

Just How Industrialized Was the Canadian Economy in 1890?

The impression given by most writers on the development of the Canadian economy is that industrialization in Canada was something that came largely in the twentieth century and that prior to then Canada could not be considered an industrialized economy. This is an impressionistic view since it has been uncommon for direct international statistical comparisons to be made, except occasionally with the United States. By contrast, for more than a dozen years I have been making the claim that as early as 1890 Canada ranked among the most industrialized countries of the world (McInnis, 1990). That claim is based upon a comparison of manufacturing net output per capita. By that measure only the United Kingdom, the United States and Belgium ranked higher than Canada. Germany, a country usually thought of as a vigorous industrializer, had a lower output of manufactures per capita, as did France and Sweden. The essential point I have wanted to make is that it is misleading to think of Canada as a serious laggard in industrialization. There is no question that many of the country's important industries grew rapidly after the 1890s. That does not mean that considerable development of manufacturing had not been accomplished previously. It is that prior accomplishment that needs to be asserted.

The claim that I am putting forward derives largely from my choice of manufactured output per capita as the measure for comparison. It has been more common perhaps to think of industrialization in terms of the proportion of total output accounted for by manufacturing industry. This "structural" view of industrialization is undoubtedly the most widely prevailing one but it has its shortcomings. By that standard an economy with a large and productive agricultural sector would not appear to be very industrialized even though it might lead the world in manufactured output. That was the case of the United States by the end of the nineteenth century. It is not that one view is right and the other wrong; they point to different aspects of an economy's performance. Canada had a large agricultural sector. It also drew a relatively large proportion of its output from other primary sectors such as fishing, forestry and mining. From a structural point of view, then, Canada in the late nineteenth century appears not to have advanced very much as an industrialized nation. That is only one way of looking at industrial progress, however, and it is equally valid to ask how much output per capita the manufacturing sector was generating. By that standard, Canada rates much more highly.

There is another reason why previous writers have thought that Canada lagged in industrialization. In the nineteenth century, following upon the example of Britain which pioneered the Industrial Revolution, the most prominent developments were in factory textiles (especially cotton), coke-smelted iron, and in the use of steam engines. Economies tended to be evaluated in terms of how well they emulated Britain along those lines. For many years economic historians measured industrialization in terms of factory cotton textile spindles, tons of pig iron produced, tons of coals raised, and horsepower of steam engines in place. By these measures Canada indeed made a poor showing. It had achieved little progress in developing a cotton textile industry. The central part of the country lacked coal for coking and good deposits of iron ore were not found. When the railway became important Canada, much like the United States, imported iron rails from Britain. The lack of a modern iron smelting industry was commonly thought to be the most patent indicator of Canada's lack of success at industrializing. The country was particularly well-endowed with hydraulic power sites, and like many countries other than Britain, it continued to stick with water power for manufacturing purposes. By the old standards, then, Canada was something of a failure in the area of industrialization.

This old view of nineteenth century industrialization has come to be discarded. More recently economic historians have emphasized that there are alternate paths to economic development and even to industrial advance (for example Cameron 1985, Crafts 1984, O'Brien and Keyder 1978). Other lines of manufacturing development could substitute for cotton and iron. American writers have pointed out that slowness to adopt stationary steam engines for motive power in manufacturing and a long-continued reliance on equally cheap water power cast aspersions on the industrial development of the United States (Temin, 1966; Attack, Bateman and Weiss, 1980). In light of this revised view of the industrialization process we might emphasize the success that Canada had in developing a range of manufacturing industries. Some of these may indeed have been craft-type industries such as blacksmithing, furniture making, and dressmaking and tailoring, but Canadians were forging ahead with "modern" manufacturing as well. They made agricultural machinery, steam engines, locomotives, railway rolling stock, and they built iron rolling mills. There were also important industries that manufactured for export. These included pork packing, cheese making and lumber milling. In the United States pork curing and packing is often cited as exemplifying the large scale, continuous processing that characterizes modern manufacturing (Chandler, 1990). Cheese factories may have been

