KRIS INWOOD and JOHN CHAMARD

Regional Industrial Growth during the 1890s: The Case of the Missing Artisans

OUR IMAGE OF THE EARLY CANADIAN ECONOMY may be organized in decade-long intervals.[1] Strong real growth was experienced during the 1870s, but an abrupt rise (1871-1873) and an even greater fall (1873-1876) in prices dislocated commercial patterns and caused many firms to disappear or change ownership.[2] Canada adjusted to sharp increases in manufacturing tariffs and the stimulus of publicly subsidized railway construction during the 1880s.[3] The 1900-1910 period is best known for a dramatic westward expansion of economic activity and an extremely high rate of investment, which together effected a profound transformation of the economic landscape.[4] The war decade brought recession and little if any real growth between 1910 and 1920.[5]

Our view of the 1890s is less distinct. This decade falls between the tariff increases of 1879-1887 and the wheat and investment booms of the early 20th century. Investment and the savings ratio fell from their levels of the 1880s, railway investment was at its lowest level between Confederation and the Great Depression, western expansion slowed for a few years, and manufacturing growth was unusually slow.[6]

The paper has benefited from discussions with R.C. Allen, Ian Drummond, Alan Green, Greg Kealey, Del Muise, Tim O'Neill, participants at the 1985 Atlantic Canada Studies Conference and the 1985 Conference on the Use of Quantitative Methods in Canadian Economic History and the editor and referees of this journal. Remaining inadequacies are the responsibility of the authors. The support of the Social Sciences and Humanities Research Council is acknowledged, gratefully.

1 Periodization by decade reflects the availability of a comprehensive decennial census and Bertram's argument that the beginning of each decade between 1870 and 1910 came at roughly the same point on the business cycle: Gordon Bertram, "Historical Statistics on Growth and Structure in Manufacturing in Canada", in J. Henripin and A. Asimakopulos, eds., *Conferences on Statistics, 1963 and 1964* (Toronto, 1964), pp. 93-152, see especially pp. 129-36.

2 Bertram, "Historical Statistics"; E. Chambers, "Late Nineteenth Century Business Cycles in Canada", *Canadian Journal of Economics and Political Science*, XXX (1964), pp. 391-412; W. Johnson, *Sketches of the Late Depression* (Montreal, 1882); M. Urquhart, "New Estimates of Gross National Product, Canada, 1870 to 1926", Queen's University Economics Discussion Paper #586 (1984).

3 J. Dales, *The Protective Tariff in Canada's Economic Development* (Toronto, 1966); P. George, "The National Policy", McMaster University Economics Working Paper 78-14 (1978); Urquhart, "New Estimates", pp. 13-14.

4 K. Buckley, *Capital Formation in Canada, 1896-1930* (Toronto, 1974 [1955]); Urquhart, "New Estimates".

5 Bertram, "Historical Statistics", p. 97; Urquhart, "New Estimates", Table 10.

6 Bertram, "Historical Statistics", pp. 118-120; K. Norrie, "The National Policy and Prairie

The decade of the 1890s is also known for a strong centralization of industry in Central Canada.[7] This development is examined most effectively in the rich literature about industrialization and its difficulties in Atlantic Canada.[8] One suggestion of this literature is that the loss of local control over Maritime industry beginning in the late 1880s and 1890s was an early and important step in

Economic Discrimination", in D. Akenson, ed., *Canadian Papers in Rural History Vol. I* (Gananoque, 1978), pp. 13-32; K. Norrie, "The Rate of Settlement of the Canadian Prairies 1870-1911", *Journal of Economic History*, XXXV (1975), pp. 410-27; Urquhart, "New Estimates", pp. 13, 15, 79.

7 T.W. Acheson, "The National Policy and the Industrialization of the Maritimes, 1880-1910", *Acadiensis*, I, 2 (Spring 1972), pp. 3-28; T.W. Acheson, "The Maritimes and Empire Canada", in David Bercuson, ed., *Canada and the Burden of Unity* (Toronto, 1977), pp. 87-114; D. Alexander, "Economic Growth in the Atlantic Region, 1880-1940", *Acadiensis*, VIII, 1 (Autumn 1978), pp. 47-76, Tables 4 and 5; Robert Babcock, "Economic Development in Portland (Maine) and Saint John (New Brunswick) during the Age of Iron and Steam", *American Review of Canadian Studies*, IX (1979), pp. 3-37; Bertram, "Historical Statistics", Tables 5, 6 and 7; David Frank, "The Cape Breton Coal Industry and the Rise and Fall of the British Empire Steel Corporation", *Acadiensis*, VII, 1 (Autumn 1977), pp. 3-34; H. Pinchin, *The Regional Impact of the Canadian Tariff* (Ottawa, 1979), Table A1, p. 105. Concern for the weakness of modern manufacturing in the Maritimes has prompted considerable analysis. See Roy George, *A Leader and a Laggard* (Toronto 1970) and Ian Drummond, "Three Books on Nova Scotia's Economy", *Acadiensis*, III, 2 (Spring 1974), pp. 105-10. More generally on regional differences in economic structure see T. Brewis, "The Problem of Regional Disparities", in his *Growth and the Canadian Economy* (Toronto 1968), pp. 90-111; R. Caves and R. Holton, *Canada: Prospect and Retrospect* (Cambridge, Mass., 1959); A. Green, *Regional Aspects of Canada's Economic Growth* (Toronto, 1971); W. Marr and D. Paterson, *Canada: An Economic History* (Toronto, 1980), ch. 13.

