
NOTES

Agriculture, Demand and Industrial Growth in Lombardy, 1861-1914

Thomas P. Barbiero

Ryerson Polytechnical Institute, Toronto

Introduction

A striking feature of Italian industrial development between unification of the country in 1861 and World War One is that it was very unevenly distributed throughout the peninsula. The North, in general, captured a disproportionately large share of the industrial growth that occurred compared with the Centre and South. By 1914 the dual character of the Italian economy, which persists to the present, was firmly entrenched.

It is not often pointed out that even within the North industrial development between unification and 1914 was heavily concentrated in a relatively small geographical area. One region in the North, Lombardy, had by 1911 an industrial base far larger than any other in Italy. Value added by its manufacturing sector was almost a third of the national total and about as large as the South and Centre combined.¹ The region had 18 percent of the Italian population but its industrial sector employed almost 30 percent of the national total.² Although at unification Lombardy was already one of the more advanced industrialized regions in Italy³ it was still very much in the initial stage of

* I am grateful to ALBERT BERRY, SCOTT EDDIE, JAN DE VRIES and ROBERT MOELLER for their helpful comments. I am particularly indebted to Jon Cohen for extensive comments made on the numerous earlier drafts of this paper. Any remaining errors are mine.

¹ V. ZAMAGNI, *Industrializzazione e Squilibri Regionali in Italia* (Bologna: 1978), pp. 194-95.

² MINISTERO DELL'AGRICOLTURA, INDUSTRIA E COMMERCIO (MAIC), *Censimento degli Opifici e delle Imprese Industriali al 10 Giugno, 1911* (Roma: 1913-14), Vol. 1, p. 247.

³ The 1861 census shows that about 15 percent of Lombardy's active labour force was employed by industry. According to this criteria it would rank as the third most industrialized region in Italy.

economic development. The fact that this region experienced favourable industrial growth between 1861 and 1914 while many others had slow, stagnant, or even negative growth makes it a prime candidate for the study of industrialization and its causes.

More than one observer has claimed a probable connection between the North's favourable industrial growth between unification and World War One and the fact that some of the most prosperous agricultural zones were also located there.⁴ However, these claims have been made in general terms without actual measurements. Agriculture can contribute to industrial growth in a number of ways in the initial stage of economic development.⁵ This paper focuses on agriculture's market contribution to the successful performance of the manufacturing sector in Lombardy. It makes a plausible case that the primary sector expanded its purchases of regionally-produced manufactured goods from unification to the early 1880s, thereby contributing to industrial growth by extending the size of the regional market. This contribution appears to have been limited to the early stage of the region's industrialization. With the onset of the agricultural crisis, which lasted from the early 1880s to the turn of the century, agricultural income fell, severely limiting agriculture's ability to expand its purchases from the manufacturing sector. From the turn of the century up to 1914 agriculture once again embarked on a period of prosperity, but during this time its share of regional income was reduced as manufacturing came to represent the dominant sector of the economy, thus its purchases of manufactured products became a diminishing share of industrial output.

I. Theoretical and Methodological Considerations

As Kuznets has noted, when considering the contribution of any sector to the economic growth of a nation there is bound to be a certain element of ambiguity since sectors of an economy are interdependent.⁶ As such, the performance of any one sector cannot be fully attributed to it since it is contin-

⁴ For example, Eckaus argues that a major reason for the North's successful industrial performance compared to the South was the difference in their agricultural base. According to him northern agriculture was able to provide the food supply, the savings and an expanding market for manufactured goods to a degree unmatched by southern agriculture. R. ECKAUS, "The North-South Differential in Italian Economic Development", *Journal of Economic History*, 21, 1961, p. 315.

⁵ For a discussion of the various ways agriculture may contribute to industrial growth in the initial stage of economic development see B.F. JOHNSTON and J.W. MELLOR, "The Role of Agriculture in Economic Development", *American Economic Review*, 51, 1961, pp. 572-81; and S. KUZNETS, "Economic Growth and the Contribution of Agriculture: Notes on Measurement", in C. EICHER and L. WITT, eds., *Agriculture in Economic Development* (New York: 1964), p. 109-14.

⁶ KUZNETS, p. 102.

gent on what occurs in other sectors of the economy, and perhaps abroad. While this is undeniably true, it does not mean that measuring a sector's contribution is uninteresting or unhelpful in coming to an understanding of a particular country's industrial development. But in doing so the sectoral interdependence in a nation's economy must be kept in mind. In the case of agriculture its market contribution to industrial growth, for example, can only be made possible if the non-agricultural sector provides consumer and producer goods, on one hand; and purchases increasing quantities of agriculture's surplus product, on the other.