relatively simple in technology and small in scale yet they exemplified the shift of formerly household or agricultural processes into specialized, factory-based production that was supposed to have typified the Industrial Revolution. There has also been a tendency to think of lumber mills as old, pre-modern technology, but all too often what people have in mind are the simple, single muley-saw mills that dotted the countryside and served the local market.¹ The greater part of Canadian production came from large scale lumber mills that were among the most highly capitalized, technically sophisticated forms of manufacturing. In addition, although Canada was not exporting much flour by 1890, it was well into the transition to continuous process or roller milling. That too has been pointed out to exemplify the “modern” industry of the Second Industrial Revolution (Chandler, 1990).

There is good reason, then, to emphasize a revised view of Canadian manufacturing development. That re-interpretation was actually begun a good many years ago by Bertram (1963a, 1963b), Dales (1963) and McDougall (1971). They were addressing the then received view that the Canadian economy had generally stagnated over the period between the early 1870s and the late 1890s. The pioneer national income estimates by Firestone (1958) had pointed to a more positive rate of economic growth and those writers saw the source in industrial development. Bertram (1963b), especially, played up what he claimed to be a relatively rapid rate of industrial growth. These writers, however, directed all of their attention to the rate of growth and made no attempt to place Canada’s attained level of industrialization in an international comparative context.² Furthermore, they led the discussion off into a rather fruitless consideration of the structure of Canadian manufacturing. There had been a popular notion in Canada that something identified as “secondary” manufacturing was somehow more advanced, or more important, or more worthwhile, than “primary” manufacturing. This seems to have resolved into a dispute over what was “good” or “advantageous” manufacturing as opposed

¹ We should not also forget that in Britain lumber continued to be hand-sawn right up into the early years of the nineteenth century. By British standards the saw mill, whether power by water or steam, was a relatively new development.

² A curious exception is Dales (1963) who, in passing, states that Canadian manufactured output per capita looked high relative to the United States, but he thought that was misleading because the denominator was so small. He offered the opinion that it would somehow be better to relate Canada’s manufacturing output to the country’s land area. It strikes me as a bizarre notion that it would be more realistic to relate manufacturing to the land base of the country’s agriculture, especially in a country with such a land-intensive agriculture.

to “less desirable” forms of industry. The distinctions made are curiously judgmental and without any cogent basis.³ At any rate, the examination of Canadian manufacturing development got arrested at that point without any further development.⁴ That whole debate has been set aside in more recent writing on Canadian economic development, but the emphasis on successful industrial growth in the post-Confederation period has received considerable emphasis in the text book by Pomfret (1981 and 1993). He makes the point that much later, in the twentieth century, Canada had by world standards one of the highest levels of manufactured output per capita. While he does not make the comparison for earlier years the whole tenor of his discussion of early industrialization in Canada is sympathetic to the claim that I am asserting.

The tack I have taken focuses on the overall level of manufacturing development attained by Canada by 1890 in an internationally comparative setting. I want to ask just where did Canada stand relative to other economies at the time. International comparisons of net manufacturing output per capita are not commonly made. My claim was based on data from Maizels (1963). His comparison is for several economies at the turn of the twentieth century (1899). I wish to make the comparison in the Canadian case for 1890 since that is a year prior to the well-recognized industrialization of the late 1890s getting underway in Canada. It represents the situation at the end of an earlier era. To derive 1890 figures from Maizel’s end-of-century data I project his numbers backwards for each country on the basis of quantitative indexes of industrial production and the change in population (both from Mitchell, 1998). This might be thought of as providing only a loose approximation and the relative positions of countries other than Canada might be questioned. With regard to Canada, however, it does not really matter. As the figures in Table 1 show, Canada ranked fourth in the world in both 1899 and 1890 so my primary claim is not affected by the modification I have made to Maizel’s statistics.⁵ The main

³ For example the spinning of raw cotton into thread and the smelting of iron ore into pig iron are treated as secondary (or “good”) manufacturing while the milling of logs into boards or into wood-pulp paper are treated as primary (or “poor”) manufacturing. This categorization strikes me as a particularly sterile issue on which the examination of Canadian manufacturing development got excessively bogged down.