8 Acheson, "The National Policy and the Industrialization of the Maritimes"; Acheson, "The Maritimes and Empire Canada"; T.W. Acheson, "The Great Merchant and Economic Development in Saint John", *Acadiensis*, VIII, 2 (Spring 1979), pp. 3-27; Babcock, "Economic Development in Portland and Saint John"; P. Felt and L. Felt, "Capital Accumulation and Industrial Development in New Brunswick", in Lewis Fischer and Eric Sager, eds., *Merchant Shipping and Economic Development in Atlantic Canada* (St. John's, 1979), pp. 57-70; E.R. Forbes, "Misguided Symmetry", in Bercuson, *Canada and the Burden of Unity*, pp. 60-86; E.R. Forbes, *The Maritime Rights Movement* (Montreal, 1979); E.R. Forbes, "Consolidating Disparity: The Maritimes and the Industrialization of Canada during the Second World War", *Acadiensis*, XV, 2 (Spring 1986), pp. 3-27; Frank, "The Cape Breton Coal Industry"; James Frost, "The 'Nationalization' of the Bank of Nova Scotia", *Acadiensis*, XII, 1 (Autumn 1982), pp. 3-38; D. Macgillivray, "Henry Melville Whitney Comes to Cape Breton", *Acadiensis*, IX, 1 (Autumn 1979), pp. 44-70; L.D. McCann, "Staples and the New Industralism in the Growth of Post-Confederation Halifax", *Acadiensis*, VIII, 2 (Spring 1979), pp. 47-79; L.D. McCann, "The Mercantile-Industrial Transition in the Metal Towns of Pictou County, 1857-1931", *Acadiensis*, X, 2 (Spring 1981), pp. 29-64; Ian McKay, "Capital and Labour in the Halifax Baking and Confectionery Industry during the Last Half of the Nineteenth Century", *Labour/Le Travailleur*, Vol. 3 (1978), pp. 63-108; Ian McKay, "Strikes in the Maritimes", *Acadiensis*, XIII, 1 (Autumn 1983), pp. 3-46; R. Ommer, "Anticipating the Trend", *Acadiensis*, X, 1 (Autumn, 1980), pp. 67-89; S.A. Saunders, *The Economic History of the Maritime Provinces* (Fredericton, 1984 [1939]), part III.

the "de-industrialization" of Atlantic Canada.[9] The available statistical evidence appears to support the view that Maritime manufacturers began to encounter serious difficulties during the 1890s.[10] David Alexander indicated that Maritime manufacturing production fell by 22 per cent during the 1890s while all Canadian production rose by 10 per cent.[11] S.A.Saunders reported that the Maritime share of national production dropped by three percentage points, which was the largest single decade decline in the first 70 years of Confederation.[12]

This image of the 1890s as a particularly dark decade for Maritime industry is mistaken. A peculiarity of Canadian census procedures creates the impression that regional manufacturing declined and that production centralized in Ontario and Quebec at a remarkable rate. A reconsideration of the census evidence allows us to draw four significant conclusions:

(1) As late as 1890 small work-places were quite common in Canada although, significantly, the average size and size-distribution of firms differed substantially between regions.

(2) Manufacturing in Atlantic Canada did not decline during the 1890s; it expanded at a slower pace than in Central Canada, as it did in every decade between 1870 and 1910 and possibly also 1850-1870. After removing a bias from the census data we see that regional concentration during the 1890s was not unusual compared to that of other decades.

(3) There was considerable variation among industries. Canadian consumer durable and capital goods production did centralize significantly during the 1890s. The output of durables collapsed dramatically in Atlantic Canada.

(4) Manufacturing in the urban-industrial areas of Nova Scotia managed to keep pace with that in Ontario and Quebec during the 1890s, as in all other decades between 1870 and 1910. The intra-regional variation reminds us that a single district or industry is not necessarily representative

9 Acheson, "The National Policy and the Industrialization of the Maritimes" and "The Maritimes and Empire Canada".

10 Acheson, however, does not indicate that Maritime output declined absolutely or relatively during the 1890s.

11 Alexander, "Economic Growth in the Atlantic Region", Tables 4 and 5. These data do not appear to have been adjusted for changing census definitions.

12 Saunders, *Economic History*, p. 85. Other evidence apparently consistent with this portrait of the 1890s has been provided by Acheson, "The National Policy and the Industrialization of the Maritimes", Babcock, "Economic Development in Portland and Saint John", Bertram, "Historical Statistics", Tables 5, 6 and 7 and Pinchin, *The Regional Impact of the Canadian Tariff*, Table A1.

of the entire region.

