Second Industrial Revolution in Italy (1860-1913)

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Abstract

The paper deals with two topics largely debated in economic history of the Italian "catch up" in the last quarter of 19th century. Some economic historians emphasize the discontinuity (Mori, 1992; Giannetti, 1998; Vasta, 1999) analyzing the Italian case in the context of the Second Industrial Revolution, when new "science based" sectors, like chemicals and electricity, drove the pattern of economic growth. Others (Bonelli, 1979; Cafagna, 1989; Federico, 1995) emphasize the continuity of the Italian growth, which was due essentially to the comparative advantage of a late comer in manufacturing sectors like textile (silk). We use the time series approach of cointegration and common trends to give a new perspective about these topics searching which were the leading sectors and the extent of interindustry linkages. We find that the new sectors – chemicals and electricity- representing the new "technological regime" of the Second Industrial Revolution, were the leading ones even in Italy, showing a common trend with the aggregate industrial production. A Granger causality approach, both among the cointegrated sectors and between them and all the others, confirms finally that electricity and chemicals where the leading sectors, suggesting that the new "science-based" industries were at the origins of the Italian "catch up" of the Giolitti's Age (1890-1913).

Introduction

There is little agreement on the industrialization of Italian economy in the second half of the 19th century. Some scholars (Romeo,1961; Mori, 1992; Sereni, 1966) assess that was essentially the public policy effort to establish an iron and steel industry to push the Italian "early start" between the 1880s and the 1910s. Others (Gershenkron, 1962; Fenoaltea, 1973) claim that iron and steel represented a too narrow industrial base to ensure a self sustained industrial growth, lacking an appropriate integration with machinery and equipment sector, which moreover presented a production function more adequate to the Italian comparative advantage. Others, (Bonelli, 1979;Cafagna, 1989) propose an alternative approach, based essentially upon trade data, to assess the crucial role of the traditional sectors (food, textiles, especially silk) in sustaining the industrial growth of Italy along the entire 19th century, and later too. Few scholars, finally, (Giannetti, 1998; Vasta, 1999), suggest that the economic boom of the Giolitti's Age can be described in the context of the Second Industrial Revolution regime, characterized by the rise of new industrial sectors: chemicals and electricity.

Here we investigate the matter by utilizing modern time series methods to explain which were the industrial sectors driving the Italian growth from the Unification (1860) up to the early 20th century, and the interrelationship among them (Fenoaltea, 2003).

The basic idea of time series methods is that individual industries output movements give information on the extent that either common or industry specific forces drive aggregate industrial growth. These methods identify the extent to which common features are present in individual data and whether a single or small number of stochastic trends represent the data. The smaller the number of common stochastic trends (the greater the existence of cointegration) in disaggregated industrial production, the more pervasive are the effects of one or more industry specific productivity shocks. On the contrary, if the effects of industry specific productivity shocks were localized, any industry would have distinct output trends.

The methods of cointegration and common trends help to answer also to other two largely debated questions of the Italian economic growth between 1860 and 1913, i.e. which were the leading sectors and the extent of interindustry linkages. The most part of economic historians underline the reduced interrelatedness of Italian industrial matrix in this period, even emphasizing different causes for it: a low aggregate level of demand (Bonelli, 1978), an inadequate tariff policies for machinery and equipment industry (Gershenkron, 1962), etc. Extension of the analysis to consider causal relationship among industries follows from the observation of common trends. If common forces drive the output of industry groups, tests for causality across groups is useful to locate the sources of growth in specific industries.

1. Data and Measures: Cointegration Analysis of Data

Since the seminal work by Engle and Granger (1987) and after the contribution of Stock and Watson (1988), the discussion on common trends in disaggregate data focused on non-stationary time series. They proved that non-stationary time series could be decomposed into stationary components (cointegrating vectors) and stochastic common trends; the stochastic common-trend components are the persistent forces while the stationary components are transitory cycles. Hence, the permanent innovations can be associated with productivity-augmenting shocks, in specific industries, rather than wide economy technological progress.

From 1861 to 1913 complete annual disaggregate series of industrial production are available for 14 sectors (Figure 1, Figure 2) (Fenoaltea, 2003). We examine all of them to search for the existence of linear trends in each sector; in the cases where data for a series appears to be trend stationary, I(0). The results from the unit root test are reported in Table 1. We used the Kwiatkowski, Phillips, Schmidt, and Shin (KPSS) Test (Kwiatkowski, Phillips, Schmidt, Shin, 1992) to detect the existence of linear trends in the series, because it has shown to be the most robust among the unit root tests. For our 14 sectors the unit root test fails to reject the null hypothesis of stationarity[1] in a single case (the tobacco sector), while all the others sectors are integrated of order one, I(1).

