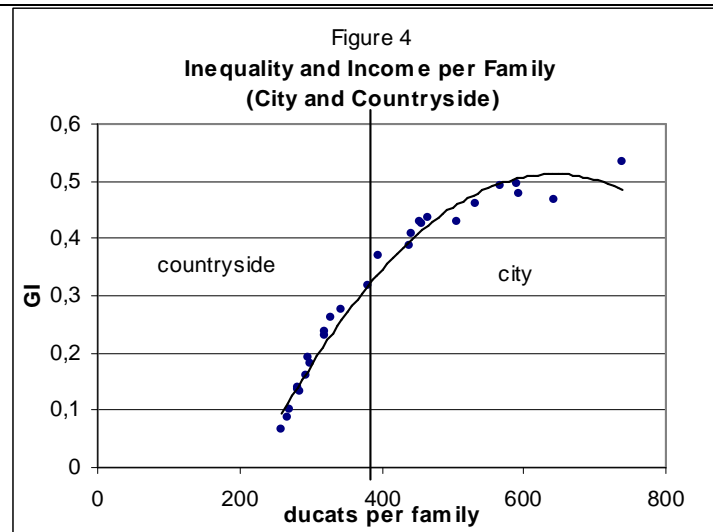
⁵¹ Data are from UNDP, *Human development report*, and from the website of the World Bank.

⁵² With the exception of 1961 (GI 0.295): Rossi, Toniolo, Vecchi (2001), p. 916. On the low reliability of the Italian GI in the 1960s see, however, Roberti (1971). See also Brandolini (2000). Recent data on inequality in Italy are mainly based on Banca d'Italia, *I bilanci delle famiglie italiane, Supplementi al Bollettino Statistico*.

countryside.⁵³ If we look at the chief towns of each province and their respective countryside, the difference is striking (Table 5).⁵⁴

Table 5. Income per family per year (ducats) and two measures of economic inequality (Gini Index and percentage of total income of the richer 10 percent) in the chief towns of each district and their countryside.

Districts	CITY			COUNTRYSIDE		
	Income per Family	Gini Index	Richer 10%	Income per Family	Gini Index	Richer 10%
Lecce	455	0.429	51	320	0.230	30
Bari	507	0.430	56	343	0.275	35
Monteleone	643	0.466	65	382	0.319	41
Cosenza	396	0.369	43	282	0.141	21
Potenza	593	0.479	62	283	0.137	21
Salerno	329	0.261	32	271	0.101	17
Avellino	624	0.368	64	296	0.193	24
Chieti	438	0.386	48	286	0.133	21
Aquila	567	0.493	61	320	0.236	30
Teramo	465	0.437	52	260	0.067	14
Capua	442	0.408	49	269	0.086	16
Foggia	458	0.425	51	293	0.159	23
Campobasso	590	0.496	62	299	0.181	25
AVERAGE	501	0.419	54	300	0.174	24
Napoli	740	0.533	69			



⁵³ The trend towards higher inequality in cities has been stressed by Van Zanden (1995).

⁵⁴ The table lists the districts where the chief town of each province was. Within each district, data referring to the city are distinguished from those concerning the countryside.

In a scatter graph, the countryside lies in the first half, with lower incomes and lower inequality, whereas the cities show higher incomes and a higher degree of inequality (Figure 4).

Naples enjoyed an especially high income because of the presence of the nobility and a far larger middle class. As a consequence, its rate of inequality was much higher than elsewhere. In Naples, the Gini index was 0.533 and the richer 10 percent of the population held about 70 percent of the city's total annual income. As table 6 shows, the population included in the first two classes was relatively smaller than in the Kingdom as a whole: 60 percent instead of 90. Population in the intermediate classes, instead, was much more numerous; classes 3 through 7 comprising 39 percent of the total, vs. 9 percent in the whole Kingdom (Table 6). Social diversity was much higher in Naples.

Table 6. Percentage of families in each class in the Kingdom and in Naples (1811).

Classes	Kingdom	Naples
1	14.665	10.537
2	75.899	48.977
3	5.828	21.534
4	2.105	8.973
5	0.866	4.899
6	0.298	2.363
7	0.227	1.600
8	0.084	0.759
9	0.028	0.357

It is interesting to look at differences in income and inequality in the 14 provinces of the Kingdom and their relationship with land productivity and urbanization (Table 7).⁵⁵

Table 7. Taxable land per family (in ducats), urbanization, per family income (in ducats) and measures of inequality (Gini index and the income of the richer 10 % of the population) in the 14 provinces of the Kingdom of Naples in 1811.

	Taxable land per family	Urbanization	Income per family	GI	Richer 10 %
1 Terra d'Otranto	39	16.02	330	0.251	31.8
2 Terra di Bari	42	13.77	362	0.301	37.8
3 Capitanata	43	18.92	367	0.309	38.9
4 Calabria Ultra	38	8.08	288	0.152	21.9

⁵⁵ Data on taxable land per family are from Naples, State Archives, *Ministero Finanze*, 2812. Urbanization is calculated as the percentage of inhabitants living in the chief towns of each of the 43 districts. Data on cities' inhabitants are from Matuscelli (1979). Weighed averages for the Kingdom as a whole.

5	Calabria Citra	28	8.13	296	0.166	23.6
6	Basilicata	23	8.27	277	0.120	18.8
7	Principato Citra	26	8.40	300	0.182	25.0
8	Principato Ultra	27	10.22	293	0.156	22.6
9	Province of Napoli	51	54.36	603	0.506	62.6
10	Terra di Lavoro	44	6.21	313	0.219	28.3
11	Molise	17	5.55	266	0.087	15.6
12	Abruzzo Citra	16	14.20	282	0.133	20.1
13	Abruzzo Ultra I	29	8.09	304	0.191	25.9
14	Abruzzo Ultra II	30	10.89	303	0.191	25.7
	Regno	34	15.64	338	0.267	33.4

The wealthiest province was, of course, that of Naples, which comprised the city itself and its surroundings. Then came the provinces of Puglia -Capitanata, Terra di Bari, and Terra d'Otranto-, which could boast a richer agriculture than the other provinces. Inequality was higher in these provinces. The poorest provinces were Molise, Basilicata, Calabria Citra and Calabria Ultra, which were covered with mountains and hills, had few plains and, hence, a relatively backward agriculture. Here equality in poverty prevailed.