Industrial growth during the 1890s is obscured by a defect of the available statistical sources originating with a change in the basis for enumerating manufacturing establishments between the Canadian censuses of 1890 and 1900. Artisanal shops, or firms with fewer than five employees, were not counted in 1900 although they had been in the 1890 and previous censuses.[13] Census authorities apparently wished to eliminate hand and domestic trades from the estimate of manufacturing output in order to focus upon the activity of factories; the use of a threshold size to define a "factory" followed the example of provincial Factory Acts.[14] The new basis for enumeration eliminated from consideration 81 per cent of the manufacturing establishments in Canada and 26 per cent of manufacturing labour.[15]

As might be expected, the under-enumeration in 1900 varied considerably by industry. In 1890 artisanal shops accounted for less than two per cent of the value of smelting, paper manufacturing and shipyard production. By contrast, artisanal shops provided more than half of the Canadian production in brewing, carding and fulling, baking, dressmaking, harness and saddlery, and other industries.[16]

It might also be suspected that the under-enumeration varied by province. Unfortunately, information about the extent of bias is not available on a provincial basis; this is a serious obstacle to any examination of the diffusion of factory production or the process of regional centralization. The lack of data would not affect inter-provincial comparisons of manufacturing growth if artisanal shops accounted for the same share of each industry's output in each province. A difficulty arises, however, if artisans contributed a greater share of production in one region than in another. If artisanal shops produced a large share of output in Atlantic Canada and a small share in Ontario, for example, then the 1901 census would under-count production in the Maritimes more seriously than in Ontario; it would appear, incorrectly, that industry during the 1890s was growing more quickly in Ontario than in Atlantic Canada.

13 Canada, *Census of Manufactures*, 1901, pp. v-vi, 1911, p. vii. For convenience manufacturing establishments with fewer than five employees are referred to as artisanal shops: those with five or more employees are regarded as factories. The use of a threshold size to distinguish an "artisanal shop" from a "factory" is purely for convenience; it follows K. Sokolof, "Was the Transition from the Artisanal Shop to the Nonmechanized Factory Associated with Gains in Efficiency?", *Explorations in Economic History*, XXI (1984), pp. 351-82 and B. Laurie and M.Schmitz, "Manufacturing and Productivity: The Making of an Industrial Base, Philadelphia 1850-1880", in T. Hershberg, ed., *Philadelphia: Work, Space, Family and Group in the Nineteenth Century* (New York, 1981), pp. 43-92.

14 Canada, *Census of Manufactures*, 1901, p. vi.

15 Canada, *Census of Manufactures*, 1901, Table XXII.

16 Because the extent of the bias is known on a national basis, it can be corrected in measures of *national* growth for each manufacturing industry.

Was there, in fact, significant variation among provinces in the persistence of small-scale production units? Previous examinations of regional growth in Canada have ignored the problem.[17] The available evidence, however, suggests that there was a bias. Consider, for example, the average number of employees per manufacturing establishment. In 1890 an average plant west of Ontario employed 7.8 people, the average Ontario establishment occupied 5.2 employees, in Quebec 5.1 employees, and in the three Maritime provinces the average was only 3.7 employees.[18] The region with fewer employees per firm on average is likely to have had more artisanal shops and fewer factories.

The distribution of firms by value of total product tells a similar story.[19] Five size-classes are used: less than $2,000 annual product, $2,000-$12,000, $12,000-$25,000, $25,000-$50,000, and more than $50,000. For convenience we will refer to firms in these categories as small, medium, big, very big and giant. Provincial profiles are reported in Table One. In 1890 there were 50,777 small and 19,629 medium firms; most of them would have employed fewer than five workers. As is apparent from Table One, small firms accounted for as little as two per cent and as much as 35 per cent of provincial output. The share of small and medium firms ranged from 17 per cent to 77 per cent of output.

Provincial variations in the average size and size structure of firms suggest that the change in census coverage imparts a bias to inter-provincial comparisons of growth during the 1890s. Prairie and Maritime growth *appears* to lag behind growth elsewhere in the country more than it actually did. The bias can be removed only if 1890 output is calculated for each province in the same way as it was in 1900 — without the artisanal shops. We have attempted to do this by examining each industry in every census district — about 15,000 district-industries — in three successive steps.

The first step is simple. On a disaggregated basis we find many district-industries for which the output unambiguously can be seen to be the work of firms employing fewer than five workers, or five or more workers. For example, many district-industries have only one firm.[20] Other district-industries include so

17 Alexander, "Economic Growth in the Atlantic Region"; Bertram,"Historical Statistics"; Caves and Holton, *Canada: Prospect and Retrospect*, p. 157; Green, *Regional Aspects of Canada's Economic Growth*; Pinchin, *The Regional Impact of the Canadian Tariff*; Saunders, *Economic History*, part III.