. The non-stationary series show stochastic trends which are influenced by shifts in their output levels. Together, the non-stationary time series influence the aggregate production trend as shown in Figure 3. Since there are 13 non-stationary output series, at most 13 different stochastic trends could drive overall industrial production trend in the period 1861-1913. The aim is to define exactly how many of these stochastic trends are common to more than one sector and which are the sectors that can be considered as the sources of growth for the whole Italian industrial production.

To establish the number of common trends for the 13 sectors, we used the standard approach suggested by Engle and Granger (1987) and developed by Johansen (1988, 1991, 1995). Engle and Granger (1987) pointed out that a linear combination of two or more non-stationary series may be stationary. If such a stationary linear combination exists, the non-stationary time series are cointegrated. The stationary linear combination is called the

[1] The KPSS test differs from the standard tests (the Dickey-Fuller or the Phillips-Perron tests are the most used) in that the series is assumed to be trend stationary under the null hypothesis.

cointegrating equation and is interpreted as a long-run equilibrium relationship among the variables. If this combination exists, the corresponding parameter vector is called *cointegrating vector.*

The aim of a cointegration test is to determine whether a group of non-stationary series are cointegrated or not and to indicate the number and the coefficients of all the possible cointegrating vectors. In particular, with *n* non-stationary variables and *n-k* significant cointegrating vectors, there will be *k* common trends. When production series reduces to a single stochastic common trend, a singular permanent force, driving disaggregate industrial output, has the same effect on each sector and the trend growth will be the same for all sectors[2] (Greasley, Oxley, 2000). By implication, the smaller the number of common stochastic trends in industrial production series, the greater the existence of cointegration, the more pervasive is the effect of the Second Industrial Revolution technologies. Even if a system of sectors may have a single stochastic common trend, the response of each sector's output trend to the same shock may be proportional (see Appendix for details).

From the trend growth filtered graphs in Appendix, we can see that there are common permanent driving processes - technological shocks or crises - influencing each sector, but with different long run weights, even in those sectors which appear to share a common trend. The existence of more than a common trend excludes convergence, and one single common trend among a subgroup of sectors identifies the forces affecting output and driving growth.

As mentioned above, we use the Johansen procedure to discover the number of cointegrating vectors and, consequently, the number of common stochastic trends. The results in Table 2 exclude the existence of a single stochastic common trend for the 13 non-stationary series, suggesting that there is convergence. Hence, the sectors driving the Italian industrial production during the period 1861-1913 are fewer than 13. In particular, the Trace Statistics suggests that cannot be rejected the existence of (at most) 9 cointegrating vectors (at 1%) while the Maximum Eigenvalue Criterion does not reject (at most) 6 cointegrating vectors (at 1%)[3]. These criteria give different results, but both ensure that a small number of common trends (4 for the Trace Statistic and 7 for the Maximum Eigenvalue Criterion) influenced the Italian industrial production in 1861-1913.

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[2] This correspond to Bernard and Durlauf's (1995) definition of long run convergence if the long term forecasts for the sectors are equal at a fixed time.

[3] In this work we used to fix the significance level at 1% but we indicate in Table II also the 5% level. If we accept the 5% level, the number of cointegrating vectors (common trends) will be higher (lower). In particular, the Trace statistics indicates the existence of (at most) 10 cointegrating vectors (and 3 common trends), while the Eigenvalue Criterion does not reject (at most) 9 cointegrating vectors (and 4 common trends) at 5% significant level.

The next paragraphs concerns, firstly, how many sectors show stochastic common trends and, secondly, which of them represent the key sources of growth of Italian industrial production [4].

2. Common Trends among sectors

In the previous paragraph, we showed that a "small" number of sectors shaped the growth of the industrial production in Italy during 1861-1913. Now we consider whether the stochastic trends driving overall industrial output can be associated with specific industrial sectors. We apply the same procedure used in the previous paragraph for all sectors to identify what sectors have the same common trend. In other words, we look for the sub - groups of sectors showing the same stochastic trend and therefore driving the growth of the industrial production.

Table 3 presents the results of the Johansen Cointegration Test for the sub - group involving the Machinery and equipment, Electrical and Chemical sectors[5], showing the existence of two significant cointegrating vectors at 1% significant level; this implies that the output of all the sectors in the group were shaped by a single stochastic trend. Starting from this result, we added other sectors to this group, searching for an enlargement of the initial sub group. Many alternative sub-groups have been tested and most of them show that the stochastic common trend among the sectors involved completely disappears[6]. However, in Table 4 we proved the existence of a common stochastic trend among a wider sub group of sectors at a lower significant level (5%).