In the initial stage of economic development, when agriculture accounts for a large share of net output of the economy, the extent to which the primary sector purchases from domestic industries may be crucial to further industrial growth. Investment decisions by manufacturing firms are influenced not only by the availability of labour and capital, but also the expected profitability of additions to capacity. Where there are economies of scale in production an increase in the size of the market will decrease costs and also affect total output indirectly by expanding the intermediate demand from other industries.

The importance of agriculture's market contribution to industrial growth in the initial stage of economic development depends on the openness of the economy in question. In an open economy industry has access to the international market and need not depend on agriculture to absorb its output. Thus, the choice of focusing on a regional agricultural sector's market contribution to industrial growth will undoubtedly appear, at first approximation, as a futile exercise since a regional economy is an extreme case of an open economy. As will be argued below, up to about 1885 Lombardy approximated a closed rather than an open economy for regional manufacturers, making agriculture's purchases of regionally-produced manufactured goods potentially important.

The data required to directly measure agriculture's purchases of regionally-produced manufactured goods do not exist. Thus, an indirect measure, coupled with qualitative evidence, is the only alternative. The method used is to compute current gross agricultural income for benchmark sub-periods, deduct autoconsumption, taxes, and sector savings, thus leaving what I call the net marketable surplus (NMS) released from agriculture.⁷ For the same sub-periods the current value of industrial production is estimated, which is then deflated, along with the NMS, by an industrial price index. If the increase of the NMS was large enough to be able to purchase the growth of manufacturing output then a plausible case can be made that agriculture made a significant contribution to the region's industrial development by providing an ex-

⁷ This methodology is similar to that proposed by KUZNETS except that he assumes saving and taxes in agriculture are negligible in the initial stage of development. KUZNETS, "Economic Growth", pp. 102-3.

panding market for manufacturing output.⁸ Plausibility is all that can be claimed. First, while a case is made that most regionally-produced manufactured goods remained within Lombardy during the first 25 years of unification, it is based on indirect evidence, not hard data. Second, little can be said, except in very general terms, about consumption of manufactured imports in agriculture because of a lack of information. Third, although evidence is presented to show that for some regional manufacturers, particularly cotton textiles, the rural market was an important outlet, we do not know with certainty the relative importance of urban markets in the region.

II. The Net Marketable Surplus

Comprehensive agricultural output data are available only for selected subperiods.⁹ In the absence of farmgate prices wholesale prices from the major regional markets, where available, have been used.¹⁰ From gross output of each crop an estimated percentage used as feed and seed¹¹ was deducted, which gives the gross marketable output (GMO). Other potential sources of farm income such as from the production of firewood, fruits, vegetables and sheep wool are unavailable and thus excluded from the final measure. Such exclusions will impart a downward bias to the income estimates. The results appear in column 4 of Table 1.

Since direct information of agriculture's consumption of its own product, sector savings and taxes paid by agriculture is not available, each of these have to be estimated.

There are very few peasant family budget studies for Lombardy for the period under review. Those that exist are of poor quality; only a limited number of families are surveyed in small districts of the region. Thus, to estimate agriculture's consumption of its own product I have opted to use the national data on the per capita food consumption. For each subperiod the

⁸ This is a purely arbitrary and fairly stringent condition. Presumably if the growth of the NMS could have purchased 80 percent of the growth of manufactured output one could still claim it was a "significant" market contribution.

⁹ For a detailed explanation of the data used and their shortcomings see T.P. BARBIERO, "A Reassessment of Agricultural Output in Italy, 1861-1914: The Case of Lombardy", *Journal of European Economic History*, Spring 1988.

¹⁰ National average wholesale prices were used for meat, rice, silk cocoons and cheese. But in the case of the latter three products, Lombardy dominates silk cocoon production and for cheese and rice shared the top position with Piedmont. Thus, the national average wholesale prices for these products are in effect regional. For a few minor crops regional prices were not available, thus prices in neighbouring regions or national averages were used.

¹¹ As calculated by Istituto Centrale di Statistica (ISTAT), *Fonti Statistiche e Metodi di Calcolo del Reddito Nazionale* (Roma: 1969), reported by V. ZAMAGNI, "Le Radici Agricole del Dualismo Italiano", *Nuova Rivista Storica*, 22, 1975, p. 63.

current value of the per capita food consumption is multiplied by the total agricultural population¹² to arrive at agriculture's consumption of its own product. This estimate, when deducted from agricultural income, yields what I call the gross marketable surplus (GMS) (see column 5 in Table 1).

How good of a proxy is the national data likely to be of peasants' food consumption in Lombardy? The national per capita food consumption figures probably overstate peasant food consumption in the region, thereby biasing the NMS downward, since they include items such as sugar, coffee, and other processed food products. The few existing peasant family budget studies from Lombardy would suggest that the national figures may be high.¹³ However, since I am after a lower bound estimate of agriculture's NMS, the national data suit the purpose well.