18 Canada, *Census of Manufactures*, 1901, Table XIX. Canadian firms were small by North American standards. Sokolof reports an average of 13.9 employees per manufacturing firm in New England, 7.8 in the Middle Atlantic states and 5.1 elsewhere in the United States in 1850: see Sokolof, "The Transition from the Artisanal Shops", Table 2. The differences between Canada and the U.S. probably increased in the second half of the century. Using the average value of firm output rather than size of workforce as a measure, Bertram, "Historical Statistics", notes that the average Canadian firm was 44 per cent, 35 per cent and 25 per cent of the size of the average U.S. firm in 1870, 1880 and 1890 respectively.

19 Canada, *Census of Manufactures*, 1901, Table XIX.

20 This is not surprising. The 76,000 manufacturing workplaces in 1891 were distributed over 200

Table One

Share (%) of Provincial Manufactured Output by Firm Size 1891

	small	medium	big	very big	giant
British Columbia	2	15	16	19	48
Territories	10	41	9	16	24
Manitoba	6	29	17	15	33
Ontario	8	24	11	9	47
Quebec	9	17	8	8	57
New Brunswick	12	26	12	8	42
Prince Edward Island	35	42	12	6	5
Nova Scotia	19	29	13	9	30

Source: Canada, *Census of Manufactures*, 1901, table XIX. Output is total product less raw materials, the best available approximation to value added. Green, *Regional Aspects of Canada's Economic Growth*, appendix B, provides a useful discussion of how to measure the theoretical concept of value added using 19th century census information.

few employees that it would be impossible for even one firm to have had more than four employees: for example, an observation with six firms and nine employees cannot have included even a single firm with five or more employees. These considerations permit us to treat unambiguously 70 per cent of all district-industries. We know whether the output from these district-industries would have been included or excluded under a "five and more" rule. This is the first step; it leaves us, however, with a set of district-industries which remain ambiguous.

Our second step is to examine the ambiguous district-industries for cases which *probably* should be included in the non-artisanal group. We have attempted without success to develop a more elegant technique by exploiting certain statistical regularities; unfortunately, the necessary provincial variation in parameters is unavailable except for a handful of industries.[21] Somewhat arbitrarily we include any district-industry averaging more than ten employees per firm. There is some potential for error in the use of a "more than ten" employees' rule at this stage. For example, it is possible that five firms in a dis-

districts and 312 industries; hence, the average number of plants per district-industry was quite small.

21 Specifically, we have explored the use of Tchebycheff's inequality with parameters estimated for a log-normal or Yule distribution of firm sizes: H. Simon and C. Bonini, "The Size Distribution of Firms", *American Economic Review*, XLVIII (1958), pp. 607-17; Y. Ljiri and H. Simon, *Skewed Distributions and the Sizes of Business Firms* (Amsterdam, 1977), pp. 137-52.

trict employing 50 employees would include one or more artisanal shops. Nevertheless, the likelihood of error is small and, if an error were to occur, the damage would be limited in that only a small portion of the district's output would be assigned incorrectly.[22] Even more reassuring for our purposes, errors will not have a regional bias.

Our provincial totals of artisanal output identified in the first two steps are then subtracted from the total Canadian output known to be artisanal. This is obtained from a 1900 report of the artisanal share of national production in 1890;[23] we assume that the artisanal share of national production did not change markedly between 1890 and 1900.[24] The difference, artisanal output not yet found, is allocated to provinces in proportion to each province's remaining ambiguous output. This is the third step.

In summary, we calculate in three steps what the manufacturing sector would have looked like in 1890 if the artisanal shops had been ignored as they were in 1900. The first step removes much of the ambiguity. The second step is an approximation but one that admits relatively little error. Both the first and second steps are sensitive to provincial variation in the importance of artisanal output; they capture as much provincial variation as is possible without the risk of an unacceptable level of error. The third step is unavoidably insensitive to provincial differences. We do not claim complete accuracy for this three-stage method. We believe, however, that the estimate for the net artisanal output in 1890 is the best possible using available data and that the resulting estimate of manufacturing growth by province improves upon those currently available.

Table Two reports for each province total output (value added), estimated artisanal output and the artisanal share of total output. These data confirm the extent of provincial variation. Artisans contributed more than 25 per cent of manufactured output in Nova Scotia, Prince Edward Island and the Territories and less than 20 per cent in British Columbia and Quebec. Artisanal production in 1890 was more important in Atlantic Canada and the Prairies than elsewhere in Canada. As a result, an unadjusted measure of growth during the 1890s will over-estimate significantly the degree of centralization.

Non-artisanal output for each of five major Canadian regions is reported in the appendix along with the implied growth rates during the 1890s.[25] The data,

22 A small firm typically enjoys lower than average labour productivity. Hence, the misallocation of a few employees in one or two small firms implies a smaller bias in the estimate of output than in the estimate of labour.