To summarize, using the Johansen procedure, we identified a core group of sectors (machinery and equipment, chemicals and electricity) showing a very strong relation (a significant common trend at 1% level) and a wider group (the previous sectors plus Food, Leather, Printing and Paper, Clothes, Iron and Steel), showing the existence of a common trend but with a lower significant level (5%). Finally, we can exclude at 1% significant level that Textiles, Non metallic minerals, Mining, Miscellaneous and Wood sectors share a common trend both with the core group and the wider one. Moreover, they do not exhibit a common trend among them too.

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[4] The procedure follows Greasley and Oxley (2000) even if it is slightly different due to the structure of data. They have industry groups hence, they, firstly, search for the common trend within the industry, then look for a common trend between the industries.

[5] The historians discussions focused on these as key sectors to explain the effect of the Second Industrial Revolution, hence we started from them exploring the cointegrating relations among the sectors.

[6] The results of the tests concerning different sub groups are not included here but they are disposable on request to the authors.

The method of common trends clarifies which are the sources of industrial growth by reducing the range of sector-specific forces shaping the aggregate industrial production; moreover, it highlights which were the sectors whose output shaped the Second Industrial Revolution in Italy. The up-trend of the 1890s, "Giolitti's age" arose from a small number of sectors: Chemicals, Electricity and Machinery and equipment, which show a single common stochastic trend at the highest significant level, were the sources of growth for the permanent components of the industrial production. The wider group sharing the common trend with them at a lower significant level represent a weaker (in probabilistic terms) source for the industrial production growth in the same period; they share the technological shocks which pushed Chemicals, Electricity and Machinery and equipment, but they do not influence the Italian industrial production as well.

The next paragraph extends the previous results analysing the causality relation (Granger Causality) both among the cointegrated sectors and between them and all the others to investigate the interdependences among sectors and the eventual existence of leading sectors.

3. Causality in Industrial Production

The previous paragraph shows the existence of a group of cointegrated sectors driving the overall industrial production in Italy in 1861-1913. The core group involves three technologically advanced sectors (Machinery and equipment, Electricity, Chemicals) and their relation is significant at 1% level, while a wider group involving the previous plus other five sectors is detected at a lower significant level (5%). Now the central issue is to verify whether particular industries within the cointegrated group defined above had causal linkages which spilled across the common trend groupings. In fact cointegration and common trends provide an alternative explanation to the expenditure-based input-output approach to measure interrelations among sectors.

Extension of the analysis to consider possible causal relationships among sectors growth follows from a discussion of common trends. For those sectors driven by common forces, causality tests within and across cointegrated groups help to describe the sources of growth. Even if technological progress spilled across the economy, the sources of innovation may have been located in particular sectors. To test the existence and the direction of causal relations we used the Granger- type causality tests. The Granger (1969) approach to the question of whether x causes y is to see how much of the current y can be explained by past values of y and then to see whether adding lagged values of x can improve the explanation of y: y is said to be Granger-caused by x if x helps in the prediction of y, or equivalently if the coefficients on the lagged x's are statistically significant. It is important to note that the statement " x Granger causes y" does not imply that y is the effect or the result of x. Granger causality measures precedence and information content but does not by itself indicate causality in the more common use of the term (Greene, 2000). Various tests of Granger-type causality have been derived, in this work we run bivariate regressions of the form:

$$y_t = \alpha_0 + \sum_{i:1}^{l} \alpha_i y_{t-i} + \sum_{i:1}^{l} \beta_i x_{t-i} + \varepsilon_t ,$$
$$x_t = \alpha_0 + \sum_{i:1}^{l} \alpha_i x_{t-i} + \sum_{i:1}^{l} \beta_i y_{t-i} + u_t , \forall (x, y)$$

The reported F-statistics are the Wald statistics for the joint hypothesis:

$$H_0 : \beta_0 = \beta_1 = ... = \beta_l = 0$$
$$H_1 : \overline{H_0}$$

If the test does not reject the null hypothesis, this means that "*x does not Granger Cause y*"[7].
We concentrated on the non-stationary, cointegrated sectors, specifically focusing on those also ascribed in the historiography as having a key role in leading the Second Industrial Revolution. In particular, we consider Chemicals, Machinery and equipment, Electricity both for their role in the Second Industrial Revolution and for their strong common trend highlighted in the previous paragraph; then we analyse also the causal relations of Iron and Steel, Food and Clothes, even sharing a weaker common trend with the previous group. Finally we consider Textiles, Mining and Miscellaneous (shipbuilding), even if they do not show any common trend, because they represent crucial sectors – especially textiles - in the Italian industrial production between 1861 and 1913. We ran the bivariate regressions for all these sectors to discover the existence of causal relations between them and among them and all the sectors[8].
The results are shown in Table 5. According to them, the sectors with the most pervasive links to other sectors (at 1% significant level) are Chemicals (6 links), Electricity and Miscellaneous (4 links), then Textiles (3 links) and Machinery and equipment (2 links). At a first sight, the results from the causality tests confirm the strength of the cointegrating relations described above: Chemical, Electrical and machinery and equipment sectors share a common trend and are the leading industrial sectors in Italy between 1861-1913. Moreover,

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[7] The number of significant lags, l, is chosen according the Akaike's Information Criterion, augmented by extra lags depending on the order of integration of the series. The I(1) series are added by one extra lag to each variable in the equation.
[8] Notice that any causal link among the non-stationary sectors may be long term, since their output movements have permanent effects.

Electricity appears to be the leading one, because it is the sector which "Granger causes" the highest number of sectors without being determined by any other sector. Chemicals appears to be determined by the Electricity, while Machinery and equipment shows the weakest causal relation amongst the three sectors of the core group, being determined both by Electricity and Chemicals.

Finally, the case of the Textiles sector is considered. It seems to be completely distinguished from all other sectors: it does not show a common trend with any sector, but it is quite relevant in the causality tests (three links). In the mean time, it appears not to be influenced by anyone and, moreover, it is completely separated by the leading sectors.

On the basis of the results there exists a clear causal relation between Chemicals and Food, Printing and Paper; stone and glass; Wood; Machinery and equipment and Iron and Steel, confirming the relationship of the chemical products with many sectors during this period. This is also confirmed by the quality of causal relations concerning the Machinery and equipment and Electrical sectors which are less widespread than those concerning the Chemical sector, focusing on stone, glass and Iron and Steel and Chemical, Non metallic minerals , Machinery and equipment and Iron and Steel, respectively.

The causality test results help to refine the interpretation of the industrial growth in Italy which emerges from the common trend perspective. Concerning the core group (Chemicals, Electricity, Machinery and equipment), Electricity emerges as the leading sector while Chemicals and, particularly, Machinery and equipment follow. Outside this group, the miscellaneous sector has the wider linkages, "Granger causing" Printing and Paper, Non metallic minerals, Wood and Iron and Steel; and being determined by Non metallic minerals uniquely. The Textiles sector, instead, does show no common trend with the leading group and has a reduced influence among the non- stationary sectors.

Conclusions

The paper copes with three topics largely debated in economic history of the Italian "catch up" during the last quarter of the 19th century. The first one concerns the continuous or discontinous character of this "catch up". Some economic historians emphasize the discontinuity (Mori; Giannetti; Vasta) analyzing the Italian case in the context of the Second Industrial Revolution, where new sectors, like chemicals and electricity, drove the pattern of economic growth. Others (Bonelli, Cafagna, Federico) emphasize the continuous character of the Italian growth, which was due essentially to a comparative advantage of a late comer in sectors like textile (especially silk). We used a time series approach to give a new answer to these questions. This method identifies the extent to which common features are present in individual data and whether a single or small number of stochastic trends represent the data. The smaller the number of common stochastic trends (the greater the existence of cointegration) in disaggregated industrial production, the more pervasive the effects of the industry specific productivity shocks (discontinuity). On the contrary, if the effects of industry specific productivity shocks were localized, any industry would have distinct output trends (continuity). The answer that we suggest is in favour of a mild discontinuity of the process.

The method of cointegration and common trends help to answer also to other two largely debated questions of the Italian economic growth between 1860 and 1913, i.e. which were the leading sectors and the extent of interindustry linkages. We find that the new sectors – chemicals and electricity- of the technological regime of the Second Industrial Revolution were the leading ones even in Italy, showing a common trend with the aggregate industrial production. Thirdly, using a Granger causality approach, both among the cointegrated sectors and between them and all the others, we find that electricity and chemicals where the leading sectors, suggesting that the new science- based industries had a crucial role in the Italian "catch up" of the Giolitti's Age.