We are similarly in the dark with regards to the saving rate in Lombardy's agrarian sector. As a consequence, the national gross saving rate will be used. Ideally, I require the net savings in each subperiod since presumably some purchases, particularly farm machines and implements, were at least partly financed by drawing down past savings. Since no such data exist I will rely on the gross saving rate. This will add to the downward bias of the NMS estimates. To arrive at an estimate of savings in agriculture I took the national saving rate, as a percentage of the Gross National Product, and assumed that the same percentage was saved out of agriculture's GMO (see column 6 of Table 1).

Using the national saving rate as a proxy for the saving rate in Lombardy's agricultural sector is not altogether unsatisfactory, at least for the first three subperiods. Up until the turn of the century agriculture remained the largest sector in the national economy in terms of value added, and northern agriculture accounted for a large share of national production, somewhere around 50 percent. As can be seen from Table 1, the saving rate closely followed the fortunes of agriculture. The saving rate increased by more than tenfold during the first two decades of unification, but then dropped during the bleakest years of the agricultural crisis in the early 1890s. It bounced back again by 1914, but as already noted, the saving estimate for the quinquennium 1910-14 is likely to be less representative of the saving rate in agriculture since by this time the industrial sector in Italy, and Lombardy in particular, had grown substantially. This makes it likely that a significant part of savings in the region now came from the non-agricultural sector.

¹² Total agricultural population is defined as all families in the region that earned their living directly from agriculture.

¹³ A study of the economic condition of the peasantry by two contemporaries in the early 1860's, for example, would suggest a per capita consumption at the period of unification of less than 100 lire compared with the national figure of 146 lire. F. CARDANI and F. MASSARA, *Sulle Condizioni Economico-Morali del Contadino Comasco, Milanese, Pavese, e Lodigiano* (Milano: 1865), pp. 264-65. Unfortunately, the authors do not reveal the size of their sample or method of collection.

Table 1
ESTIMATES OF AGRICULTURE'S POTENTIAL PURCHASES
OF REGIONALLY-PRODUCED MANUFACTURED GOODS
IN LOMBARDY, 1861-1914. SELECTED SUBPERIODS

Subperiod	Net Marketable Surplus (millions) of constant lire) (1)	Value of Industrial output (millions) of constant lire) (2)	1/2 (3)	$\Delta 1/\Delta 2$ (4)
1861	46.5	166.7	28	—
1879-83	142.5	251.0	57	114
1890-94	105.2	311.0	34	-62
1910-14	116.3	919.5	13	2

Sources:

- (1) From Appendix Table 1. Nominal values have been deflated by a manufacturing price index calculated from data in ISTAT, "Indagine Statistica sullo Sviluppo del Reddito Nazionale dell'Italia dal 1861 al 1956", *Annali di Statistica*, Series 8, Vol. 9, 1957, p. 99.
(2) From Appendix Table 1.

An even more difficult task is to establish how much of gross agricultural income in each subperiod was appropriated by the three levels of government through taxes. Government tax revenue data are not broken down by the sector in which they originated. However, enough information exists that, with the help of a few assumptions, reasonably good estimates can be arrived at.

Government tax information by region is not available for the year of unification. However, for 1860, the year prior to unification, we have detailed government tax revenues for Lombardy. It is not unwarranted to assume that the data for 1860 are close approximations of government tax revenues for the year of unification since the tax system was not immediately altered. The problem remains of how to determine what percentage of government revenue came from the various taxes levied on agriculture. The only tax that was exclusively paid by agriculture was the land tax. Of the other taxes, I have assumed agriculture's share proportional to its share of total population in the region except for the building tax which I assume was all paid by agriculture. For the other subperiods the same procedure was followed.¹⁴ It is pro-

¹⁴ For 1861 the total land tax was included; the other taxes were multiplied by the population share of agriculture, which included the following taxes: consumption, business, public instruction, salt, tobacco, and other unspecified levies. For the other subperiods taxes are broken down by the level of government that levied them. The following taxes were included in the computation. Municipal: the total surtax on land and building, the consumption and other unspecified levies were multiplied by the population share in agriculture; provincial taxes: all of the land and building tax was included, levies on capital movements and other unspecified taxes were multiplied by the agriculture population share; state taxes: all of the land and building tax was in-

bable that the resulting estimate of agriculture's tax share will be overstated. Since the agricultural population constituted just over half of the total population, except for the last quinquennium under review, the agrarian sector would result as paying the bulk of total taxes imposed on the region, even if some taxes, such as the business tax, would most likely fall predominantly on the urban sector. While it is likely that agriculture did pay most of the building tax levied by all three levels of government, at least part of it must have come from the urban population. Moreover, I have assumed that agriculture also paid a share of the wealth tax, even if there are indications that for the most part it escaped this levy.¹⁵ The results are reproduced in column 7 of Table 1.