23 Canada, *Census of Manufactures*, 1901, Table XXII.

24 Bertram and Firestone by different methods impose an assumed rate of decline in the artisanal share of production; we do not follow their example because the information available to estimate the change is limited: Bertram, "Historical Statistics", p. 99 and O.J. Firestone, *Canada's Economic Development, 1867-1953*, (London, 1958), pp. 291-2. It is simpler and probably just as accurate to assume no change in artisanal share during the ten years between 1890 and 1900.

25 The 1948 SIC (Standard Industrial Classification) industries are used because all of Canada's

Table Two

The Artisanal Share (%) of Manufactured Output ($000s) in 1890

	all firm output	artisanal shop output	artisinal share of output
British Columbia	6788	1053	16
Territories	958	391	41
Manitoba	4274	1453	34
Ontario	110101	25084	23
Quebec	66833	10972	16
New Brunswick	11246	2413	21
Prince Edward Island	2233	1029	46
Nova Scotia	14804	4117	28

arranged in 1948 two-digit SIC industries,[26] indicate that the regional experience was highly heterogeneous.

For some industries there was a significant centralization of production in

historic national income data is so organized. The detailed allocation of all industries into SIC groups and commodity type categories (durable, non-durable, intermediate) is available to anyone interested on paper or on microcomputer disk (ASCII or Lotus 123 files formatted under MSDOS 2.0). The following trades were enumerated by the census but excluded from our totals on the grounds that they were not manufacturing: painters' and glaziers', portrait painting, dentistry, photographic studios.

Any compilation of the 1900 data must allocate into SIC groups the output of a provincial "all other" category. This category includes all industries with fewer than three firms in the province: the omnibus category provided confidentiality to individual firms in small industries. The census indicates the number but not the size of the firms in each industry. We allocate omnibus output to SIC groups by weighting individual firms with the average size of firm for its industry nationally. For example, in Ontario "all other" firms contributed $2,297,000, about 2 per cent of the provincial manufactured output. If each of the firms in this category had been the size of the national average firm for the industry, the output would have been $2,638,000. We assume that each firm in the category is the national average size times the scaling factor of (2638/2297). Details of this allocation are available on the same basis as main worksheets (see above).

The price data used to provide an approximation to real growth are the wholesale series published in M.C. Urquhart and K.A.H. Buckley, eds., *Historical Statistics of Canada* (Toronto, 1965). They are food, beverages and tobacco, J63; textiles and clothing industries, J38; wood, paper and their products, J39; iron and its products including transportation equipment, J40; non-ferric metal products, J42; non-metallic mineral products, J43; chemical products, J44; leather and its products, J22; all others J34.

26 The 1948 Standard Industrial Classification is used to organize all of Canada's early national income estimates.

Ontario or Ontario and/or Quebec. In the rubber, transportation, iron and steel, food and beverages, printing, clothing, iron and steel, non-metallic mineral, textiles and transportation equipment industry groups Maritime growth lagged significantly behind growth in Central Canada. Collectively, these industry groups at the top of the table in the appendix experienced little growth; they lend clear support to the view that Maritime industrialization faltered during the 1890s.[27]

A very different story must be told about the remaining industry groups. Atlantic regional growth in wood product, petroleum and coal, tobacco, chemical and leather output kept pace with that in Central Canada. The experience of these industry groups, which appears in the middle portion of the appendix, does not indicate a significant Maritime lag. In an additional few industries, described at the bottom of table in the appendix, Maritime production was so limited that it hardly makes sense to examine growth rates. This group included several new and fast-growing industries of the late 19th century in the following groups: electrical equipment, paper products, and non-ferric metal products. These industries were slow to get underway in Atlantic Canada but production was catching up quickly during the 1890s.

The variety of experience suggests that regional performance will be analyzed best in more detailed case studies focusing upon particular industries or industry groups. We content ourselves with a look at industries producing non-durable consumer goods, capital goods and consumer durables, and intermediate goods. The data in Table Three reveal, not surprisingly, that manufacturing growth near the frontier of new settlement, the Prairies, was very fast in the population-sensitive consumer goods industries. Atlantic Canada, where population growth was slowest, experienced the slowest growth of consumer goods production.

Of considerable interest, however, is the striking centralization of production in consumer durables and capital goods. Ontario emerges as the fastest-growing region. The Quebec and Maritime shares of national durable goods output declined while Maritime durable goods output collapsed dramatically. Ontario's growing advantage in durable goods and the Maritime failure to find alternate manufacturing in which it might specialize contributed significantly to the slow pace of industrialization in Atlantic Canada during the 1890s.

How do the years between 1890 and 1900 compare with other decades? Unfortunately data which might permit firm conclusions about the pre-Con-

27 Acheson, "The National Policy and the Industrialization of the Maritimes"; Saunders, *Economic History*, part III. The relative decline of Maritime iron and steel manufacturing during the 1890s was not uniform across the region. Babcock, "Economic Development in Portland and Saint John", documents the decline of scrap metal reprocessing in Saint John. This contrasts with the Pictou County expansion based on full vertical integration, which is examined by McCann, "The Metal Towns of Pictou County, 1857-1931". The textile industry is treated in M. Hinton, "The National Policy and the Growth of the Canadian Cotton Textile Industry", unpublished paper presented to the Thirteenth Conference on Quantitative Methods in Canadian Economic History, Wilfrid Laurier University, 1984.