Tables and Graphs:

Figure I: Sectors Series (1861-1913)

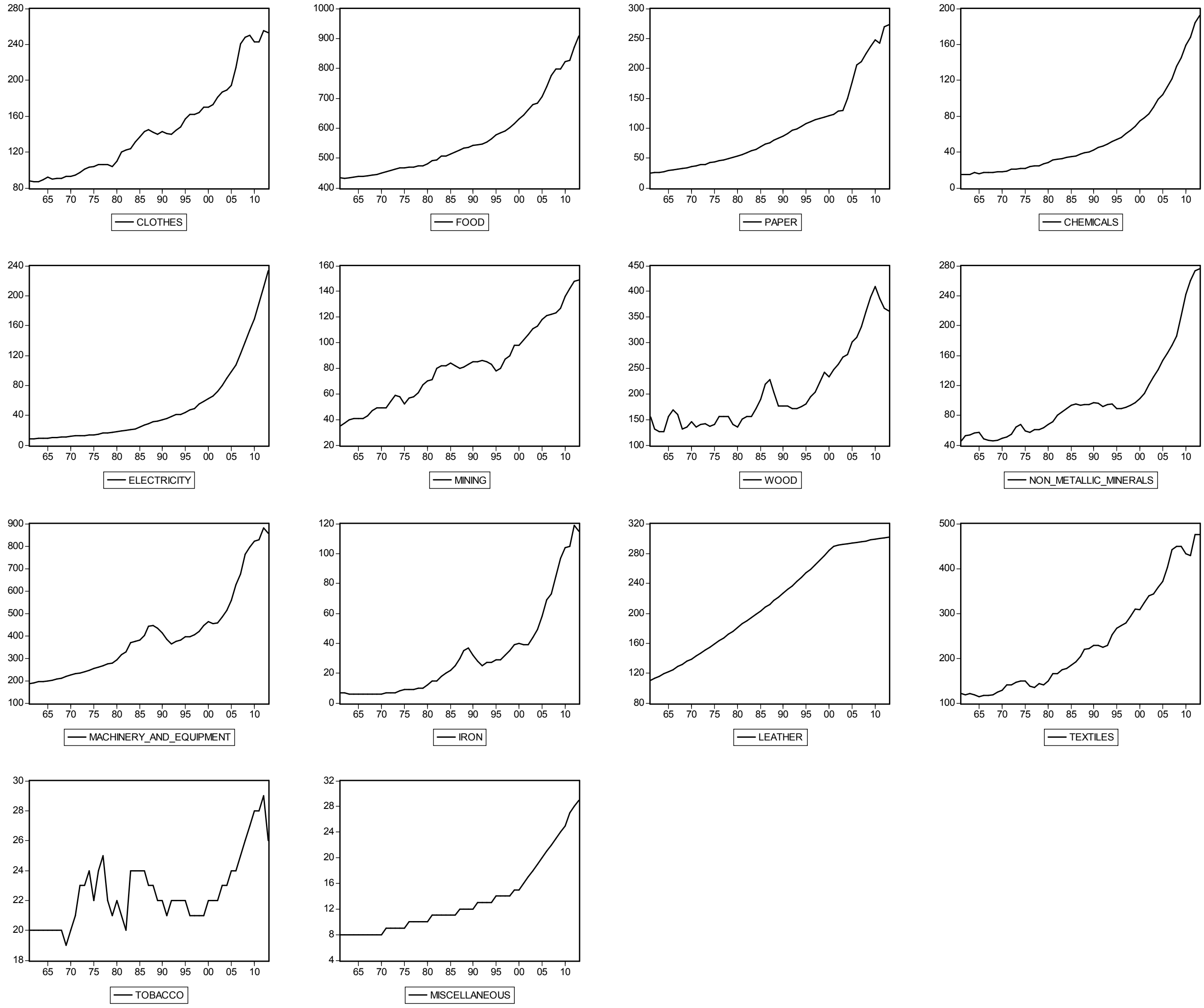

Figure II: Industrial Production Series (1861-1913):