III. Industrial Production

Regional manufacturing output data are not available for the period under review. To arrive at an estimate of the manufacturing output in Lombardy I assume the region's share of national output was equivalent to its share of national industrial employment. The use of regional industrial employment as a proxy for Lombardy's share of national manufacturing output is not unsatisfactory. Zamagni's estimate of value added by Lombardy's industrial sectors in 1911 show a direct relationship between the region's share of industrial employment and output.¹⁶ Nevertheless, these estimates, reproduced in column 9 of Table 1 in the Appendix, must be taken as rough approximations since the census materials from which industrial employment comes are far from perfect. For example, prior to the 1911 census those who worked in the industrial sector for any part of the year were classified as an industrial workers, even if employed for a few months of the year or part-time. There were many such workers in Lombardy in the silk sector. Inclusion of such workers would have the effect of biasing the manufacturing output estimates upward. Moreover, it must be noted that included in these estimates are the output of products that were not directly consumed, or at least to a very limited extent, by the agricultural sector.

IV. Agriculture's Potential Market Contribution

The final results appear in Table 1. As column 4 clearly shows, between 1861 and 1883 agriculture income growth was more than sufficient to have included, the consumption, business and wealth tax were multiplied by the agriculture population share.

¹⁵ G. PARRAVICINI, "La Politica Fiscale e le Entrate Effettive del Regno d'Italia, 1860-1890", *Archivio Economico dell'Unificazione Italiana*, Vol. 1, Series 2, 1958, p. 245.

¹⁶ ZAMAGNI, pp. 194-95 and 226-27. The employment data referred to is from the census.

absorbed the region's growth of manufactured output. As column 3 indicates, in absolute terms at unification the NMS from agriculture could have purchased only about a quarter of manufactured output. This is not surprising. On one hand it should be noted that the absolute NMS estimates are low because of the omissions already discussed in the calculation of agricultural income. On the other, agriculture had yet to fully recover from the crisis it had endured in the previous decade, particularly from the heavy blow inflicted on sericulture by the pembrine epidemic.¹⁷ By the early 1880s the MNS had increased, in absolute terms, enough to have been able to purchase over half of regional manufacturing output.

With the onset of the agricultural crisis, brought about by falling food prices, in the early 1880s the situation reversed itself. Between the quinquenniums 1879-83 and 1890-94 manufactured output advanced by 24 percent while agricultural income fell 26 percent. By the latter quinquennium the percentage of regional manufactured production the NMS could have purchased had fallen, as well, to about a third.

After 1894 the NMS once again began to expand, but now manufacturing was rapidly becoming the dominant sector and the share of its output growth agriculture could potentially absorb decreased significantly from the first two decades of unification. However, the result for the last quinquennium under review is probably severely distorted by the combination of unrealistically high deductions of taxes and savings from the GMO and the fact that the GMO itself is underestimated by the exclusion of several products.

How robust are these results likely to be? Clearly, they must be interpreted with a certain amount of caution given the quality and paucity of the data. Ideally, one would like to test for robustness with sensitivity analysis, but this proves to be difficult given the interdependence of the variables, many of which had to be indirectly estimated, therefore, possibly prone to a wide margin of error. Nevertheless, it appears that the final results for the 1861-83 period are particularly sensitive to the growth of the GMO and the per capita food consumption estimates under the rather stringent conditions I have set out for agriculture to have made a market contribution. Elsewhere I have argued that the existing data from which the GMO is derived are reasonably good;¹⁸ as for the per capita food consumption, it has already been noted that the estimates are likely to be upperbound.

Qualitative and anecdotal evidence support the notion that rural markets in Lombardy were important outlets for local manufacturers, at least up to the early 1880s. Exchange between agriculture and the manufacturing sector was facilitated by an exceptionally well-developed communication networks. By unification Lombardy had the most extensive road network on the penin-

¹⁷ For an account of the crisis see B. CAZZI, "La Crisi Economica del Lombardo-Veneto", *Nuova Rivista Storica*, 1958.

¹⁸ See BARBIERO, *op. cit.*

sula. This was supplemented, as well, by navigable lakes and rivers. Throughout the first half of the nineteenth century the well-developed communications system had facilitated a growing intraregional trade. By unification almost every village in the region had a weekly fair and there were large annual fairs such as those at Bergamo, Pavia and Brescia.¹⁹ The weekly and annual fairs were facilitated by the numerous travelling salesmen throughout Lombardy. At the fairs peasants brought their produce for sale and purchased a variety of consumer goods, such as cotton textiles and household items, as well as farm implements.