⁴ M.C. Urquhart (1993) provided a revised, and carefully-considered, set of estimates of GDP originating in manufacturing, by branch of industry, on an annual basis for the entire 1870-1926 period but, more than a decade after its publication it has not spurred any re-investigation of Canadian manufacturing development.

⁵ There was an earlier and probably cruder estimate of per capita manufacturing output made by Colin Clark (1957, Table VII) that gives the same ordering. It is for the years 1890-94 and it places the United States rather

point is that, in terms of per capita output of manufactures, already by 1890 Canada ranked up with the world leaders. That is a very different view of the Canadian economy than is usually put forward.

Table 1. Net Output of Manufacturing Industry Per Capita
(In 1955 U.S. dollars)⁶

	1890	1899
United Kingdom	152	175
United States	140	175
Belgium	136	170
Canada	129	140
Germany	94	125
France	85	100
Sweden	66	95

The more commonly used “structural” comparison puts Canada well behind the European economies in industrial development. Getting good, comparable data on the industrial structure of GDP is more of a challenge than one might expect so I have not been able to put together a table similar to Table 1 for the per cent of GDP originating in manufacturing for the same set of nations. One can only guess that the claims made about Canada lagging in industrialization are most likely made on rougher impressionistic grounds.⁷ In Canada in 1890 25.8 per cent of GDP originated in manufacturing (calculated from Urquhart, 1993). That would put Canada behind

higher, Belgium a little bit lower, and Germany not so far below Canada, but Canada still in fourth place.

⁶ Maizels does not use current exchange rates but a backward projection of the purchasing power parity rates estimated in early work by the OECD. This is comparable to the method used by Maddison (1995) in work that has been widely used.

⁷ It is in that way that Morris and Adelman (1988) rate Canadian industrialization well back of the European leaders and in 1890 have it even behind Italy and Russia. On their “industrial technique” dimension they place Canada even further back. So much for impressionistically based scaling systems.

quite a few other countries. The comparable figure for the United States was 30 per cent, but that is below the 35-40 per cent quoted for countries like Britain, France and Germany. A problem lies in the fact that standard sources for the European countries define the industrial sector more broadly. Mitchell (1998), for example, gives the United Kingdom as 41 per cent in 1890, France at 37 per cent and Germany at 35.5 per cent, but those proportions include mining and construction as well as manufacturing. He puts Belgium at 30 per cent and Sweden at 23 per cent. Canada had a fairly large construction sector. Recalculating the Canadian fraction to include mining and construction puts Canada at 32.5 per cent, not so far at all behind the European leaders. By comparison, removing construction and mining from the British industrial sector would put the manufacturing share in 1890 at just over 30 per cent. Hoffman's (1958) figures put Germany at 33 per cent. Belgium is just shy of 30 per cent. While Canada was below that level its 25.8 per cent in a narrowly-defined industrial sector does not appear to indicate quite so large a lag as the impressionistic comments might imply, especially when it appears that a roughly comparable figure for the United States was 30 per cent, yet the United States was on a level with Britain, leading the world in manufactured output per capita. I concede that, structurally, Canada lagged behind the European industrial leaders, but not by as much as is often implied. Besides, that is not an unambiguous indication of achieved industrialization.