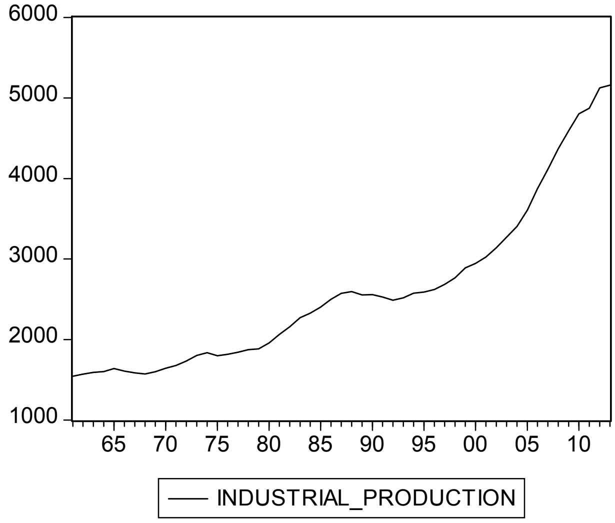

Table I: KPSS Unit Root Test		
Sectors	Levels	1st Difference
Clothes	0,43	0,04
Food	1,16	0,20
Printing and Paper	64,70	0,10
Chemicals	0,57	0,20
Electricity	0,35	0,58
Mining	2,07	0,09
Non metallic minerals	0,82	0,12
Wood	0,25	0,05
Machinery and equipment	99,50	0,08
Iron and Steel	33,90	0,10
Leather	2,08	0,14
Tobacco	0,10	0,05
Textiles	0,37	0,02
Miscellaneous	1,55	0,21
Spectral Estimation Method: Parzen Kernel, Andrews Bandwidth; Trend and Intercept. Asymptotic Critical Values: 1%: 0,216; 5%: 0,146; 10%: 0,119. *: Spectral Estimation Method: Parzen Kernel, Andrews Bandwidth; Intercept. Asymptotic Critical Values: 1%: 0,739; 5%: 0,463; 10%: 0,347		

Table II: Cointegration Test (Johansen, 1987): All Sectors		
Hypothesized No. of CE(s)	Trace Stat.	Max Eigenvalue stat.
None	829,96**	172,22**
At most 1	657,73**	148,20**
At most 2	509,52**	111,86**
At most 3	397,66**	87,74**
At most 4	309,91**	69,68**
At most 5	240,23**	81,50**
At most 6	178,73**	51,71**
At most 7	127,01**	36,10
At most 8	90,91**	31,11
At most 9	59,79**	29,32*
At most 10	30,46*	18,23
At most 11	12,23	12,19
At most 12	0,03	0,03
*: significant at 5% level, **: significant at 1% level		

Table III: Cointegration Test (Johansen, 1987): Chemical, Electrical, Machinery and equipment		
Hypothesized No. of CE(s)	Trace Stat.	Max Eigenvalue stat.
None	61,45**	37,56**
At most 1	23,89**	22,30**
At most 2	1,58	1,58
*: significant at 5% level, **: significant at 1% level		

Table IV: Cointegration Test (Johansen, 1987): Chemical, Electrical, Machinery and equipment,Food,Leather, Paper, Clothes, Iron and Steel		
Hypothesized No. of CE(s)	Trace Stat.	Max Eigenvalue stat.
None	405,75**	134,26**
At most 1	271,48**	76,95**
At most 2	194,53**	62,51**
At most 3	132,01**	56,01**
At most 4	76,00**	34,89**
At most 5	41,11**	26,06**
At most 6	18,04*	15,03*
At most 7	0,08	0,08
*: significant at 5% level, **: significant at 1% level		

Table V: Granger Causality			
Var 1	Var 2	p-value 1 does not cause 2	p-value 2 does not cause 1
Chemicals	Clothes	0,10	0,04
	Food	0,000**	0,29
	Paper	0,01**	0,12
	Electricity	0,27	0,000**
	Mining	0,10	0,56
	Non metallic minerals	0,000**	0,02
	Wood	0,005**	0,12
	Machinery and equipment	0,001**	0,08
	Iron and Steel	0,002**	0,25
	Leather	0,24	0,09
	Textiles	0,05	0,31
	Miscellaneous	0,06	0,25
Electricity	Clothes	0,17	0,10
	Food	0,40	0,10
	Paper	0,03	0,91
	Chemicals	0,000**	0,27
	Mining	0,25	0,49
	Non metallic minerals	0,007**	0,35
	Wood	0,07	0,34
	Machinery and equipment	0,01**	0,29
	Mining	0,000**	0,84
	Leather	0,54	0,10
	Textiles	0,91	0,95
	Miscellaneous	0,77	0,89
Machinery and equipment	Clothes	0,83	0,005**
	Food	0,59	0,006**
	Paper	0,87	0,01**
	Chemicals	0,09	0,001**
	Electricity	0,27	0,06
	Mining	0,23	0,02
	Non metallic minerals	0,000**	0,25
	Wood	0,06	0,01**
	Iron and Steel	0,000**	0,02
	Leather	0,86	0,000**
	Textiles	0,87	0,82
	Miscellaneous	0,95	0,06
Iron and Steel	Clothes	0,91	0,005**
	Food	0,97	0,000**
	Paper	0,62	0,000**
	Chemicals	0,25	0,001**
	Electricity	0,84	0,000**
	Mining	0,33	0,13
	Non metallic minerals	0,001**	0,20
	Wood	0,14	0,000**
	Machinery and equipment	0,08	0,000**
	Leather	0,79	0,000**
	Textiles	0,61	0,26
	Miscellaneous	0,78	0,02

