New Evidence on the Living Standards of Toronto Blue Collar Workers in the Pre-1914 Era

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The pre-1914 economic expansion of Toronto is shown to have had little positive effect on the living standards of blue collar workers. This conclusion is drawn from an index of real hourly wages which the author generates using price quotations from the Inquiry into the Cost of Living in Canada *and the* Labour Gazette, *and wage rates derived from the* Inquiry *and from* Wages and Hours of Labour in Canada. *The author discusses problems arising from this kind of data including the use of "expenditure weights" and difficulties in constructing a food index. In spite of these issues, the author calls for more empirical analysis of changes in income distribution not only in Toronto, but also in Canada.*

*On montre ici que l'expansion économique de Toronto antérieure à 1914 n'a eu qu'un effet positif négligeable sur le niveau de vie des cols bleus. Cette conclusion résulte d'un indice des salaires horaires réels que l'auteur établit d'une part, à partir des prix retenus dans l'*Inquiry into the Cost of Living in Canada *et le* Labour Gazette, *et d'autre part, à partir de taux de salaires provenant de l'*Inquiry *et du* Wages and Hours of Labour in Canada. *L'auteur s'interroge sur les problèmes soulevés par ce genre de données, y compris celles qui concernent le poids des dépenses, et aussi sur les difficultés de construire un indice de consommation alimentaire. Mais finalement, il suggère d'effectuer une analyse plus empirique des changements dans la distribution des revenus, non seulement à Toronto mais aussi au Canada.*

Toronto was a well-established city prior to the massive economic changes of the pre-1914 years. Yet in the first years of the twentieth century several things combined to produce effects on Toronto that can scarcely be exaggerated. These included massive immigration, the impact on Toronto of western settlement and an accompanying widening and deepening of the economy. Between 1901 and 1911 Toronto's population rose by 81 percent, or two and a half times the national and five times the Ontario increase. Toronto's population continued its rapid rate of growth through 1914 when a population of 471,500 was reported. There was an extraordinary vitality in those pre-1914 years with all sectors of the urban economy growing not simply in output volume and in employment opportunities, but even more notably in relative share of the Canadian market. The indisputable fact is that Toronto emerged as the dominant metropolitan area in English-speaking Canada.

Obviously, then, these are years of great historical interest. In the case of Toronto (and also of Montreal) an area of concern is the change that occurred in the material well-

being — the income and wealth positions — of particular groups in the community. Michael Piva, for example, can be interpreted as stating that between 1900 and 1921 the "working class" in Toronto probably experienced no improvement in living standards, or more precisely never attained acceptable standards of health and decency.[1] Because comparisons are always influenced by the choice of initial and terminal years, the use of 1921 raises special difficulties due to (i) the profound economic and social shocks of World War I, and (ii) the major depression and price level collapse that commenced in mid-1920 and lasted through the early fall of 1921. It is too frequently forgotten that Canadian loss of life, of human capital if you will, during World War I was very large relative to that incurred by the United States. Numbers of Canadian dead (58,000) and wounded (155,000) in absolute terms were as large as the American, and in a relative sense ten times as great.

Surely it must be acknowledged that these human capital losses affected the secular growth in real income per capita in the war and immediate post-war periods. Further, because the depression of 1920-1921 was severe, the impact of human capital losses on real income was negatively reinforced by the business cycle. Though in any temporal quantitative study problems arising from choice of initial and terminal years can never be entirely avoided, in this case they will be less acute if consideration of change in the material well-being of Toronto wage-earners is restricted to the pre-war era.