The picture is seriously blurred, however, by an alternative published source of international comparisons of manufactured output per capita that has received wide attention. Bairoch (1982) provides tables of per capita output of manufacturing industry, relative to the United Kingdom in 1900, that have attained something of the status of the standard, accepted story. These place Canada in a very different position. They represent a major challenge to the claim I have made that Canada was among the most industrialized nations of the world. For reasons I have previously explained I want to focus on 1890. Bairoch's tables give estimates for 1880 and 1900. In either case he places Canada well down the list of industrializing countries, well below Germany and France, and even of Sweden. It is not just the relative ranking of ninth where Bairoch places Canada but the extent to which he puts this country below not only the United States but also Germany. According to Bairoch Canada's level of industrialization was down at the level of Spain and barely above that of Italy. This is a very different characterization of Canadian industrialization from what I have been claiming and represents a serious challenge to my claim. If I am going to sustain my claim that Canada was among the **most** industrialized

nations of the late nineteenth century I have to do something to reconcile the differences between Bairoch and Maizels.

Bairoch does not present his evidence in a manner that would allow one fully to replicate his calculations. He gives enough of an explanation, however, to see that his methodology seriously biases downward his estimate for Canada. There are several reasons for this. Perhaps the most important are Bairoch's treatment of what were Canada's leading export industries. He estimated relative levels of production in food processing industries on the basis of consumption levels. By the early 1890s factory produced cheese had become, by value, Canada's foremost single exported product.⁸ Canadians consumed very little cheese and more than 90 per cent of the production of this good was exported. This is an extreme case of the defect of Bairoch's approach to estimation of the output of food processing industries. It does not end there. By 1890 pork packing had also become an important Canadian manufacturing industry, producing Wiltshire sides of bacon for the English market. The other great export manufacturing industry of Canada was lumber milling. Again, in the Canadian case, by far the greater part of output was exported. Bairoch reflects his principal interest in the core economies of Europe and the leading industries of the Industrial Revolution. He groups timber with furniture and estimates their output on the basis of employment statistics (Bairoch, 1982, p. 215). Bairoch's methodology seriously undervalues the importance of these major manufacturing industries to Canada.⁹

A second source of downward bias comes from Bairoch's rather cavalier treatment of "other traditional industries". These include quite a wide range of activities including shoe making and the manufacture of other leather products. Both were relatively important industries in late nineteenth century Canada. This country had for some time been self-sufficient in the manufacture of shoes. With the introduction of cutting, sewing and welting machines shoe

⁸ That statement holds only because different types of sawn lumber are treated in the export statistics as different products. More realistically boards and planks should be grouped with pine and spruce deals, since deals are simply planks of a particular dimension sawn for the British market. Sawn lumber products as a group amounted in 1890 to more than twice the value of cheese exports. Even though cheese had become increasingly important as an export from Canada the largest export continued to be from the country's forest resource.

⁹ Interestingly, Bairoch himself recognized the bias in his approach as it affected the timber industries of Norway, Sweden and Finland, and the foodstuffs industry of Denmark (Bairoch, p. 316) but he gives no recognition that Canada would be seriously affected by the same bias.

production had become a modern factory enterprise. Leather was a universal material in nineteenth century economies and Canada had become a large producer of tanned leather and of leather products such as belting and harness. Leather tanning was carried out in close proximity to the bulky, light weight input - tanbark. Hides were imported from South America to be processed with Canadian tanbark. Canadian leather processing included the harness industry which played a relatively large role in an agricultural country that used a lot of horsepower. Bairoch projects the output of these industries backward from twentieth century levels on the assumption that their growth rate was the same as that estimated for clothing and timber/furniture (with no indication of how the latter were weighted).

The clothing industry, which by Urquhart's estimates contributed 11 per cent of GDP in Canadian manufacturing in 1890, also gets underestimated by Bairoch. He estimates clothing manufacturing as a relationship to "the overall development of the textiles industries" (p. 315). If that sounds vague it is because Bairoch himself is vague. Canada was indeed a laggard in primary textile manufacturing and relied heavily on imports. On the other hand Canadians produced almost all of their own clothing. Much of that was in small, craft tailoring or dressmaking shops, but that was true of all countries at this time. There were, nevertheless, some prominent, large clothing factories. However one looks at it, though, relating Canada's output of manufactured clothing to primary textile production in the country would downwardly bias the clothing sector of Canadian manufacturing.