Since taxable land is a proxy for the agricultural product and land productivity, and urbanization a proxy for the secondary and tertiary sectors, there is necessarily a high correlation between income per family, on the one hand, and taxable land and urbanization, on the other. The urbanization-income correlation is 0.98, and that taxable land-income 0.71. As we can see, a lower income by 100 ducats per family (28 percent less) implies a 24 percent lower quote of income in the richer 10 percent of society, as a simple comparison between Capitanata and Molise in the above table illustrates. A lower income is correlated with the lower presence of families in the upper classes (liberal arts practitioners, big merchants, minor nobility).

5. *Income inequality.* Since economic differences between provinces are reflected in individual income, to avoid collinearity between income, on the one hand, and urbanization-taxable land, on the other, it is better to focus now on the relationship inequality-income. The GDP is, after all, a summary measure of the level of development of both the primary sector and urban activities. A scatter diagram can highlight more clearly the connection between per family income and the degree of inequality in all of the 43 districts (Figure 5).⁵⁶ When analyzing physical and social phenomena, an increase of the average does not always result in higher variance

⁵⁶ This is a quite common way of representing the inequality-GDP correlation on a world scale. See, for instance, Williamson (1991), ch. 1.

around the average.⁵⁷ In the case of income in this pre-modern society, however, the relationship is clear-cut: a higher average income corresponds to a higher degree of variance around the average and, accordingly, higher inequality. Since the points of the graphs clearly describe a parabola,⁵⁸ we can test the income-inequality relationship by means of a second-degree polynomial regression, using the following equation:⁵⁹

$$YINQ = \alpha + \beta_1 Y + \beta_2 Y^2 + \varepsilon$$

where: YINQ is the Gini concentration index and Y is the per family GDP.

The result is:

$$YINQ = -0.83 + 0.0044 Y - 0.00000346 Y^2 \quad (1)$$

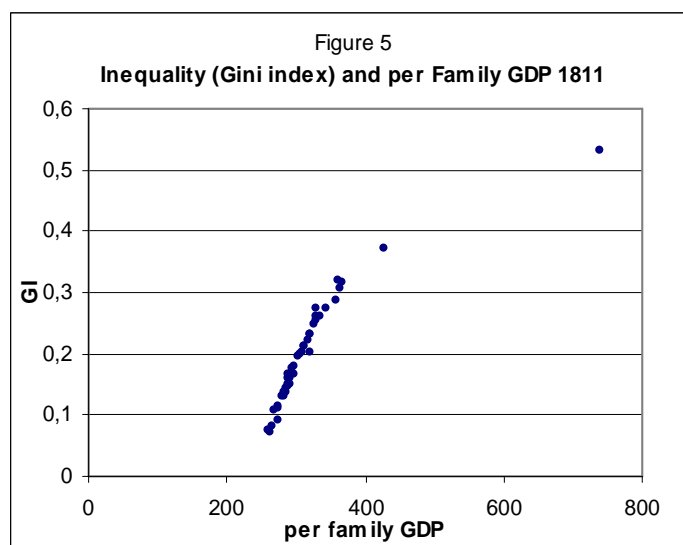
(26.6) (-20.5) (R^2 0.98)

The regression is significant at the 5 percent level, as shown by the t-stat (in brackets), and the estimates of the coefficients have opposite signs, as expected. This result is confirmed if we use the other measure of inequality (income owned by the higher 10 percent) (Figure 6):

$$YINQ = -75 + 0.4269 Y - 0.0003 Y^2 \quad (2)$$

(42.4) (-30.4) (R^2 0.99)

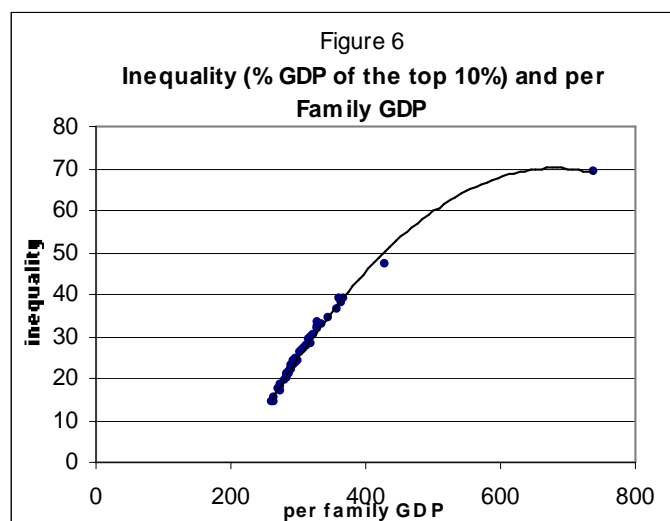
In this case, too, there exists a direct and very strong relationship between per family GDP and inequality.



⁵⁷ Analyzing, for instance, inequality in height or weight in a random sample of 100 people we would not find the relationship existing between income and economic inequality.

⁵⁸ Similar to that of Figure 4.

⁵⁹ The same method has been employed by Ram (1988). See also Ahluwalia (1976a).



While in our modern world there is an inverse relation between per capita product and inequality, in the pre-modern world the reverse is true. In the Kingdom of Naples, the higher the level of income, the higher the level of inequality. As we have seen:

1. per family income is directly correlated with the productivity of agriculture –the primary sector- and urbanization –the secondary and tertiary sectors-; as we move from poorer and less urbanized agrarian districts to wealthier agricultural areas and more urbanized regions, the average product rises;
2. there is a strong direct relationship between inequality and income; as we move from the poorest to the wealthiest districts, the average product increases and, with it, inequality.

To better understand these relations, it is useful to look at the southern Italian economy of 1811 against the background of the long-term evolution of the economy of Italy as a whole. The particular will be set now within a wider framework.