To know more about how the pre-war living standards of Toronto households changed requires some relevant pieces of knowledge not presently available. The key missing link is the change in real income per household that occurred during this period: a positive change would support a hypothesis of improved living standards, while no change would be consistent with the gloomier assessments of wage-earner experience at this time. Real income is, of course, simply the ratio of money income to the price level so that to obtain estimates it is necessary to construct (i) a measure of the retail price level in Toronto and (ii) a measure of household money income. When attempts to evaluate these changes introduce quantitative evidence (as in some sense they must) it is important that whatever data are employed be systematically organized and cover as much of the era as is possible. This permits evaluation not only of the period as a whole, but also consideration of what happened during particular sub-periods, thereby avoiding the difficulties inherent in exclusive attention to the initial and terminal years. Inferences drawn from these two years may be quite unwarranted when extrapolated as an accurate reflection of experience during an entire era. We know, for example, that real household income measured between high employment years has grown over time but if different phases are represented in the terminal years, then the impact of the cycle would markedly influence the results especially in a period as limited as 15 years.

The desire for systematic data coverage of an era must, however, be tempered by the reality of primary and secondary data sources. There is a trade-off between the benefits of coverage and the disadvantage of pushing data sources beyond their limit. It is most improbable that any quantitative series constructed from historical sources is immune from this condition. Rather than meeting ideal standards it is almost certain that the results will be less than completely suitable. So it is with the results reported here. While they present more systematically organized quantitative evidence than has been available until now,

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1.   Michael J. Piva, *The Condition of the Working Class in Toronto, 1900-1921*, (Ottawa: University of Ottawa Press, 1979), p. 272. This position he has recently reiterated. Cf. "Urban Working Class Incomes and Real Incomes in 1921: A Comparative Analysis", *Histoire Sociale — Social History*, May 1983, pp. 145-167.

they nevertheless must be used with caution. Such evidence can assist in clarifying some issues but inevitably also gives rise to new questions not previously apparent.

This paper reports a price index for the quarter century between 1890 and 1914 by combining price quotations from previously unused sources (to measure rent, clothing and house furnishings) with those available in *Inquiry into the Cost of Living in Canada, Vol. II*[2] (hereafter Coates II) and the *Labour Gazette* (to measure food, utilities, alcohol and tobacco). The paper also reports a weighted index of wage rates for the period 1900-1914 employing data available in Coates II and in *Wages and Hours of Labour in Canada, 1901-1920*.[3] The paper begins with construction of a Toronto retail price index for the years 1890 to 1914 in which consideration is given to sources of data, the selection of expenditure weights, and to the approach adopted for the respective sub-groups that, taken together, constitute the index. A second section outlines the method of constructing an hourly money wage rate series for 1900-1914 that includes a selected group of blue-collar trades. The third section brings together the newly estimated indexes of the wage and price level to derive an index of hourly real wage rates for 1900-1914, the period of primary interest.

Construction of the Price Index

A description of available price index time series covering the pre-1914 period in Canada is contained in both the first and second editions of *Historical Statistics of Canada*.[4] It is useful to consider initially the relevance of these series to construction of an index for Toronto. The most important existing source of price data for these years is the annual price quotations for between 203 and 247 items reproduced in Coates II. These are based upon annual averages of monthly quotations and cover a variety of items at different stages of processing, from a bushel of No. 1 northern wheat to a pound of unwashed wool to kitchen chairs and tables. Many food items in directly consumable form were included (e.g., meat cuts, eggs, tea and coffee). Prices for each item were quoted for a particular city in Canada (mainly Montreal and Toronto), and the quotes themselves were obtained from newspapers and trade journals. It is important to understand that few, if any, of these quotations relate to the price at which exchange occurred between seller and final consumer. Hence, if any of these item prices relevant to consumer expenditure are to be used in construction of a city index, as in the case of Toronto, it is preferable (i) to consider only Toronto market quotations, and (ii) to assume uniform and consistent trade mark-ups on the commodity; in fact, (ii) implies that movements in the quoted price at a prior stage of production and distribution are fully reflected in retail exchange.[5]

Coates II also contains a section on retail prices that provides the basis for his reported retail price index covering the years 1900, 1905 and 1909-1913. This index is at best partial because of its important exclusions, namely clothing, house furnishings, and tobacco and