Another area of serious bias concerns iron and steel products. Here again Bairoch is unfortunately vague and arbitrary. Like so many earlier writers on industrialization he places a lot of emphasis on primary iron production, especially by the Industrial Revolution technology of coke smelting. Canada had no modern iron industry until the very end of the nineteenth century. Some iron was being produced with charcoal fuel but a lot of iron was also imported. While we usually think of the modern iron and steel industry in Canada as a development of the very last years of the nineteenth century, it should be noted that by the mid-1880s Scotia Steel was making open hearth steel from imported pig iron. It was a small beginning but it came hard on the heels of the general diffusion of the open hearth process in North America. More important for my argument were the steel fabricating industries. These included a wide range of products from bridge and other structural steel, boilers and steam engines, locomotives and

railway car wheels and axles, and a wide assortment of machinery manufacturing. It also included the products of local foundries that made a great many products from cast iron.¹⁰ Canada shared with the United States an advanced use of iron and steel in these many products. Bairoch handles this complex and important part of modern manufacturing by raising net domestic consumption of primary metals by a factor, in relation to the value of pig iron, “ranging from three to five.” We are not told exactly which multiple was used in the Canadian case. At any rate we have to be suspicious that this also underestimates the level of manufacturing in Canada. The extensive railway system of Canada alone would imply relatively high values of railway-related iron and steel (locomotives, car axles and wheels, bridgework) even though Canada may still have been importing rails themselves. Architectural cast iron was widely used in this country. The Canadian agricultural and forest industries were, by international standards, intensive in their use of iron and steel (ploughs, harrows, mower blades, chains and cauldrons). While Canada may not have been producing primary iron, fabrication of iron and steel was largely done in this country.

For all of the foregoing reasons we have to believe that per capita output of manufactured goods in Canada in 1890 was considerably higher than indicated by Bairoch. Was it, however, as high as I have been claiming? Since I have been strongly critical of Bairoch I should submit the estimates from Maizels to careful scrutiny as well. The methodology employed by Maizels is described as a backward projection of 1955 internationally comparative levels of industrial production on the basis of quantity indices of industrial production. Bairoch explicitly rejects that methodology for the reasons that a fixed weighting of industrial sectors is less and less reliable the further back one goes, and that the exchange rates of the mid-1950s may not reliably provide comparisons for earlier, historical dates. He opts instead for contemporary estimates of the relative levels of manufacturing production, emphasizing physical measurements for the most prominent sectors.

Maizels cannot have estimated the Canadian figures for 1899 in quite the way Bairoch describes, however, since there does not exist an historical index of industrial production for

¹⁰ Two important products were cast iron pipe and stoves, which were much more common in North America than in Europe.

Canada extending back to 1899. Instead what Maizels substituted was a ratio of 1899 to 1929 industrial output in Canada based on the only data available at the time, the statistics of value added in manufacturing industry as a whole provided by Firestone (1958, Table 67). Those data have since been superceded by Urquhart's (1993, Table 1.1) estimates of Gross Domestic Product originating in manufacturing. The Urquhart figures are systematically below those reported by Firestone so it is possible that Maizel's numbers to some degree overstate the level of Canadian manufacturing. A simple adjustment that can be made is to reduce the Maizel figure for 1899, and my projection of it back to 1890, by the ratio of the Urquhart to the Firestone estimates of value added in manufacturing. That would lower the per capita output of manufactured goods in Canada from \$140 to \$126 in 1899, and from \$129 to \$116 in 1890. That would still leave Canada in fourth place internationally in both years. Canada would still have a level of industrialization above that of Germany although not to such an extent as indicated in the original comparison (Table 1).