6. *Population, prices, wages, and incomes.* In Italy, as well as the rest of Europe, the modern growth of population began in the second half of the 17th century. In the Kingdom of Naples, the population, struck by the ravaging plague of 1656-57, began to increase soon thereafter at a rate of 0.40 percent a year; more rapidly, until 1800, than Italy as a whole⁶⁰ (Table 8). The disappearance of the plague was certainly the main direct cause of this rapid growth.

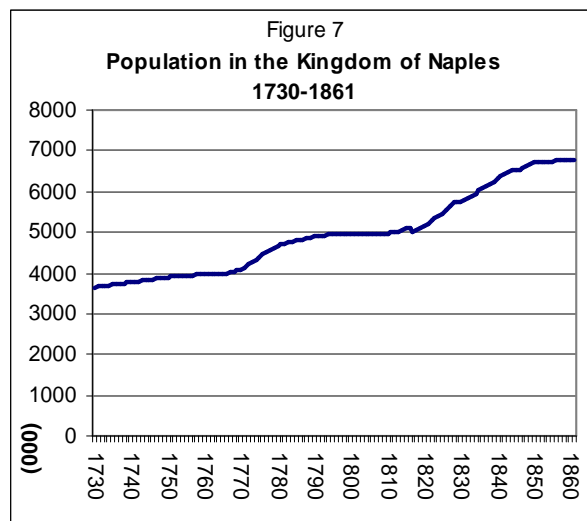
Table 8. The Italian population and the population of the Kingdom of Naples, 1660-1860 (000).

	Kingdom	Italy
1660	2,850	10,700
1700	3,300	13,600

⁶⁰ See especially Belletini (1987) and, more in general, Del Pantà, Livi Bacci, Pinto, Sonnino (1996).

1750	3,900	15,750
1800	4,959	18,260
1860	6,780	25,659

Demographic information indicates three long-lasting waves of growth in the Kingdom of Naples between 1700 and 1861, interrupted by two periods of sharp fall in the agricultural product and epidemics (Figure 7).⁶¹ The growth rate slackened the first time as a result of the famine and typhus epidemics of 1764-67; the second time from 1810 to 1817, and especially during the famine and again typhus of 1815-17.⁶² A new age of growth began in 1818. The compound increase rate was 0.7 percent a year from 1818 to 1861; high indeed compared to previous periods of demographic growth.



The rise of population was accompanied by a rapid growth of prices, especially those of food. The price index more or less doubled from the 1730s to 1817 (Figure 8).⁶³ After 1817, prices diminished until 1836, when they recovered, although without regaining the level of the first two decades of the century. The increase in demand translated into an increase in the velocity of money circulation and perhaps also into a rise of the amount of money circulating in the Kingdom and, hence, in a price increase.

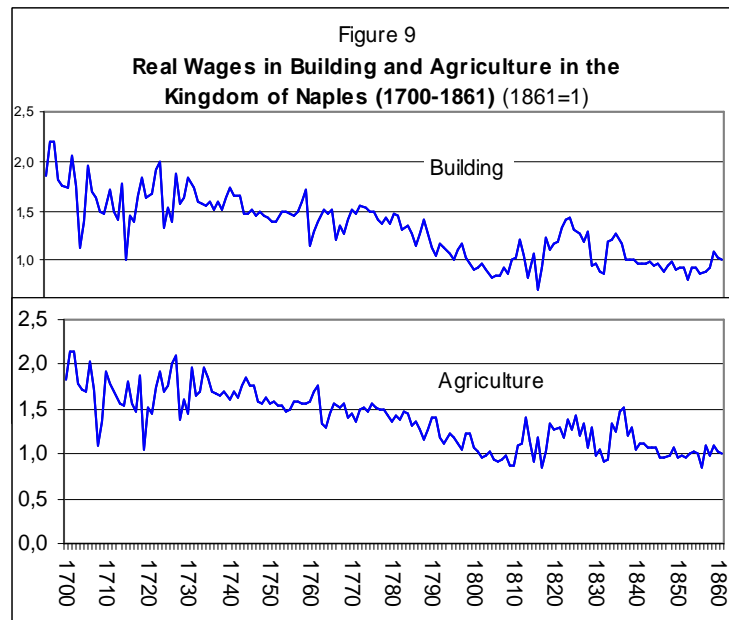
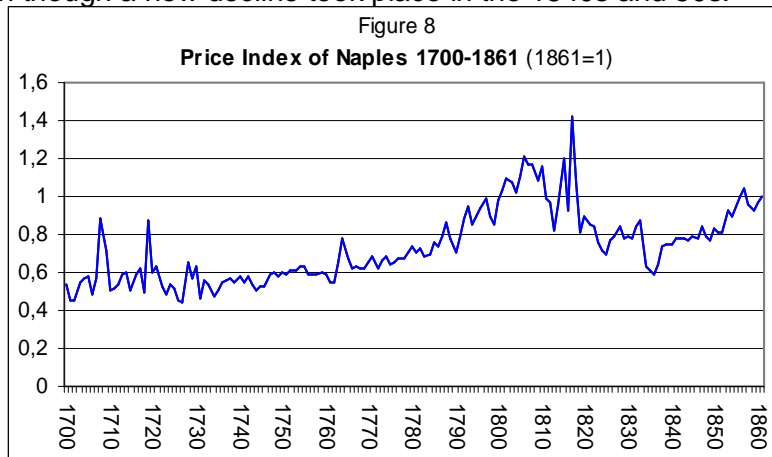
Even though the 18th century has been represented as an age of economic expansion, this often repeated opinion does not

⁶¹ The data on which the figure is based are from Beloch (1937-1961), Galasso (1965), Belletini (1987), Martuscelli (1979), Breschi-Pozzi-Rettaroli (1994), Delille (1991), De Matteis (2005).

⁶² Del Panta (1980).

⁶³ This price index, partly based on archival material, is presented in Malanima (2006). See also the price index in Mantovani (2000).