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2. Department of Labour, Ottawa, 1915.
3. *Labour Gazette Supplement*, March 1921.
4. In the first edition (Toronto, 1965) see Section J and in the second edition (Ottawa, 1983) see Section K.
5. It should be noted that because item prices were tied to one specific location, any overall index constructed from these items is not a "national index" in any sense. The point is frequently made that interpretation of a wholesale index is difficult because it covers a heterogeneous set of transactions representing different stages of commodity processing from raw material to final product, but it is equally important to understand limitations in interpretation arising from the heterogeneity in the spatial origin of item price quotations.

alcohol.[6] Primary data for the retail price measures came from monthly reports commencing in 1910 carried in the *Labour Gazette*. These reported the retail prices of staple articles of consumption including 29 food items, five fuel and lighting items, and the rental cost of a "representative workingman's dwelling of the better class". Price quotations were taken on the fifteenth day of each month under precise quality specifications. The annual retail item indexes reported in Coates II are December price quotations in contrast to the monthly averages of the wholesale index. While the retail index reported in Coates II does include a rental index, recently completed work provides a new rent index covering the years from 1890 to 1914.[7] Construction of a more complete retail index required new sources of data with which to develop missing components of clothing and house furnishings; estimates for these two groups are provided in this paper and sourced from the Eaton's catalogues. Appendix 1 reports 109 items contained in the index, their source, the period of inclusion and the expenditure weight assigned to each item. The words "more complete retail price index" warrant emphasis. In plain truth it is not possible to construct an annual retail price index in this period with both a suitable coverage of household expenditure components and with unit price data obtained entirely from quotations at retail. As a result the index reported here is derived from an amalgam of prices, some at retail, others taken further upstream in the distribution channel. Where items are priced at wholesale a strong assumption is necessary, namely, that movements in these prices accurately reflect movements in their retail counterparts. To be accepted this requires that transportation and trade percentage mark-ups remain constant, a matter about which one would like to have concrete evidence regrettably not now available in the Canadian case.[8]

Notwithstanding this difficulty, the research proffers an index with greater retail content by inclusion of a systematic set of price data for clothing and home furnishings sourced from the Eaton's catalogues.[9] Catalogue prices are the equivalent of posted prices about which there is no haggling and therefore those at which exchange occurs. Eaton's, of course, earned its initial merchandising reputation as a store which posted a price and stood by it. There is abundant evidence that catalogues were widely used by consumers so that market coverage is assured, and that they also included products representative of those available. Where research use of the catalogues occurred, it commenced in 1914 for a representative set of items and worked sequentially backwards to prior years. Where the items priced were discontinued, or alternatively where the description changed in a manner suggesting quality change, then an alternate item was introduced. The number of items carried in the catalogues.was more abundant in later than in earlier years. Consequently one is much less confident of the data for earlier years, in particular for the pre-1900 period.

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6.   Coates II does provide some data on clothing prices (pp. 130-133) but no index is offered. He states: "It is difficult to measure changes in the price of clothing to the consumer on account of the lack of standardization both in finished products and materials" (p. 130). This problem is still present in Consumer Price Index measurements.

7.   Edward J. CHAMBERS, "A new measure of the rental cost of housing in the Toronto market, 1890-1914", *Histoire Sociale — Social History*, May 1984, pp. 165-174.

8.   It is noteworthy that Rees incorporated the Douglas food index based upon wholesale price quotations into his retail price index. He states he could find no more suitable index. C.A. REES, *Real Wages in Manufacturing 1890-1914* (New York, 1961).

9.   In their study on real wage trends in Canada for 1900 to 1926 Bertram and Percy did make use of the fall-winter Eaton's catalogues. Cf. G. BERTRAM and M.B. PERCY, "Real Wage Trends in Canada 1900-1926: Some provisional estimates", *Canadian Journal of Economics*, May 1979, pp. 299-312.