Table Three

Manufacturing Output ($000s) by Commodity Type, 1890 and 1900

	Non-Durable Consumer Goods		Consumer Durable and Capital Goods		Intermediate and Other Goods	
	1890	1900	1890	1900	1890	1900
British Columbia	2072	3213	971	815	2692	8006
Territories	110	232	82	118	375	520
Manitoba	902	2015	465	578	1453	2216
Ontario	26705	35975	22411	28007	36201	38905
Quebec	22018	33993	12242	13057	21990	25404
New Brunswick	1992	2105	1622	1291	5233	6762
Prince Edward Island	607	661	189	89	409	259
Nova Scotia	3246	4074	2722	1944	4730	4404
TOTAL	57652	82268	40704	45899	73083	86476
Provincial Shares (%) of Canadian Output by Commodity Type						
British Columbia	3.6	3.9	2.4	1.8	3.7	9.3
Territories	0.2	0.3	0.2	0.33	0.5	0.6
Manitoba	1.6	2.4	1.1	1.3	2.0	2.6
Ontario	46.3	43.7	55.1	61.0	49.5	45.0
Quebec	38.2	41.3	30.1	28.4	30.1	29.4
New Brunswick	3.5	2.6	4.0	2.8	7.2	7.8
Prince Edward Island	1.1	0.8	0.5	0.2	0.6	0.3
Nova Scotia	5.6	5.0	6.7	4.2	6.5	5.1

federation period do not appear to have survived and possibly were never collected. Nevertheless, information about the growth between 1850 and 1870 of factory employment for six large industries in Canada West, New Brunswick and Nova Scotia is reported in Table Four. As best as we can ascertain this is the only evidence available to describe manufacturing growth on a systematic basis in the Maritime region and in Canada West between 1850 and 1870.[28] These industries in 1870 provided 45 per cent of the value of manufacturing product for New Brunswick and Nova Scotia and 47 per cent for Canada West.[29] Included are consumer, capital and intermediate goods industries and two of the three largest Maritime manufacturing industries in 1870.

Although firm conclusions about the entire manufacturing sector cannot be drawn from this partial sample, it is useful to consider this evidence. In none of these industries was manufacturing in Nova Scotia and New Brunswick able to expand at the pace set by Canada West between 1850 and 1870.[30] The Maritime region lagged in non-durable good producing industries (brewing, flour milling, woollens) as well as in industries yielding durable goods and materials from which durables were fashioned (saw milling, foundries).

Table Four

British North American Fctory Employment Growth (%), 1850-1870

	New Brunswick	Nova Scotia	Canada West
saw mills	66	60	277
tanneries	34	46	246
breweries	n.a.	-55	454
carding, fulling, weaving	1	-13	337
flour & grist mills	-15	-27	140
foundries & machine shops	169	228	407

Source: Canada, *Census, 1870*, vol. IV, pp. 198-353.
n.a.: not available

28 The data for Canada East are not reported in the table because they are available only for 1860 and 1870 while the Maritime data are available only for 1850 and 1870. The exceptions here are saw-milling and flour and grist milling, which are described for 1860 in Nova Scotia. It is possible to compare the growth of these two important industries during the 1860s in all regions; in both kinds of milling, output contracted absolutely in Nova Scotia and New Brunswick while expanding vigorously in Canada East and West.

29 Canada, *Census of Manufactures*, 1870, Table LV.

30 Saw and flour and grist milling are included while ship-building is not.

More complete evidence in Table Five indicates clearly the extent of Atlantic Canadian lag throughout the Confederation era. Indeed, the Maritimes lagged in all decades between 1850 and 1910, just as western Canada industrialized faster than any other region throughout the first 50 years of Confederation. Centralization was not unusually strong during the 1890s, although it is true that manufacturing everywhere expanded at a more leisurely pace during this decade than it did before or after.

Table Five

Manufactured Output Growth (%) by Regions, 1870-1910

	1870s	1880s	1890s	1900s
British Columbia	n.a.	322	86	239
Prairies	n.a.	221	68	516
Ontario	35	65	21	168
Quebec	31	54	30	125
Maritimes	22	58	4	77

Source: All data are compiled from the decennial census. Bertram's data for 1870, 1880 and 1890 allow growth to be measured for the 1870s and 1880s; his 1900 and 1910 output estimates provide growth for the 1900-1910 period. Our 1890 estimate net of small firms is used for the 1890s measure of growth.

Centralization abated significantly during the 1880s, in which decade industrial expansion in Atlantic Canada rivalled that in Ontario. The significance of the tariff can be exaggerated, as J.H. Dales argues, but it is tempting to explain the temporary abatement of centralization as a result, even if only in part, of the 1879 and subsequent tariffs.[31] Further consideration of this analytical conjecture would be inappropriate here; we simply observe this aspect of the 1880s, which is intriguing because nothing similar was experienced before or after.