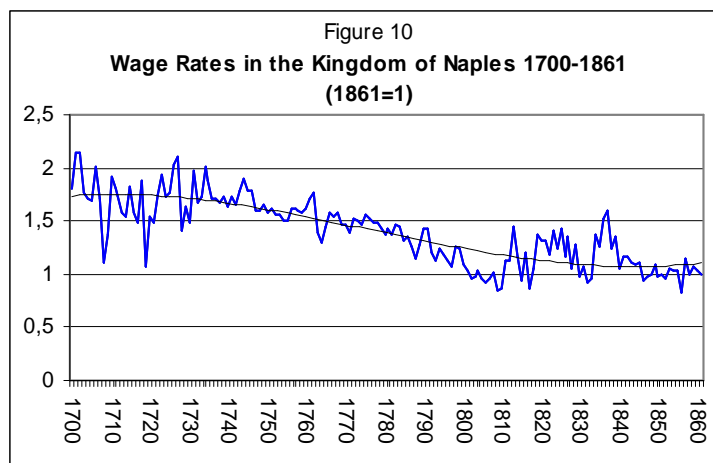
actually reflect the truth.⁶⁴ Inevitably, production grew, since the Italian population multiplied by 2.4 from 1660 to 1860. Per capita product, however, diminished. A first symptom of this decrease is the movement of real wage rates, both in the cities and the countryside (Figure 9).⁶⁵ From 1750 to 1820, wage rates diminished by 50 percent. The aggregate movement of wages shows that our period, the year 1811 and the years around it, was the worst for workers in the Kingdom of Naples (Figure 10).⁶⁶ Wages sank to a very low level in 1810-11; a period of recovery followed until 1813; a new drop occurred from 1814 to 1817. Things improved for workers after 1818, even though a new decline took place in the 1840s and 50s.



⁶⁴ I discussed this particular topic in Malanima (2003a) and (2006).

⁶⁵ I have discussed the method and sources of these wage series in Malanima (2006).

⁶⁶ The trend is represented in Figure 10 by a third-degree polynomial curve.



While rising prices are unfavourable to the working population, they are favourable, on the contrary, to the owners of resources, whether natural or produced (capital). The quote of labour on product can decline while rents, profits and interests rise. There is indeed evidence for an increase of real estate rent throughout the 18th century, and especially during the second half of that century and the first decade of the following.⁶⁷ During this long period of decreasing wages and increasing agricultural prices, landowners profited from the favourable conjuncture. Workers were obliged to work harder and harder to maintain their standard of living or, at least, ensure subsistence for their families.⁶⁸ This was precisely the strategy adopted by workers in the long unfavourable 1760-1860 century. The movement of per capita production was downward, although not as much as that of wage rates (Figure 11).⁶⁹ The period we are concerned with here, 1800-17, was a very difficult one. Looking at the movement of per capita GDP in a longer perspective, this period appears as one of the worst ever, perhaps even the worst since the late Middle Ages.⁷⁰ Things improved after 1818 but a new tough period followed in the 1840s and 50s. Only after 1880 did modern growth begin in Italy as well.⁷¹

In Italy, the two decades from 1800 to 1820 were the concluding period of a long decline in productivity⁷² and per capita product which had begun in the late Middle Ages. A production function as to labour shows an inverse relation between labour and population in the very long run (Figure 12).⁷³ As we can see, gross product rises with the population and labour force, while its slope -

⁶⁷ Benaiteau (1980).

⁶⁸ Malanima, *Wages, Productivity, and Working Time in Italy (1270-1913)* (forthcoming).

⁶⁹ The trend is described in Figure 11 by a second-degree polynomial curve.

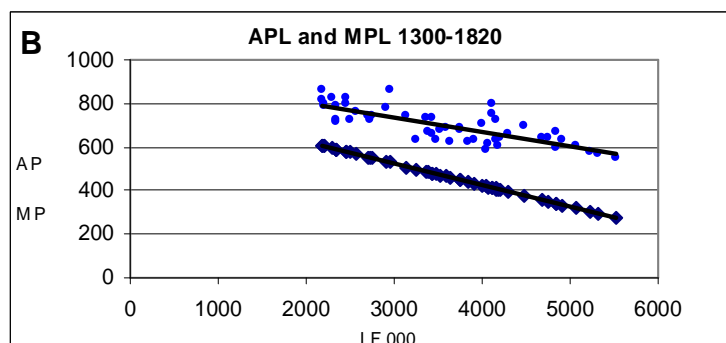
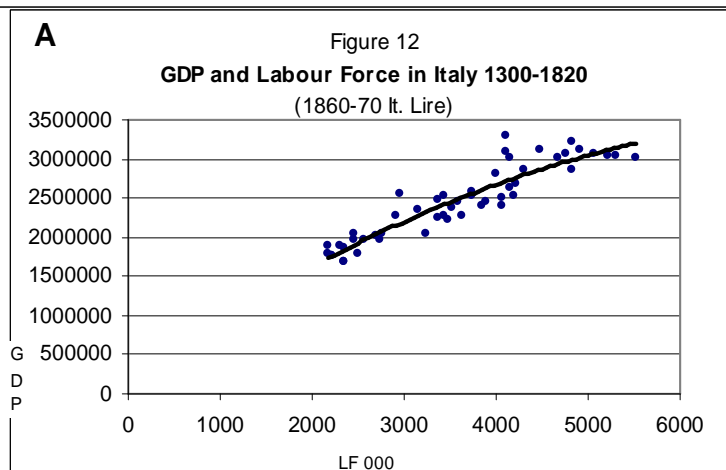
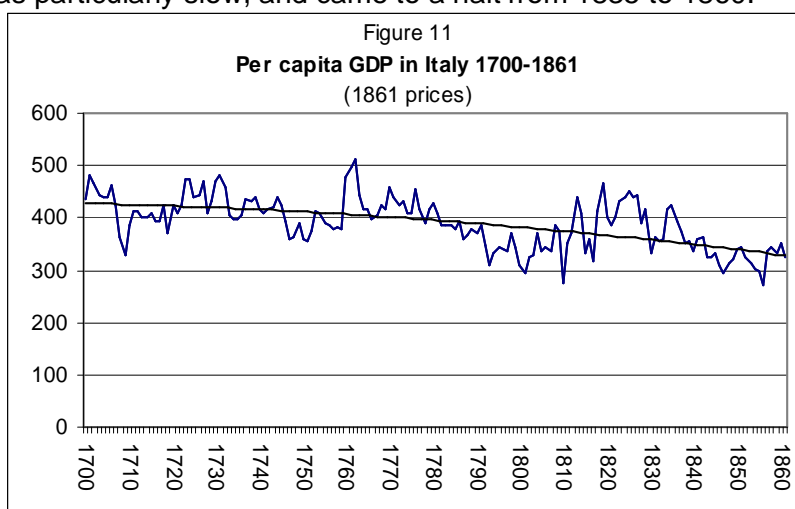
⁷⁰ See the decadal Italian GDP reconstructions from 1300 onward in Malanima (2002 and 2003) and Van Zanden (2004).