The Selection of Expenditure Weights

In any price index each component may be explicitly weighted or remain unweighted. Because in an unweighted index each item is in fact deemed equally important, the preference is clearly for an index based upon explicit expenditure weights. The question is: what information exists in this period from which weights might be derived? The answer is very little. For Toronto, the earliest expenditure survey covers the years from 1886 to 1889 and is reported by the Ontario Bureau of Industries.[10] Information is not provided on the number of families included in this survey but for the years 1888 and 1889 a sample size of 2647 male householders is reported for the Province of Ontario, of whom 1634 were tenant householders. For Toronto, average family income is reported as $492, and the reported categories of expenditure are food per capita, clothing per capita, rent and fuel. There is no report on the individual items included in the expenditure categories. It is noteworthy that the Coates Inquiry did not undertake any special expenditure survey; a close reading of that report indicates heavy reliance on the 1901 U.S. Bureau of Labor Statistics (BLS) Budget Study. This strongly suggests that Canadian and U.S. urban consumption patterns were considered reasonably congruent. A possible alternative is to apply Canadian weighting patterns based upon the first formally organized family expenditure survey, that of 1937-1938, but that is in time more than a generation after the era under study.[11] Thus, if a weighted and comprehensive index is the objective, then in point of fact effective options in selecting the weighting structure are extremely limited, and point strongly toward use of the U.S.- derived expenditure weights. This preference is reinforced by the detail of information available in U.S. budget studies of both 1891 and 1901, an advantage that is significant if the index is to be sufficiently comprehensive to include outlays for both home furnishings and clothing. Any detailed information about these two significant categories of outlay is totally lacking in Canada, so that inevitably (albeit regretfully) one is forced to rely on BLS information to assist in identifying the individual items for which price information must be acquired.

Table 1 contains information on expenditures by tenant heads of families on food, clothing, fuel and rent for 1888, 1889 and the 1885-1889 average as reported for a Toronto sample by the Bureau of Industries. These statistics are compared with the overall statistics reported by the 1890-1891 U.S. Senate Study and the 1901 BLS Study for all households. The 1890-1891 study covered 11 cities in Georgia, Indiana, Iowa, New Hampshire, New York, Ohio, Pennsylvania and Virginia; the 1901 study covered the principal industrial centres in 33 states.

Though comparisons are difficult because of the more complete coverage of the U.S. information on families, one of the most evident features is the dominance of food in living costs at the turn of the twentieth century. In rows (5) and (7) of the table the relative importance of the categories common to both expenditure surveys, i.e., food, clothing, rent, fuel and light, is demonstrated. Crude as such a comparison may be, it indicates somewhat higher expenditures for food and lower outlays for fuel and light in the U.S. than in Toronto. The relative importance of rents is lower in the 1901 BLS study compared with either the 1890-91 U.S. study or the published Ontario Bureau of Industry results.

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10.   Sessional Paper No. 80 (Toronto, 1890) pp. 46-53 and p. 107. Average income and the percentage distribution of expenditures are reported for Toronto, Hamilton, London, Ottawa and Ontario as a whole. It should be noted that the first significant Canadian expenditure survey occurred only in 1937-1938.

11.   Dominion Bureau of Statistics (1941).

Table 1   **Expenditure Weights for Toronto and U.S. average: Selected Years**

Toronto	Food	Clothing	Home Furnisings	Rent	Fuel & Light	Liquor & Tobacco	Sundries
(1) 1888	.434	.152	[1]	.300	.114[2]	[1]	[1]
(2) 1889	.470	.138	[1]	.289	.103[2]	[1]	[1]
(3) 1885-89	.454	.163	[1]	.274	.109[2]	[1]	[1]
U.S.							
(4) 1890-91	.400	.160	[3]	.210	[3]	[3]	[3]
(5) 1890-91[4]	.(519)	.(208)		.(273)			
(6) 1901	.441	.134	.034	.167	.054	.030	.140
(7) 1901[4]	.(554)	.(168)		.(210)	.(068)		

[1] not reported
[2] reported as fuel expenditures
[3] all other expendituresreported as 23.0
[4] weights where only food, clothing, rent, fuel and light are included.