Textiles	Clothes	0,09	0,64
	Food	0,000**	0,81
	Paper	0,14	0,91
	Chemicals	0,26	0,05
	Electricity	0,89	0,91
	Mining	0,03	0,12
	Non metallic minerals	0,001**	0,87
	Wood	0,000**	0,50
	Machinery and equipment	0,06	0,86
	Iron and Steel	0,03	0,69
	Leather	0,26	0,03
	Miscellaneous	0,34	0,85
Food	Clothes	0,09	0,000**
	Paper	0,000**	0,23
	Chemicals	0,29	0,000**
	Electricity	0,10	0,03
	Mining	0,005**	0,18
	Non metallic minerals	0,000**	0,88
	Wood	0,000**	0,21
	Machinery and equipment	0,005**	0,59
	Iron and Steel	0,000**	0,97
	Leather	0,27	0,80
	Textiles	0,81	0,69
	Miscellaneous	0,03	0,000**
Mining	Clothes	0,02	0,03
	Food	0,45	0,005**
	Paper	0,18	0,12
	Chemicals	0,56	0,10
	Electricity	0,49	0,24
	Non metallic minerals	0,20	0,63
	Wood	0,03	0,09
	Machinery and equipment	0,03	0,23
	Iron and Steel	0,13	0,33
	Leather	0,87	0,27
	Textiles	0,12	0,23
	Miscellaneous	0,46	0,03
Clothes	Food	0,000**	0,09
	Paper	0,46	0,10
	Chemicals	0,04	0,10
	Electricity	0,10	0,17
	Mining	0,03	0,01**
	Non metallic minerals	0,001**	0,95
	Wood	0,000**	0,63
	Machinery and equipment	0,004**	0,34
	Iron and Steel	0,005**	0,91
	Leather	0,57	0,004**
	Textiles	0,64	0,61
	Miscellaneous	0,87	0,08
Miscellaneous	Clothes	0,19	0,87
	Food	0,07	0,03
	Paper	0,000**	0,79
	Chemical	0,15	0,07

Electricity	0,91	0,77
Mining	0,05	0,46
Non metallic minerals	0,000**	0,000**
Wood	0,003**	0,08
Machinery and equipment	0,03	0,95
Iron and Steel	0,002**	0,78
Leather	0,13	0,15
Textiles	0,74	0,34

*:Significant at 5%, **: Significant at 1%

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Appendix A Detrended Series

Figure III: Trend Growth in aggregate Industrial Production 1861-1913 (%) (source: Hodrick-Prescott Filter Representation, see footnote 2)

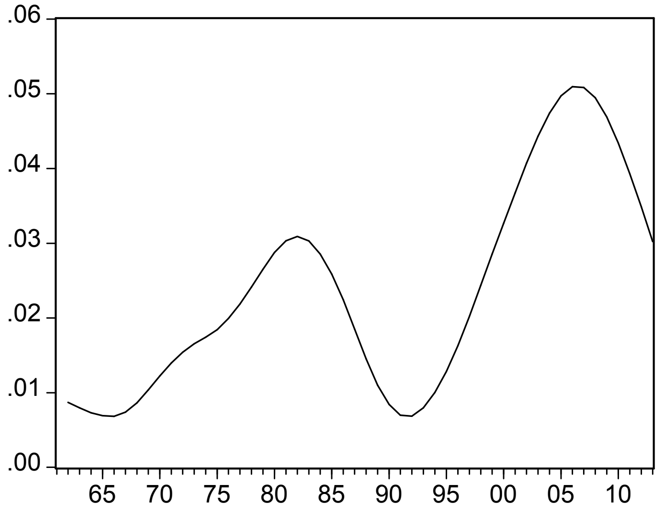
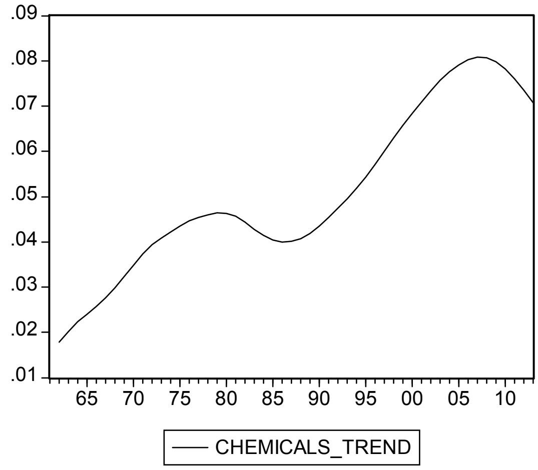