The process of centralization intensified during the early 20th century acceleration of aggregate Canadian growth. This is a period of large-scale settlement in the Canadian Prairie region; an acceleration of western expansion provides one possible explanation for the intensified lag. Manufacturers in Atlantic Canada were poorly situated to meet the demand derived from the post-1900 wheat boom; Ontario was more than a thousand miles closer to the Prairies. It is equally possible, of course, that Central Canadian manufacturing expanded between 1900 and 1910 because demand grew *within* Central Canada or because operating costs in Central Canada fell as a result of favourable in-

31 J. Dales, "'National Policy' Myths, Past and Present", *Journal of Canadian Studies*, 14 (1979), pp. 39-50. The regional impact of the tariff during the 1880s was suggested originally by Acheson, "The National Policy and the Industrialization of the Maritimes".

put price or productivity movement.[32]

There was considerable variation within Atlantic Canada. D.A. Muise has identified three important sub-regions of Nova Scotia with distinctive local economies and diverse political interests.[33] An "urban industrial" region by and large supported Nova Scotia's entry into Confederation and the escalation of manufacturing tariffs; a "rural fishing" region opposed Confederation and the National Policy. A "rural farming" region with a third type of local economy appears to have situated itself on the political spectrum someplace in between.

Data in Table Six describing manufacturing growth for each of these sub-regions reveal a trend to concentrate Nova Scotia manufacturing in the urban industrial region.[34] Indeed, industrial growth in Nova Scotia's urban-industrial districts rivalled that in Ontario and Quebec over the first four decades of Confederation. The evidence of variation within Atlantic Canada recommends caution in generalizing from the experience of a single district or industry. Interestingly, centralization within the province abated considerably during the 1880s, as did the national process of centralization in the same decade.

Table Six

Nova Scotia Manufacturing Growth (%) by Region

	1870s	1880s	1890s	1900s
Urban Industrial	66	74	7	194
Rural Farming	30	97	-41	140
Rural Fishing	18	61	29	31

Provincial measures of manufacturing growth describe the pace at which industry tended to locate in one region rather than another. After correcting a bias in census-based growth estimates, which arises from provincial differences in the

32 Ian Drummond argues that in industries for which demand was sensitive to population and population growth the Central Canadian market was more important than the west to Ontario manufacturers. See Ian Drummond, *Progress Without Planning: The Economic History of Ontario, 1870-1940* (forthcoming, 1986), ch. 7.

33 D.A. Muise, "Parties and Constituencies: Federal Elections in Nova Scotia, 1867-1896", *Historical Papers/Communications historiques* (1971), pp. 183-202.

34 The districts are those defined by Muise, "Parties and Constituencies"; the data are taken from the decennial *Census of Manufactures*. The 1870s growth rates describe the value of total product because the published district summaries do not provide the cost of raw materials for 1870. The 1880s and subsequent growth rates are for value added, or value of product less materials, which is a preferred approximation to a measure of output. The adjustment for changing census coverage during the 1890s is not calculated specifically for each district within Nova Scotia; rather, the same province-wide adjustment, which is calculated on a detailed basis, is applied to each region. If the adjustment were made somewhat more specifically for each region, the 1890s contraction of manufacturing for the farming region would probably disappear.

persistence of small firms, the rate of regional concentration is seen to vary greatly by industry during the 1890s. Durable goods production in Atlantic Canada contracted dramatically during the 1890s while output increased in Ontario. In a longer term perspective, however, we see that industrialization proceed at a slower pace in the Maritimes than in Ontario in all decades beginning with the 1870s and possibly even as early as the 1850s.

Our principal conclusion is that the peripheral regions of Canada fared no worse during the 1890s than in most other decades and they fared better than the published unadjusted census data would suggest. Only two decades stand out during the entire period. The 1880s saw a temporary arrest of the tendency of industry to concentrate in Central Canada and during the 1900s the westward movement of manufacturing activity accelerated. The specific and quite different experience of certain decades is paralleled by diversity among different industries and among different sub-regions of a single province. The variety of experience cautions against any tendency to think that there was a single phenomenon of "de-industrialization" or that the pattern of regional industrialization is amenable to a monocausal explanation.

The specific experience of the 1890s provides further evidence about relative regional growth to be analyzed in a theoretical framework. The importance of ownership and control occupies a prominent place in much of the recent analysis of industrialization and its difficulties in the Atlantic region. But the crisis in Maritime capital goods industries which we document for the 1890s preceded critical changes in ownership of the best-known capital goods industry, iron and steel. Non-durable consumer goods output did not fare badly in the Atlantic region during the 1890s even though the best-known consumer goods industry, cotton textiles, experienced a profound concentration of control at this time.

In part, the apparent anomalies may reflect the inevitable difficulty of integrating aggregate quantitative data with qualitative firm-specific evidence. More fundamental, however, is the need to specify explicitly the effect of changing ownership and control upon industrial output, employment and income. In this effort a broad analytical framework encompassing a full range of supply and demand influences may provide a helpful starting point.