There is evidence to suggest that in the few decades prior to unification the fortunes of agriculture largely determined the volume of sales at the fairs, and thus, the fortunes of the regional manufacturing sector since a significant part of its output was geared for rural markets. With regards to the agricultural crisis that invaded Lombardy in the 1850s Caizzi notes that:

"[Its] impact on industry and commerce was profound, as to be expected in a country in which manufacturers produced almost exclusively for the needs of internal consumption, and generally goods of a mediocre quality destined for rural markets".²⁰

The records of a cotton textile manufacturing firm, the Caprotti, show that the agricultural crisis of the 1850s led to a suspension of production as the firm tried to sell its mounting inventories.²¹

For the first two decades after unification the success of many regional manufacturers in disposing of their output appears to have continued to depend on the fortunes of agriculture. For example, the Caprotti textile firm flourished during the first decade of unification as agricultural output expanded, but in 1870 it had a disastrous year on account of a bad harvest. Commenting on the determinants of the Caprotti's sales in any given year Romano notes:

In the first place should be cited the cereal harvest and, above all, the silk cocoon harvest: in fact the consumer of the textiles manufactured by the Caprotti firm was — in most cases — the peasantry and naturally any negative variation in its income would weigh heavily on its propensity to consume. From this came the attention with which the Caprotti family followed the results of sericulture each year in the conviction, not unfounded, that a good cocoon harvest equalled good sales of fabrics.²²

¹⁹ B. CAIZZI, *L'Economia Lombarda durante la Restaurazione, 1814-1859* (Milano: 1972), p. 212. My translation.

²⁰ *Ibid.*, p. 52. For a similar conclusion see also I. GLAZIER, "Il Commercio Estero del Regno Lombardo-veneto dal 1815 al 1865, *Archivio Economico dell'Unificazione Italiana*, vol. 15, 1966, p. 46.

²¹ R. ROMANO, *I Caprotti* (Milano: 1980), pp. 15-16.

²² *Ibid.*, p. 182. My translation.

Qualitative evidence also suggest that during the first few decades of unification peasants expanded their purchases of manufactured goods. In 1885 a local commentator on agricultural matters noted that:

In the past the needs (of the peasantry) were limited, wants were modest, contained in general to the strict necessities. Today things have changed. The wind of civility, of progress, education, has penetrated our countryside. And this has produced a mixed blessing. Needs have risen, consumption of unnecessary products (tobacco, liqueurs, sugar, coffee, etc.) have more than tripled, luxury and fashion are to be found in the most isolated farms.²³

He suggested that the "new wants" had been created by travelling salesmen who roamed the countryside and the various new retailers that had established themselves in rural areas. The *Comizio Agrario* of Cremona also noted in its annual report in 1878 that:

Our peasants in the last 10 or 20 years have increased their wants; the outfit is no longer exclusively the old *frustagno*, the coat no longer of straw but fabric. The women have added to the traditional ornaments gold items, shawls and wool outfits of various colours. The house is better furnished with utensils, linen, and the men allow themselves a smoke and a glass of wine.²⁴

Many of the authors of the *Agricultural Inquiry* held between 1878 and 1882 noted increased purchases of consumer goods, particularly cotton textiles, by the peasantry. From the district of Breno, in the Brescian mountains, the local reporter to the *Agricultural Inquiry* noted that while for the most part peasants still produced their own textiles, many now purchased them from the growing number of retail outlets in the smaller villages and itinerant peddlers.²⁵ He also pointed out that home-made wooden shoes were rarely seen anymore as peasants increasingly turned to the market to purchase their footwear. From the district of Salò, in the province of Brescia, the local reporter wrote to the *Agricultural Inquiry* that whereas "in times past it was preferred to have one's outfit made at the time of marriage, which lasted one's whole life, now people prefer outfits of less cost and change them more

²³ G. FIORINI, *La Verità della Questione Agraria Cremonese* (Cremona: 1885), p. 18. My translation.

²⁴ COMIZIO AGRARIO DI CREMONA, *Relazione dell'Agricoltura nel Circondario di Cremona negli Anni 1878-79* (Cremona, 1880), p. 9. My translation. A *fustagno* was a man's working outfit. It was generally made of linen, and later coarse cotton fabric. These comments should not be construed to mean that the peasantry as a whole was well off. Even if peasants were increasingly turning to the market for their non-food needs, poverty was still pervasive in the countryside.

