Industrialization and Population Pressure in Eighteenth-Century Flanders

During the century preceding the beginning of modern industrialization, several regions of Europe experienced an impressive growth in traditional rural handicrafts and, concurrently, an acceleration in their rate of population growth. What were the relationships between what I call "proto-industrialization" and the acceleration of population growth during this period? In eighteenth-century Flanders, particularly after 1740, we find an increased rate of growth in the output of the part-time (seasonal) rural linen industry which had settled there since the Middle Ages. First of all, there is a *prima facie* case for the argument that industrial growth was induced and promoted by population growth. Evidence for this relationship is found in the writings of numerous contemporaries pointing out that rural work, outside agriculture proper, was a necessity for the support of a large fraction of the peasants. The highest levels of rural industrialization in Flanders were found in areas with the highest population density and land fragmentation. Further changes in the eighteenth century in terms of population growth, land fragmentation and industrialization only reinforced these contrasts. It is easily shown that the rural industry was in the hands of the most impoverished peasants; those who were closest to the margin of subsistence. Probate inventories show that the looms and spinning wheels were concentrated in the hands of those peasants who owned or farmed the smallest parcels of land.[1] Finally, studies by Belgian scholars show a higher and rising baptism-marriage ratio in the industrial areas and a lower and falling age of first marriage while there was apparently no significant long run change in mortality rates.

Since this evidence is equally consistent with the hypothesis that population growth was stimulated by the growth of rural industry as with the hypothesis that population change itself led to the growth of handicrafts, there is a need to use somewhat more rigorous methods of analysis to derive statements of causation. To study in greater detail the interaction of population and the economy, focus is brought to the separate geographic-economic areas that compose Flanders. The largest urban centers did not show rapid industrialization or demographic growth. On the contrary, there was even an important population decline in the first

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[1] See Paul Deprez, *De Kasselrij van Oudburg in de 18e eeuw. Bijdrage tot de studie van de sociale en economische structuur van het platteland* (Unpublished dissertation, University of Ghent, 1960).

half of the eighteenth century and a declining level of urban industrialization until the beginning of the factory system in the 1790's. Nevertheless, the cities were able to absorb—at varying rates—a good share of the natural increase of the countryside by migration. The principal emigration centers must have been located in Maritime Flanders.

This area, contrary to the rest of Flanders, had no rural industry but a highly developed commercial agriculture whose products were exported to the rest of Flanders and outside the region. Population growth was maintained there at a slower rate than in the interior, principally through emigration. The land fragmentation that made population growth possible in the interior of Flanders was curbed in the maritime area. There were increasing returns to farm size due to the heavy and compact quality of the soil in the polders which necessitated a capital-intensive agriculture using heavy ploughs and much draft power, while elsewhere in Flanders the light soils were compatible with a labor-intensive agriculture and light manual implements. Also, the majority of the population in the commercial farming area was made of wage laborers whereas in the peasant farming areas of the interior we find a firmly entrenched peasantry.

It is thus principally in the interior of Flanders that we find light sandy soils, a peasant or subsistence agriculture, land fragmentation, population growth, and proto-industrialization. There, the cultivation of potatoes and emigration provided avenues by which the economy responded to population pressure, and the linen industry was another alternative—one which had a great qualitative and quantitative importance in changing the economic landscape. As a response to population pressure, the linen industry seems to have had pernicious effects since we find a more rapid growth of population in the industrializing areas together with lower ages of marriages and higher fertility. It seems that the linen industry, which was perceived by contemporaries as a means of maintaining or restoring the balance between family needs and family farm production, had the disequilibrating effect of maintaining or increasing population pressure.

The description of these relationships and of the structural parameters underlying them leads to the construction of a geometric model of the industrialized farms of Flanders which shows the short-run determination of linen output as a function of the linen-price ratio. Increases in that price ratio are assumed to lead to an improvement in income which has a negative output effect and lagged, positive, demographic effects. Both of these relationships can be reconciled with accepted theory if we assume that for individual laborers conditions of general backwardness and illiteracy lead to the immediate conversion of transitory into permanent income changes. In this way, Malthusian shortsightedness leads to a short-run backward bending supply of labor as well as to an upward sloping income-population schedule. A larger family due to a rise of the price ratio would lead to a decrease in average income but this is prevented by an increased labor supply which restores the initial level. Thus, an increase in the linen-rye price ratio realizes itself in the long run in an

increased population and linen output, but in no increase in real income, which is precisely what one observes and wants to explain.

Whether the observed long-run relationships are actually the result of the short-run mechanism hypothesized above hinges on various tests. One-equation multivariate regressions applied to demographic data for several groups of villages in the industrialized areas of the countryside show the definite existence of a positive feedback of marriages to the introduction of industry in the villages of the interior. As expected, neither the villages of Maritime Flanders nor the cities exhibited such responses. The villages of Maritime Flanders experienced a different mechanism of demographic response to different economic shocks. Births and marriages there responded positively to increases in rye prices, as one would expect for a commercial farming area—but this casts a doubt on generalizations about the negative demographic effect of subsistence crises on the continent before the Industrial Revolution.

It is also shown by the statistical tests that the direction of the long-run trend in the linen-price ratio did not affect the long-run trend of industrial growth and population in the interior. It was found that favorable changes in the price ratio produced a positive demographic response but the response generated by unfavorable changes in the price ratio was not statistically significant. Because the mechanism of short-run population and output reactions to fluctuations in the terms of trade was thus asymmetric, it generated long-run population growth irrespective of the relative price trend. The course of population growth was determined by the amplitude of price fluctuations.

It is often stated that population growth was both a cause and a consequence of economic change in the early stages of industrialization. This dissertation attempts to specify the mechanism of economic-demographic interactions in a region. It also stresses the role of traditional rural crafts and points to the importance of their growth in the decades preceding the appearance of factories in understanding the historical process of industrialization, and particularly its relationships with population growth, agricultural change, and urbanization.

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