In recent years international comparisons of historical levels of national income have been based on revised exchange rates modified to take account of purchasing power parity (PPP). The best known and most widely used estimates are those of Maddison (1995). The international prices used by Maddison are intended to provide a better basis for comparing GDP figures which include a substantial component of non-traded goods. Manufactured goods, however, tend to a greater extent to be traded goods and so their relative prices might be more closely represented by market exchange rates, especially if those are equilibrium or close to equilibrium exchange rates. Nevertheless, it might be instructive to ask whether the recently used PPP exchange rates might modify the conclusion about the relative standing of Canadian manufactured output per capita. A major problem with this is that Maizels' estimates are not at market exchange rates but purport to be backward projections of 1955 PPP rates. Little can be said, therefore, about the whole set of international comparisons. Two comparisons might be squeezed. Maddison evidently perceives the price levels in Canada and the United States to be quite similar so that the relative level of real output per capita would be much the same regardless of whether the market or a PPP adjusted exchange rate were used. On the other hand, Maddison's PPP adjusted exchange rate differs from the market rate more for Germany than for most of the countries he studied. He would raise the PPP adjusted level of real output for Germany by a relatively large extent. That would bring the German level of manufacturing

output closer to the Canadian than I have claimed, perhaps even making them about equivalent.

Maddison's approach has not escaped criticism. In effect he assumes that an inter-country adjustment for differences between market exchange rates and those based on purchasing power parity that are calculated for relatively recent years remains valid back over long spans of history. A recent paper by Prados (2000) elaborates on that criticism and offers an alternative, synthetic adjustment based upon the relationship between PPP adjusted price levels and structural features of economies estimated by regression analysis over the period 1950 to 1990. Using Prados' figures the Canadian price level in 1890 was rather lower than that of the United States as indicated by the market exchange rate. Canada would therefore have performed even better, relative to the United States, than I have claimed. That seems to be stretching the point. On the other hand the level of Germany, relative to Canada, would have been lower. The point that might be taken from this is that the Maddison price indexes place Germany at a maximum advantage. On the other hand Prados' indexes, while shifting Germany downward, may overstate the position of Canada. Allen (1994) has made a rough approximation to a PPP adjusted exchange rate for Canada that places the adjustment part way between those give by Maddison and Prados. Whichever exchange rate one chooses the main claim that I am making probably holds. Canada was the fourth most industrialized economy in the world in 1890, judged by manufactured output per capita, and at the very least about on a par with Germany, if not well above the level of that much publicized nation.

Another approach that might be followed on this issue would be to attempt to make direct comparisons between Canadian per capita output of manufactures and those of the United States. By the account of any of the writers on the topic the United States was by 1890 almost as industrialized as Great Britain. If one uses Prados' PPP adjustment it was more highly industrialized. It may be simpler just to make direct comparisons of Canada with the United States, starting with the market exchange rate under the then prevailing gold standard of dollar equivalence. It is nevertheless the case that one does not get an unambiguous result. From Urquhart's (1993) data we have Canadian per capita output originating in manufacturing of \$34.54. Gallman's (1966) estimate of value added in manufacturing, in current dollars, was \$59. The Canadian figure is only 58.5 per cent of that, putting Canada much further below the level of the United States than indicated by Maizels in Table 1 above. There are indications that

Urquhart's methodology may have produced a leaner estimate than Gallman's so the comparison might better be made with the census value added figures reported by Bertram (1963a). That would raise the Canadian level to \$43.52 or 74 per cent of the U.S. level. If one were to follow Allen's (1994) estimate that prices in Canada were somewhat lower than in the United States the figure for Canada would be higher still at \$48.38 or 82 per cent of the U.S. level. Direct comparisons with European economies are more complicated but may be possible.