²⁵ G. SANDRINI, "Il Circondario di Breno", in MAIC, *Atti della Giunta per la Inchiesta Agraria e le Condizioni della Classe Agricola* (Agricultural Inquiry) (Roma: 1882), Vol. 6, Tome, 1, p. 259.

frequently".²⁶ He added that at one time peasants made their own fabrics from hemp and flax, but "now this home industry is almost abandoned".²⁷ Another reporter, from the district of Gallarate in the province of Milan, also noted that the art of making one's own fabric from flax among the peasantry was on the wane as many found it more convenient to purchase cotton fabrics:

"The home industries practised by peasants are few and of little importance: even the art of spinning and weaving of flax at home, practised in the winter by men and women, now is reduced to small proportions, many finding it more convenient to buy cotton fabrics."²⁸

Other authors of the *Agriculture Inquiry* reported similar trends.²⁹

An expanding market for consumer goods between 1861 and the early 1880s among Lombardy's peasantry is also suggested by the rapid growth of advertisements for them in the weekly agricultural bulletin, *Bollettino dell'Agricoltura*, founded in 1863. Among other things, products advertised included household utensils, personal hygiene items, musical instruments, medicinal remedies, as well as advertisements for agricultural inputs.³⁰

Farmers in Lombardy also were purchasing increasing quantities of producers' goods, particularly from the region's expanding engineering sector. Many of the region's engineering firms started their operation by catering primarily to agriculture, and only later branched out into other areas, such as railroad stock and turbines for electrical generating stations.³¹ A government agricultural report for the quinquennium 1870-74 reported that the wooden plough was in every part of the region being replaced with the iron plough.³² The same report noted that "in the lower plains agricultural machines and modern implements", such as threshers, seeders, and forage mowers, "continue to diffuse".³³ The adoption of the thresher was particularly successful.

²⁶ MARCHIORI, "Il Circondario di Salò", MAIC, *Agricultural Inquiry*, Vol. 6, Tome 1, p. 470.

²⁷ *Ibid.*

²⁸ E. FERRARIO, "Il Circondario di Gallarate", MAIC, *Agricultural Inquiry*, Vol. 6, Tome 1, p. 523. My translation.

²⁹ G. MARENGHI, "Il Circondario di Cremona" and E. PAGLIA, "La Provincia di Mantova", *Agricultural Inquiry*, Tome 2, p. 503 and 864 respectively.

³⁰ See SOCIETÀ AGRARIA DI LOMBARDIA, *Bollettino dell'Agricoltura*, various issues between 1863 and the early 1880s.

³¹ It is interesting to note that one of the region's engineering firm, *La Riva*, which initially also catered to the agricultural sector, built the first turbines for the Niagara Falls, Canada, electrical generating station. G. UCCELLI, *La Riva, 1861-1951* (Milano, 1953), p. 26.

³² MAIC, *Relazione Intorno alle Condizioni dell'Agricoltura nel Quinquennio 1870-74* (Roma: 1876), Vol. 2, p. 608.

³³ *Ibid.*, p. 609.

A contemporary reported that in the province of Mantua the number of threshers had increased from only a few in 1863 to about 50 in 1878.³⁴ Its diffusion had been facilitated by manufacturers willing to lease them out to smaller farms,³⁵ and the purchase of threshers by the local agricultural societies that also leased them to their members. By 1881 the use of the thresher had diffused in the region to the extent of supporting a second-hand market, as shown by advertisements in the *Bollettino*.³⁶

Evidence of the agricultural crisis which began in the mid-1880s, greatly limiting agriculture's purchases of manufactured goods, is clearly evident in the number of dwindling advertisements in the *Bollettino*. Manufacturers and agents that had an advertisement almost every week disappear altogether or had only an occasional insert. The number of advertisements for consumer and producer goods began to pick up around 1890, but not until later in the decade did they reach the volume of the early 1880s.

If agriculture's market contribution to overall industrial growth diminished from the 1890s to 1914, it continued to be an important factor for the growth of one sector, chemicals. The growth rate of Italy's chemical production between 1896 and 1914 was one of the most rapid of the major sectors, and this was primarily due to the growth of superphosphate production. Lombardy was both a leading producer of superphosphates as well as one of its largest consumers by the last quinquennium under review.³⁷

It is worth noting that despite the agriculture crisis that began in the early 1880s industrial growth in Italy, including Lombardy, proceeded at a favourable rate between 1881 and 1887. This would seem to contradict the findings of this paper. It should be noted that the relatively rapid industrial growth of the 1880s can be ascribed to the metal-making and engineering sectors, primarily stimulated by railroad construction. The 1880s saw the construction, in Lombardy of numerous feeder lines, besides the main lines.