⁷¹ See especially Fenoaltea (2002), (2005a) and (2005b).

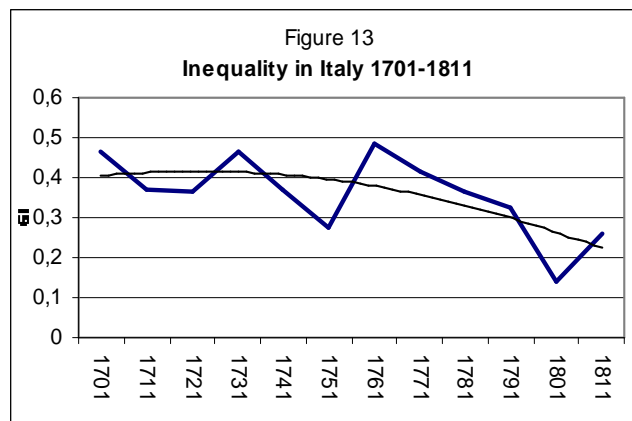
⁷² Federico-Malanima (2004).

⁷³ Based on Malanima (2003a). A Cobb-Douglas function, including, that is, capital, would be certainly better than a function where the only independent variable is population. For the purpose of the present analysis, however, the gross product-population (labour) relation is sufficient.

i.e., marginal productivity- declines. Calculating marginal labour product as the derivative of the product curve (in the graph A), and average product as the ratio of product to workers, we see that the increase in product and population was followed by a fall in both marginal and average productivity (in the lower part of the graph). A neoclassical model describes this evolution quite well. Population growth, combined with insufficient capital formation and relatively stationary technical progress, results in lower labour productivity. Longer working hours can only partially make up for this decline. Thus, per capita GDP also declines. This trend started in the late 17th century, when population began to rise at an unprecedented pace. Things changed only after 1818, although in Italy this change was particularly slow, and came to a halt from 1835 to 1860.



The coefficients of our cross-section data found regressing inequality on per capita product can be exploited for drawing inferences about inequality in Italy from 1700 to 1811. Even though using cross-section data to analyse what are essentially dynamic processes usually raises a number of familiar problems, in this case things are much less problematic. Until the beginning of the 20th century, the Italian economy remained traditional, with levels of income in the range of those of our Neapolitan districts. As a consequence, inequality could not but follow the same trend as per capita GDP: it was relatively high in the first half of the 18th century and declined thereafter (Figure 13).⁷⁴ The same trend has been observed in France,⁷⁵ and was probably common to other European countries as well during the 18th century.



7. *The functional and personal distribution of income.* We saw that low inequality in the Kingdom of Naples prevailed in the period when the per capita product was the lowest in Italian economic history since the late Middle Ages. Now the question is: why was inequality low when per capita product was also low in this pre-modern economy, whereas today low per capita product is associated with high inequality and vice versa? If we shared the well-rooted opinion that inequality increases when wages decline and rents rise, we would have to expect high inequality in the Neapolitan state in 1811, which is just included in the years defined by Hoffman, Jacks, Levin and Lindert as the “inequalitarian era”. Why is there an inverse relationship between per capita income and inequality today, while it was direct in this pre-modern economy?

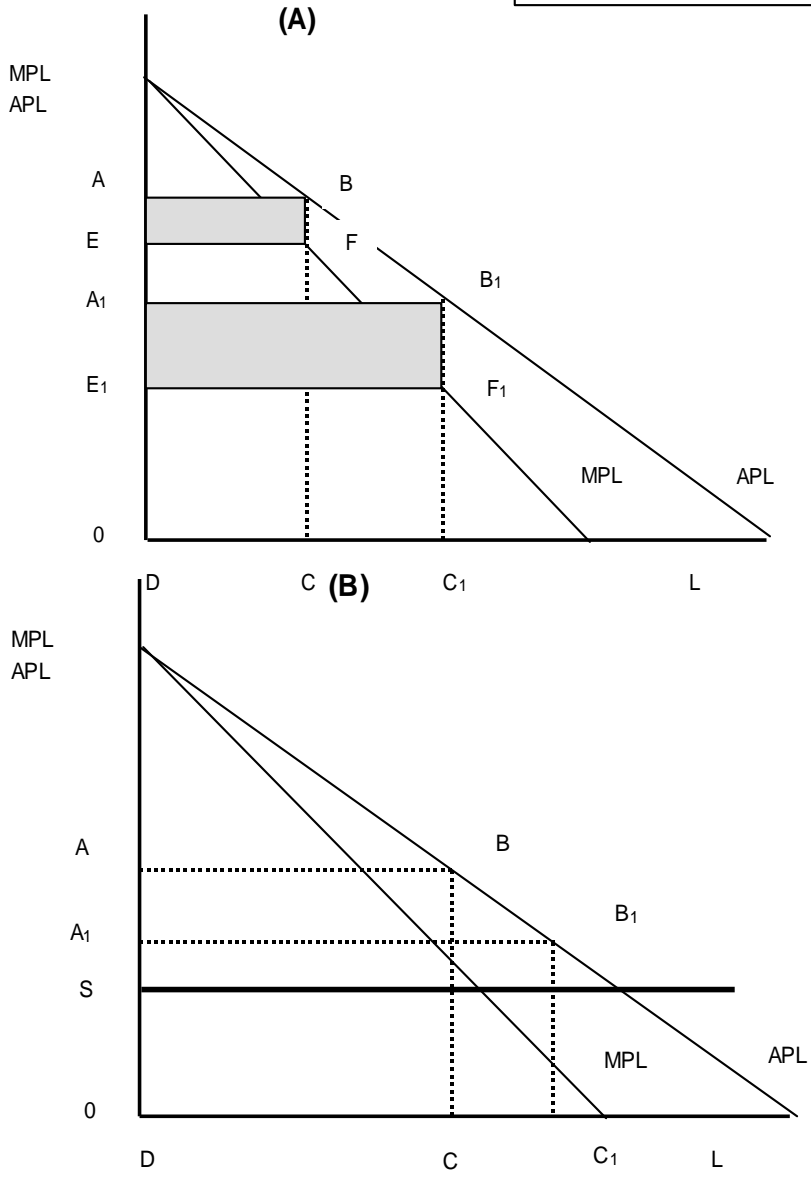
To explain this trend towards more equality while per capita product is diminishing in pre-modern economies, it is useful to look