There is one further matter to be considered. Might there be an upward bias to the estimate of GDP originating in manufacturing in Canada in 1890? The scholars examining the growth of Canadian manufacturing (Bertram, 1963a or b; Dales, 1963; McDougall, 1971) all noted that in Canada the growth of manufactured production was substantially higher in the decade 1880-1890 than in the following decade. They were at some pains to deal with the possibility that the census of 1901 may have understated manufacturing output. Unlike previous enumerations the census of 1901 reported data only for establishments with five or more employees. That left out a whole range of handicraft and small shop industry that was still quite important in 1901. Without upward adjustment for the unenumerated segment of manufacturing industry the estimates of output for 1900 would be too low and that could account for an apparent reduction of growth between 1890 and 1900. Earlier writers have worked over this issue with great care and I have to believe that they have done as good a job as possible to correct for underenumeration in 1901.

There is still a possibility that an overly enthusiastic census bureau may have given an upward bias to the figures for 1890.¹¹ At first glance it seems striking that there could have been such a reduction in the increase of per capita manufactured output between 1890 and 1900. Price changes can account for little of it. Imperfect as it is, the GNP deflator used by Urquhart drops from 104 in 1890 to 100 in 1900. That is too mild a price change to be of serious consequence. An examination of the composition of change in Canadian manufacturing output

¹¹ A Special Bulletin on this issue was published by the Canadian census bureau in 1895. I specifically addressed accusations made at the time that the 1890 count of manufacturing establishments had been padded in order to make the government's tariff policy look more effective. While the report absolved the census bureau of the charge it did point out that enumeration of hand trades in 1891 was more thorough than it had been in 1881. The upward bias that might have imparted to the output measure would have been quite small.

between 1890 and 1900 suggests that a considerable slowing of growth is quite plausible. Several important branches of manufacturing showed an actual decline in output over the decade of the '90s. Here I use the sectoral GDP figures of Urquhart (1993). Wood products manufacturing, mainly lumber milling, had grown healthily in the 1880s but had an absolute decline in the '90s. Exports of lumber, which had continued to grow through the 1880s, stabilized in the 1890s. This was Canada's largest manufacturing industry so what happened to it had an important bearing on the total of manufacturing. There are two reasons why one might plausibly speculate that this decline was real. One is that there are indications that Canada had finally run into supply constraints in its forest resource. The second is that Canadian exporters of lumber to the United States had run into formidable new competition from the southern yellow pine industry. Overall, it is doubtful that there is any substantial overstatement of the manufacturing data for 1890.

Putting together all of the evidence presented in this note, and keeping in mind that all of these historical estimates are approximations with a considerable range of possible error, it nevertheless seems justified to claim that Canada, by 1890, was a relatively highly industrialized economy by world standards at the time. It almost certainly ranked fourth among the economies of the world in manufacturing output per capita. It may have had a larger output per capita of manufactured goods than Germany or France, and it was well ahead of Sweden. Structurally, however, Canada's large agricultural and other primary sectors meant that the country appeared to be much less industrialized, although the structural gap may not have been as great as many commentators seem to imply. There is more than one way to judge the degree of industrialization. Scholars must be careful too choose the standard appropriate to what they want to argue and to avoid overly simplistic judgements. The other point of importance is that is worthwhile to keep an international comparative perspective. Far too often Canadian economic history has been written as though the country were developing independently of the rest of the world. Canada was a small, peripheral part of the world economy. It shared many of the developments that were going on elsewhere in the world and especially in the United States. It is useful to maintain a more international perspective when looking at Canadian development.

An important characteristic of Canadian manufacturing industry that we can recognize is that it was weak, or deficient, or however one wishes to describe it, in those industries that

attracted so much attention because they were in the forefront of the Industrial Revolution in Britain — coke smelting of iron, the use of coal (which is almost the same thing as the former), factory textile production, and the use of stationary steam engines. In recent years many writers have come to recognize the diversity of patterns of modern economic growth, to stress the viability of alternative paths to industrialization, economic modernity, and prosperity. The case has been made especially with regard to France. It appears that Canada too provides a strong example.

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