Appendix

Output ($000s) and Growth (%) of industries, 1890-1900

	Output 1890	Output 1900	Nominal Growth	Real Growth	Real Per Capita Growth
Rubber Products					
British Columbia	15	0	-100	-100	-100
Prairies	0	0	n.a.	n.a.	n.a.
Ontario	188	419	123	140	132
Quebec	422	61	-86	-84	-86
Maritimes	0	0	n.a.	n.a.	n.a.
Transportation Equipment					
British Columbia	230	238	3	7	-41
Prairies	52	420	708	737	381
Ontario	3699	5081	37	42	38
Quebec	4297	3790	-12	-9	-17
Maritimes	1701	1010	-41	-38	-39
Textiles					
British Columbia	12	6	-50	-44	-70
Prairies	73	123	68	87	8
Ontario	6136	5279	-14	-4	-7
Quebec	3459	5502	59	77	60
Maritimes	1737	1744	0	12	10
Non-Metal Mineral Products					
British Columbia	321	192	-40	-38	-66
Prairies	123	279	127	134	34
Ontario	3652	4306	18	21	18
Quebec	2742	1872	-32	-30	-37
Maritimes	1062	808	-24	-22	-23
Iron and Steel Products					
British Columbia	461	419	-9	-6	-48
Prairies	374	252	-33	-30	-60
Ontario	13489	16826	25	29	25
Quebec	6281	7991	27	32	19
Maritimes	2642	2586	-2	1	0

Clothing and Furs					
British Columbia	242	362	50	66	-9
Prairies	290	366	26	40	-19
Ontario	9274	10753	16	29	25
Quebec	5404	8331	54	71	55
Maritimes	1362	1269	-7	4	2
Food and Beverages					
British Columbia	1547	2370	53	68	-8
Prairies	862	1922	123	145	41
Ontario	12804	16799	31	44	40
Quebec	6952	8430	21	33	20
Maritimes	3563	4069	14	25	23
Printing and Publishing					
British Columbia	148	335	126	143	33
Prairies	294	924	214	238	94
Ontario	3614	4954	37	47	43
Quebec	1533	2560	67	80	62
Maritimes	589	741	26	35	33
Chemical Products					
British Columbia	42	106	152	155	40
Prairies	70	88	26	27	-27
ontario	1404	1893	35	36	32
Quebec	1377	1884	37	38	25
Maritimes	279	350	25	27	25
Wood Products					
British Columbia	2631	2220	-16	-20	-56
Prairies	858	832	-3	-8	-47
Ontario	22224	23339	5	0	-4
Quebec	9918	10636	7	2	-8
Maritimes	6323	6470	2	-3	-2
Petroleum and Coal Products					
British Columbia	144	127	-12	-5	-48
Prairies	81	88	9	17	-33
Ontario	1361	1677	23	32	28
Quebec	1147	1321	15	24	12
Maritimes	332	392	18	27	25
Leather Products					
British Columbia	61	139	128	101	10

Prairies	140	120	-14	-24	-56
Ontario	2685	3789	41	25	21
Quebec	6926	8024	16	2	-8
Maritimes	736	1003	36	20	19
Tobacco Products					
British Columbia	112	186	66	82	0
Prairies	28	126	350	394	184
Ontario	931	1768	90	109	102
Quebec	1993	5749	188	217	186
Maritimes	103	320	211	241	236
Non-ferrous Metal Products					
British Columbia	179	4677	2513	2609	1383
Prairies	121	109	-10	-7	-46
Ontario	2231	2891	30	34	30
Quebec	1623	2138	32	37	23
Maritimes	291	620	113	121	117
Paper Products					
British Columbia	0	0	n.a.	n.a.	n.a.
Prairies	22	30	36	29	-26
Ontario	886	1652	86	77	71
Quebec	1202	2120	76	67	51
Maritimes	20	110	450	422	414
Electrical Equipment					
British Columbia	0	45	n.a.	n.a.	n.a.
Prairies	0	0	n.a.	n.a.	n.a.
Ontario	303	535	77	90	84
Quebec	208	1425	585	637	565
Maritimes	6	67	1017	1101	1082

Note: In this table the industries are ranked by the extent of Maritime lag, which is construed to be the size of the gap between real per capita output growth in the Maritimes and that in the region with the largest 1900 production (which is Ontario in most industries and Quebec in the remainder). Rubber products and transportation equipment head the list because there was no rubber production in Atlantic Canada and the region's real per capita output of transportation equipment contracted about 40 per cent during the decade while Ontario output expanded by about 40 per cent. At the bottom of the list are paper products and electrical equipment because the small Maritime output in these industries expanded more quickly than that in the largest region by a gap in each case of hundreds of percentage points. Industries in the top half of the list suggest the familiar pattern of relative de-industrialization; industries in the bottom half of the list do not conform to this pattern.