⁷⁴ The figure presents data for the first year of each decade. It is based on equation (1). The trend is described by a second-degree polynomial curve.

⁷⁵ Morrisson-Snyder (2000).

at a simplified representation of the marginal and average product of labour (Figure 14).⁷⁶

Figure 14. Average and Marginal Labour Productivity.



The movement is the same as the one we have already seen in the lower part of the previous graph. While those data were real, we have here a theoretical version. I assume that the production function as to labour describes a parabolic trend, as in the previous graph, and hence that marginal labour productivity (MPL on the vertical axis), as the derivative of the product as to labour, and APL are

⁷⁶ Kaldor (1956) makes some stimulating considerations on this subject.

then straight lines. In both figures, product is represented on the vertical axis (more specifically, average and marginal product per worker) and labour (L) on the horizontal axis. Rectangles ABCD and $A_1B_1C_1D$ represent gross product as a function of labour. To simplify the model, I have assumed that workers are always the same percentage on the total population, and working time is stable. Assuming fluctuations in working time and the ratio of the labour force to the total population would make the model more realistic, but the result would be the same.

To find changes in the functional distribution of product, we have to look at the two rectangles ABEF and EFCD (Figure A), which form the rectangle of product (ABCD). EFCD is the wage fund -i.e., the yearly per capita wage multiplied by the labour force-, while ABEF is the capital revenue (rent, interest, and profit, in our simplified representation). Now, the horizontal side (DC or DC_1) of both the product and wage fund rectangles is the same. Consequently, the differences in area of these rectangles will depend on the length of their vertical sides. Since the proportion of the FC side to the BC side diminishes as we move to the right (while, that is, labour marginal and average productivity declines), the whole EFCD rectangle will also diminish as a ratio to the gross product rectangle. Hence, the ratio of the wage fund to the total will decrease, while the percentage of revenues from capital will relatively increase. Functional income distribution will change according to the classical view. We have already seen that, while the Italian gross domestic product was increasing in the second half of the 18th century, wages were declining and land rents rising. We also know that labour income represented about 75 percent of the total product in the first decades of the 18th century and was, instead, 60 percent at the beginning of the following century.⁷⁷ Thus, the theoretical model fits the actual evolution of incomes.

Now, while functional distribution exhibits these changes, what is the evolution of personal distribution? Let us turn to Figure B; which is more interesting in our perspective. The features of this graph are the same as those of the previous one. The only change is the introduction of line S (Subsistence). The S value on the vertical axis represents the amount of product that people need to survive. As we move to the right, the area of the subsistence rectangle increases at the same rate as population. We can assume that in pre-modern agrarian societies this rectangle often represented about half the gross product. Now, if the rectangle of product, ABCD, coincided with the rectangle of subsistence, the only possibility would be perfect equality. If anybody received a higher percentage of product than his neighbour, the latter would not survive. We could hence describe the portion of the rectangle representing the difference between the rectangle of gross product and the rec-

⁷⁷ Malanima (2006).

tangle of subsistence as the space of inequality. The higher the AB line is than the S line of subsistence, the more scope for inequality there is. When the difference between product and subsistence increases, so do individual opportunities for social advancement, and the scope for inequality for society as a whole. Some families rise above mere subsistence. Their income increases compared to that of other families living close to the subsistence line. Since the income elasticity of secondary goods and services is higher than that of primary goods, the rise of income implies an increasing demand for industrial goods and services and, hence, for the work of the people who produce these goods and services. As a consequence, the number of this people increases, and so does urbanization. The income of the richest 10 percent of the society rises.

What happens, instead, when the horizontal side of the product approaches the horizontal axis S of subsistence; when, that is, labour productivity and per capita product diminish? The possibility for inequality necessarily diminishes too, since the “space of inequality” is shrinking. It is presumable that the great majority of families now have less money to spend on inessential commodities than before. All their income now goes for subsistence; that is, for agricultural goods. The demand for inessential goods and services shrinks, and consequently so do the middle and upper classes. Only a small fraction of the richest 10 percent of the society – the big, noble landowners- benefits of this conjuncture.

We could synthesize these changes in functional and personal distribution by saying that:

- in a period of decline in labour productivity and per capita product, when labour income diminishes and revenues from capital rise, the space of inequality shrinks and equality in poverty increases;
- in a period of rising labour productivity and per capita product, when the demand for labour grows, labour income increases, product grows, and the “space of inequality” widens; income variability replaces equality in poverty. Society becomes more unequal.

Thus, the decline of labour productivity and per capita income has two different outcomes: the rise of functional inequality, and the decline of personal inequality. In 18th-century Italy, the degree of inequality is the result of a combination of two different movements of functional and personal inequality.