Although between 1861 and 1883 the growth of the NMS from agriculture was large enough to have purchased the increase of manufacturing output it does not necessarily follow that agriculture contributed to industrial growth unless it can be shown that during this period industrial production for the most part remained within the region. Despite the lack of trade-flow data in and out of the region, qualitative and anecdotal evidence suggests that neither other regional or foreign markets were a major outlet for Lombardy's manufacturing sector before 1885.

³⁴ A. MAGRI, *Stato Attuale della Proprietà, Proprietari, Affittuari, Contadini e Agricoltori nella Provincia di Mantova* (Milano: 1879), p. 100.

³⁵ E. POLLINI, "La Lomellina e il Circondario di Mortara", in MAIC, *Agricultural Inquiry*, Vol. 6, Tome 2, p. 14.

³⁶ See, for example, *Bollettino dell'Agricoltura*, June 30, 1881.

³⁷ For the 1910 consumption data, see FEDERAZIONE ITALIANA DEI CONSORZI, *Quanto Perfossato s'impiega nell'Agricoltura Italiana? E quanto se ne dovrebbe impiegare?* (Piacenza, 1920), p. 6.

Prior to the middle of the 1880s Italian manufactured exports were practically nonexistent; the bulk of exports consisted of agricultural products and semi-processed raw materials, such as raw silk. Thus, it is reasonably safe to assert that Lombardy's manufactured exports to other nations were few. The more difficult task is to determine the magnitude of manufactured exports to the other regions of the country. Ideally one would like to have firm sale records to determine where the bulk of their output was sold. For the case of Lombardy we have only the records of a medium-sized cotton textile firm, owned by the Caprotti family, located in the province of Milan, that set out the distribution of clients in Italy between 1860 and 1900. Unfortunately, the records report only the number of clients in each region of Italy, not the volume purchased by each client. However, the figures are highly suggestive that Lombardy remained the firm's most important market up to the early 1880's when 80 percent of its clientele still originated in the region.³⁸ In the early years of unification the owners of the firm were reluctant to expand into other regions, considering them "new and unknown markets".³⁹

It is probable that the Caprotti firm's reliance on the regional market was not atypical. During the first few decades of unification there were many obstacles manufacturing firms in Lombardy faced in their attempts to penetrate other regional markets. The obstacles can be divided into five categories: (a) the relatively low tariffs on manufactured goods, which made it difficult for firms to compete in other regions with lower priced imports; (b) relatively high domestic railroad freight rates; (c) the numerous local monies, weights and measures, and dialects that persisted long after unification; (d) the tax levied on merchandise going through each urban area;⁴⁰ (e) the almost complete absence of roads in many parts of the peninsula, particularly the South.

In the early 1870s the government commissioned an industrial inquiry to hear the mounting complaints of Italian industrialists. By far the most often heard grievance was that tariffs were too low and railroad freight rates too high, making it difficult for domestic manufacturers to compete with imports. An owner of a cotton spinning firm from the region complained to the *Industrial Inquiry*: "The internal market is constantly being regulated by the foreign price of cotton yarn; and thus when we sell it has to be at that price, which is often at our cost, and in many cases at a loss".⁴¹ Unable to compete

³⁸ ROMANO, pp. 160-61. In 1861 over 90 percent of the firm's clients were in Lombardy.

³⁹ *Ibid.*, p. 167.

⁴⁰ This was a consumption tax. It was levied by each individual community and was a major source of revenue for municipalities. For details see G. ALLESIO, "Imposta del Dazio Consumo in Italia", *Annali di Statistica*, Vol. 17, Series 2, 1880, pp. 7-14.

⁴¹ MAIC, *Atti del Comitato dell'Inchiesta Industriale* (Roma: 1874), Vol. 3, written

with English cotton yarn and fabrics, many regional markets were dominated by the English products. Indeed, accustomed to English yarn and fabrics, Italian consumers were reluctant to purchase those domestically produced. A producer in Lombardy reported to the *Industrial Inquiry*: "I manufacture cotton yarns... and I have to sell them under the guise of English goods with the appropriate label on them... without these lies my goods would remain unsold in the stores".⁴² The situation was not dissimilar for other manufactured products produced in Lombardy. Manufacturing was in its infancy and thus could not compete with imports in terms of quality or price.

Adding to the difficulties of Lombardy's manufacturers in penetrating other regional markets up to the early 1880s was the high cost of transportation. Lombardy's manufacturers pointed out to the *Industrial Inquiry* that in many instances foreign exporters could sell their merchandise in the Italian market at lower prices because of higher transport costs they had to pay. The head of a Milanese engineering firm noted to the *Industrial Inquiry*:

The obstacles of railroad freight rates to our industry are serious; this is because our products are very heavy, and we find ourselves at a disadvantage compared to foreign industrialists. A machine from Lyon to Venice pays less in transport cost than we do sending the same machine from Milan to Venice.⁴³

Another Milanese engineering firm complained: "It has happened to me to send a boiler to Venice and to pay more in transport cost than if the same boiler had been sent by steamship from Liverpool".⁴⁴

It was only with the raising of tariffs in 1878, and again in 1888, and the lowering of railroad freight rates in the mid-1880s that some sectors were able to compete with imports. This was especially true of the cotton sector, which received the strongest protection. In the case of the Caprotti firm, it was able to expand into other regional markets at a relatively rapid rate after the mid-1880s. By the turn of the century only about a quarter of its clientele originated in Lombardy.