Figure IV: Trend Growth in disaggregate sector series 1861-1913 (%) (source: Hodrick-Prescott Filter Representation, see footnote 2)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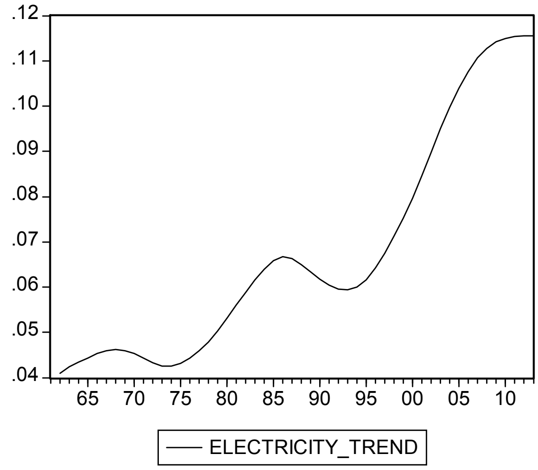
CHEMICALS_TREND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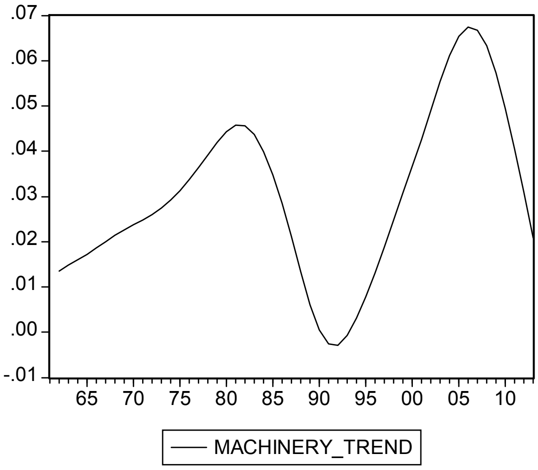
ELECTRICITY_TREND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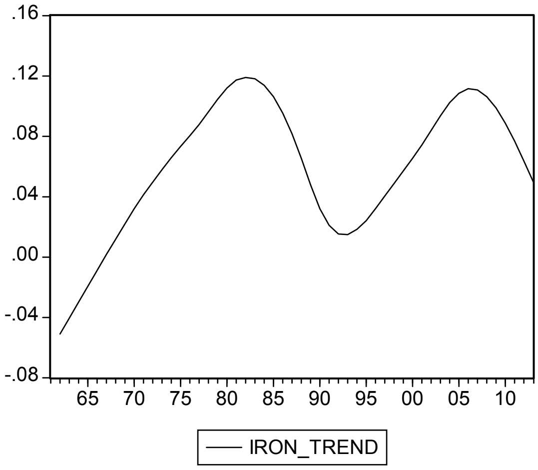
MACHINERY_TREND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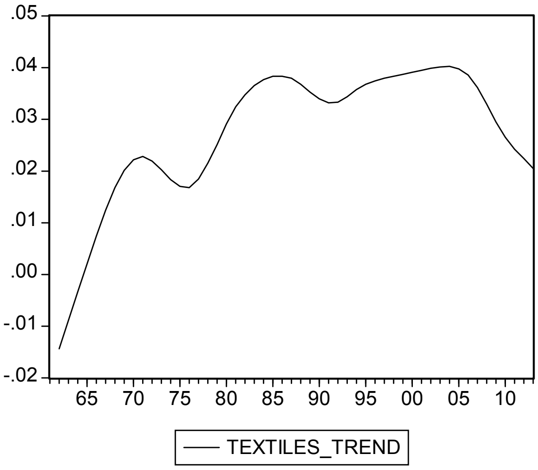
IRON_TREND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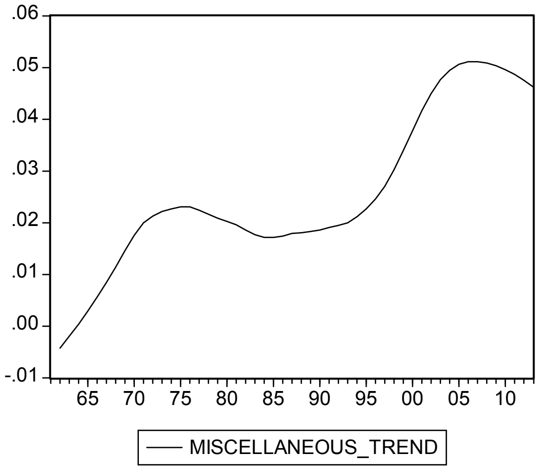
TEXTILES_TREND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MISCELLANEOUS_TREND