“Real inequality”, however, Hoffman, Jacks, Levin and Lindert tell us, goes deeper down than simple inequality in income in periods of wage decline such as the 18th century. We must devote to the topic some attention. It is a well known fact that the poor and the rich demand different kinds of goods. The basket of the former is essentially composed of agricultural products, that of the latter rather of luxury goods and personal services. Now, we know very well that everywhere in Europe, while agricultural prices kept rising

until the 19th century, the prices of luxury goods and services diminished.⁷⁸ “the prices of luxuries dropped and the prices of staples rose”, as Lindert says.⁷⁹ The effect is that “real inequality”, i.e., inequality in consumption, was actually widening social and economic gaps. So, during the 18th century, the rising inequality was deepened by the different trends of agricultural prices, on one hand, and prices of industrial goods and services, on the other. Hoffman, Jacks, Levin, and Lindert are right if the composition and structure of society remain unchanged over time, with no variations in the ratio of rich to poor families. They are no longer right, however, in cases where the percentage of rich upper class families is shrinking, the total income they receive is diminishing, and equality in poverty advances; in this case, the growth of “real inequality” is more than counterbalanced by the growth of equality.

Our data reveal that in 18th-century Italy the trend towards “equality” was certainly much stronger than that towards “inequality”. As we have seen above, a decline of 100 ducats per family - more or less like that experienced by the Italian population during the 18th century- results in a fall of income for the upper strata of society –the richer 10 percent- from ca. 40 to ca. 15 percent. Even though the consumption of the high social classes increased by 20 percent, because of the declining prices of their basket of goods, this hardly affects the general trend towards a growth of equality in poverty. Our data indicate that the growth of equality in poverty in 18th century Italy would imply a fall of the concentration index from 0.370 to about 0.190. Taking account of the so-called “real inequality” and assuming that the consumption of the wealthier 10 percent of the population increased by 20 percent, the only result would be a modest increase of the Gini index from ca. 0.190 to 0.200. Even assuming a higher “real inequality” effect –e.g., a 30 percent higher consumption for the richer families- things would hardly change. At any rate, social simplification and the progress of equality in poverty would far outstrip the counterbalancing “real inequality” effect. Italian society was not becoming increasingly unequal and rich. The opposite is true: it was becoming increasingly equal and poor. Probably most regions of Europe followed the same trend during the 18th century.

8. *After 1811.* We are still looking, obviously, at pre-modern societies.⁸⁰ In these societies, when population is dense and capital relatively scarce, equality prevails. When, on the contrary, population is scarce, capital relatively plentiful, and labour productivity high, inequality prevails. This is the reason why the Italian 15th cen-

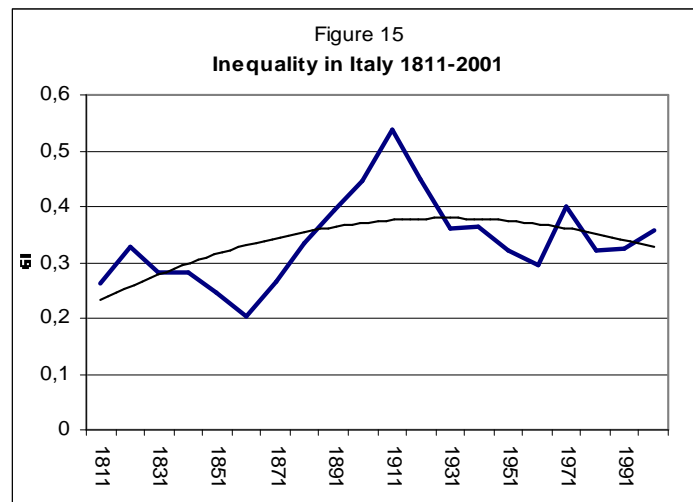
⁷⁸ I discussed the problem in Malanima (2003b), *passim*.

⁷⁹ Lindert (1998), p. 30.

⁸⁰ Things are different today. Ahluwalia (1976b) wrote that “our estimated results unambiguously show high growth rates of population to be systematically associated with greater income inequality” (pp. 325-26).

tury was an age of strong inequality, as the Florentine 1427 cadastre bears out,⁸¹ and 1811 a year of low inequality, as the Neapolitan personal income tax register clearly shows. If this evolution of inequality in pre-modern societies will be confirmed by future research, the trend of inequality will look like an S curve where, within a relatively narrow range of per capita income, as typical in pre-modern societies, people move from low inequality, when population is dense and capital scarce, towards higher inequality, when population is scarce and capital plentiful, and again towards lower inequality when population grows again.

What about later times? Does our Neapolitan history have something to teach us about modern inequality and equality? It seems correct to use regression coefficients to estimate inequality in Italy until the eve of World War I. Until 1911, the Italian per capita product remained within the range of our cross-section values for the Kingdom of Naples.



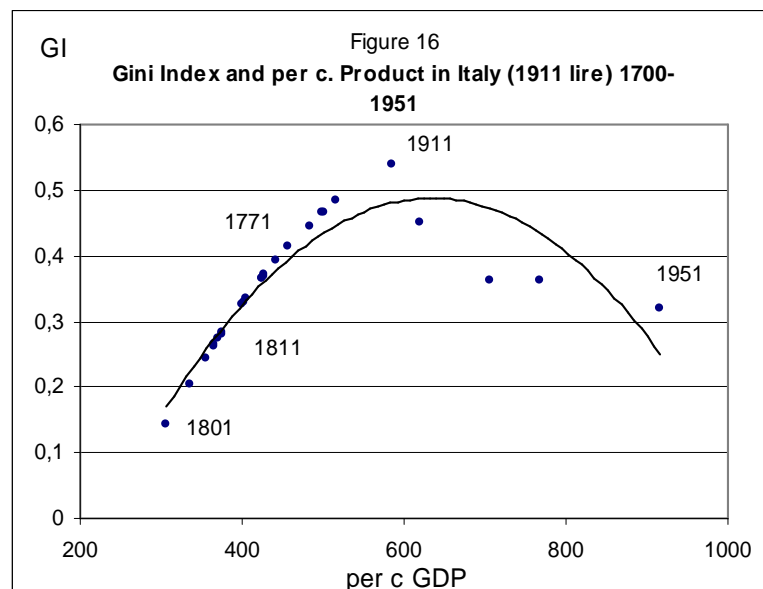
We can now gain a long-period perspective on the evolution of inequality (Figure 15).⁸² A comparatively high level of inequality was attained in Italy in 1821 and 1831. It was followed by a new decline. At the time of the unification of Italy, the Gini index was around 0.200. My estimates of inequality from 1861 to 1911 only partially agree with those recently presented by Rossi, Toniolo, and Vecchi⁸³ for the period from 1881 on. In Italy, the rise of income at the start of modern growth went hand in hand with increasing inequality; although perhaps less than in other modernizing economies, as

⁸¹ See Van Zanden (1995); even though the research on 1427 Florentine Catasto has only focused on distribution of wealth, rather than income: Herlihy (1978).