VI. Conclusion

If in fact Lombardy's agricultural sector provided an expanding market for the region's manufacturers between 1861 and 1883, thereby making a market contribution to industrial growth, a number of implications arise. It adds further support to the claims concerning the beneficial role agriculture played

depositions, category 8-1, p. 13. My translation. Henceforth referred to as *Industrial Inquiry*.

⁴² *Ibid.*, Vol. 6, written depositions, appendix to category 8-1, p. 5.

⁴³ *Ibid.*, Vol. 5, Oral depositions in Milan, Sept. 21, 1872, category 15-3, p. 2.

⁴⁴ *Ibid.*, p. 5.

in the favourable industrial development of the North after unification. However, Sereni's contention that between 1861 and 1900 Italian agriculture was a hindrance to economic growth because it was unable to produce a surplus, thus restricting the size of the domestic market,⁴⁵ needs reevaluation, at least for the case of Lombardy. Romeo has put forth the thesis that Italian agriculture contributed to industrial growth through higher taxes during the first 20 years of unification that went to finance the construction of the nation's infrastructure, particularly the railroad network.⁴⁶ This set the stage for the relatively rapid industrial growth in the periods 1880-87 and 1896-1914. While this may have been the case, output growth was large enough in Lombardy in the first two decades of unification that the primary sector was also able to make a market contribution to industrial growth. Finally, this study points to the superiority of the regional as opposed to the national approach to the study of the Italian economy; an economy with significant regional disparities right from its inception.

⁴⁵ E. SERENI, *Il Capitalismo nelle Campagne, 1860-1900* (Torino: 1947), pp. 30-31.

⁴⁶ R. ROMEO, *Risorgimento e Capitalismo* (Bari: 1978), pp. 121-38.

Appendix Table 1
 DETAILS OF THE NET MARKETABLE SURPLUS AND MANUFACTURING VALUE ADDED ESTIMATES
 (Millions of current Lire)

Sub-period	(1) Population (000)	(2) Per Capita Food Consump.	(3) Tot. Agric. Food Consump.	(4) G.M.O.	(5) Gross Market able Surplus	(6) Savings	(7) Taxes	(8) NMS	(9) Manuf. Value Added
1861	1663	146	242.8	343.3	100.5	3.1	50.9	46.5	167.7
1879-83	1879	153	287.5	604.3	316.8	37.5	138.7	140.6	247.6
1890-94	2021	142	287.0	552.1	265.1	22.4	147.6	95.1	281.1
1910-14	2195	219	485.1	891.6	406.5	86.4	188.2	131.9	1042.8

Notes:

- (1) Estimates for all subperiods except 1861 from O. Vitali, *La Popolazione Attiva in Agricoltura Attraverso i Censimenti Italiani, 1881-1961* (Roma: 1976), pp. 210-11. The population census was not taken in 1891. The 1891 figure is the geometric mean of the agricultural population in 1881 and 1901. The figure for 1861 has been extrapolated from the 1881 datum, assuming the agricultural population grew at the same rate as the overall population of the region.
- (2) From ISTAT, "Indagine Statistica sullo Sviluppo del Reddito Nazionale dell'Italia dal 1861 al 1956", *Annali di Statistica*, Series 8, Vol. 9, 1957, pp. 260-61.
- (6) The saving rate has been computed from the national income and saving data found in ISTAT, "Indagine Statistica", pp. 247-48 and pp. 268-69. The saving rate for the quinquennium 1861-65 was used for 1865 since it was negative for the latter year.
- (7) For 1871, CORRENTI AND MAESTRI, *Annuario Statistico Italiano*, 1864, p. 625. For the other subperiods from *Annuario Statistico Italiano*, various years. It should be noted that information on taxes is not available for all the years in each of the subperiods. For the quinquennium 1879-83 the data for 1884-86 were used; for 1890-94 the data for 1887-92 were used; for 1910-14 the data for 1911-12 were used.
- (9) National value added data from ISTAT, "Indagine Statistica", pp. 243-44. Lombardy's industrial employment share from the censuses of 1861, 1881 and 1911. The 1891 figure is the geometric mean of 1881 and 1901.