⁸² The figure presents data for the first year of each decade. Until 1911, it is based on equation (1) and on the series of per capita income in Malanima (2006). After 1911, it is based instead on Rossi, Toniolo, Vecchi (2001). The trend is described by a second-degree polynomial curve.

⁸³ Rossi, Toniolo, Vecchi (2001), Vecchi (2000) and Vecchi (2003).

Rossi, Toniolo, and Vecchi remark. Italy's exportation of poverty in the form of emigration –14 million people between 1876 and 1914–certainly had a significant curbing effect on the growth of inequality. Inequality reached a peak, however, in the years around 1911, a period of rapid economic change. The urbanization rate –which, as we have seen, is highly correlated with income and then inequality–increased fastly: from 16.2 percent in 1861 to 27.2 in 1911.⁸⁴ The flow of workers towards the cities and more productive jobs was widening the gap between urban and rural families. After World War I, per family product grew, which means that many families hence had access to higher incomes. Thus, a new form of equality, unknown in pre-modern times, arose.⁸⁵ From then on, the per capita income-inequality relationship becomes inverse, whereas previously it had been direct. All in all, the Kuznets curve seems still alive (Figure 16).⁸⁶



9. *Conclusion.* We started with two well-rooted opinions about pre-modern inequality and finish discovering that these opinions are false. The documents concerning the Kingdom of Naples in 1811 discussed here show that equality –and, more precisely, equality in poverty– prevailed in the early 19th century. Although no incontrovertible conclusions can be drawn from statistics about pre-modern economies, these data show, beyond any reasonable doubt, that this pre-modern society was much more equalitarian than ours.

From the standpoint of the economy, that period –the beginning of the 19th century– was the worst since the late Middle Ages.

⁸⁴ Malanima (2005).

⁸⁵ For an overview of debates about the Kuznets approach to personal income, see Stern (1989), pp. 627-29.

⁸⁶ The sources for this Figure are the same as for Figures 13 and 15.

Population was rapidly growing, prices were rising, real wages were going down, and the per capita GDP had never been lower in seven hundred years. One would expect inequality to have increased under these circumstances. The opposite is true. Inequality was low precisely because the per capita income was low. It diminished with the per capita product during the 18th century. The start of modern growth in Italy was accompanied by a growth of inequality, although perhaps less than in other industrializing countries. The road towards a new equality opened up only later, with the progress of modern growth and the increase of per capita GDP. Then the transition from the relative equality in poverty to the relative equality in affluence began.

Appendix

Note on the sources

The tax decree of 29 September 1809, after ruling exemption for the poorest families, sets out the following criteria for the distribution of the rest of the population among the 8 remaining classes:

- amount of land tax paid by landowners;
- amount of land lease paid to landowners;
- amount of house rent (based on rent contract or the cadastre);
- annual salary (*stipendio*) of public employees.

These four criteria were accurately quantified: the amount of land tax, lease, house rent (a distinction was made between Naples, where it was more than 3 times higher, and the rest of the state), and salary were specified for each class (see a page of the document in the Figure).

For our purposes, salary is the most useful of the four criteria. Together with the other criteria, salary allows us to determine the relative position of each family in the income hierarchy. The salary of a public employee, however, does not correspond to the annual family income. It would be too low, and incompatible with family subsistence at the high current prices of that time. We have already seen (§ 1) that in 1811, on average, the price of the food required to support a family was computed at 155 ducats per year for families living in the countryside, much more for those living in towns, and especially in Naples. A salary of 120 ducats –for the second class, since the income of the poorest families (*indigenti*) is not specified- was insufficient even for mere subsistence. In any case, what is important for our estimation of inequality is the relative difference of every class and the reliability of the distribution of the population among the 9 classes. On the basis of coeval prices, I have assumed 200 ducats as the lowest income per average family. Interesting data on the incomes of specific jobs can be found in Saladino (1957), pp. 200 ff., and Ostuni (1999), p. 37. The information about the highest income group provided in the decree can be supplemented with data provided, again, by Saladino (1957) about the highest land rents in Basilicata, Principato Citra, and Molise. For a later period (1846), useful data on the revenues of public funds are supplied by Ostuni (1992), App. VI.

Reducing the 9 classes to 5 and attributing to each an income level consistent with the real data for that period, we obtain the following simplified prospectus:

	Classes	% of pop.	Average income per fam. (ducats)
1	I	14.6	200
2	II	75.9	260
3	III	5.9	600
4	IV-V	3.0	1,500
5	VI-IX	0.6	5,000

To compute the concentration index, I distinguished the following 12 groups within the population of the whole Kingdom (the subsequent ex-

ample refers to the average for the Kingdom). The highest 10 percent was distinguished in three different classes:

Classes	% of population	Ducats per family
1	10	200
2	10	230
3	10	260
4	10	260
5	10	260
6	10	260
7	10	260
8	10	260
9	10	260
10	6	600
11	3.3	1,500
12	0.7	5,000

Data in our document do not allow to analyze the problem of inequality within every class of income. On the matter I can only say that:

1. for about 90 percent of the families –in the first two classes– the difference in income could not be too strong (as the coeval documents, and especially the 1811 investigation, reveal);
2. for the last 10 percent of the society it is possible to distinguish 3 classes of income. In these classes inequality was certainly wider than in the previous 90 percent of families. Inequality had to be especially high in the top 262 richest families. They represented, however, 0.0276 percent of the total population. A deeper distinction of the inequality in income in this higher 10 percent could hardly imply a difference in the results; especially considering that the adopted criteria have the effect of magnifying rather than reducing inequality in the Kingdom.

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