Sources: Data for Toronto obtained from 1889 Ontario Sessional Papers, No. 80, pps. 40-53. Weight for clothing and food derived by multiplying the per capita expenditure by average number of persons reported in the household for each period. US data for 1901 as reported in Albert Rees, *Real Wages in Manufacturing 1890-1914*, New York 1961, p. 114; data for 1890-91 as reported in U.S. Senate (1891-92) Report of the Committee on Finance, "Cost of Living for Workingmen for One Year 1890-91" *Senate Reports*, Vol. 8, Washington: Government Printing Office, pps. 2052-97.

Because for this period in Canada there are no relevant expenditure surveys and therefore no hard information, doubt is naturally cast on the reliability of any weight structure that may be selected. The Bureau of Industry data resulted from mail returns but we know neither the size nor the representative quality of the sample from which the Toronto estimates were derived. We have no record of the food or clothing items consumed, and further the coverage of items entering into household consumption is less comprehensive than one would wish for. Indeed, if comprehensiveness is the criterion, the American information is to be preferred. But how relevant are the U.S. data not simply to Canada, but specifically to Toronto in these years? We do not know, though there is some justification for their use as a starting point in light of the Coates Inquiry's apparent acceptance of these patterns as reasonably representative of Canadian household behaviour.

A pragmatic approach is adopted in this paper. The group weights used to estimate an index are taken from the 1901 BLS expenditure survey. Group weights can then be varied within reasonable limits by those who wish to do so, in order to determine the effect on the estimate. The groups contained in the index are equivalent to those in the Rees study of the U.S. cost of living index for the years 1890 to 1914. These are food, rent, clothing, house furnishings, fuel and light, and tobacco and alcohol. Rees eliminated the category of "sundries" and reassigned its weight on a pro-rata basis to the other non-food groups.[12] This procedure yielded the following set of expenditure percentage weights by group: food,

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12.   Rees, pp. 114 ff. If an expenditure weight simulation is desired this requires two kinds of procedures: one is to scramble the weights between major groups; the second is to vary weights within any given group. For these between and within group scrambles, upper and lower limits on randomized changes could be set at +5 percent for instance, a not unreasonable margin of error.

.4410; clothing, .1790; rent .2230; home furnishings, .0450; fuel and light .0720; and alcohol and tobacco .0400.

The next required step in index construction is that, within each of these groups, we must designate a representative set of items which, when taken together, constitute the expenditure weighted market basket of commodities used to measure the price level. The representative items selected and the weights assigned are, as previously indicated, found in Appendix 1.

The food group contains those items carried in the *Labour Gazette*, each of which can be linked to an approximately equivalent series in the wholesale price data reported in Coates II. The weights assigned each item are based upon weekly expenditures for staple food items in 1900 reported in Coates II, p. 75.

In the case of clothing, basic price data were obtained from Eaton's catalogues. A matrix of the major clothing groups classified by sex and age is found in Table 2. Representative items are shown in the cells, and the total weights by sex and clothing group are in the bottom row and outside column. The sub-group weights are based largely on Rees, p. 87, but modified to increase the relative importance of woollens and reduce that of cotton outerwear. It is apparent that the items somewhat overstate the importance of men's clothing, at least relative to the Rees standard. For example, almost one-half of the weight is assigned to men's items, and the remaining one-half is equally distributed between women's and children's items though the Rees study assigned roughly equal relative importance to each group. It is also appropriate to point out that the clothing index is complicated both in construction and interpretation because of uncertainty about whether price quotations relate to a standard article. One result is heavy reliance on a chain-link method for individual items which requires that within a category, where it can be inferred that a representative item has changed in character, a new comparable item is substituted and its price index set at the level of the item replaced. Virtually all items in the clothing index are of this type.

In the case of home furnishings, the basic category weights are drawn from Rees, p. 86. The category weights within home furnishings and the representative items sampled are found in Table 3. In this component, as in clothing, chain indexes are prevalent. A complete listing of items carried in the clothing and home furnishings groups is found in Appendices 2 and 3 respectively. These show the unit of measurement, the 1914 price, when the series commenced in index construction, the number of links, and the 1914 Eaton's catalogue number and page reference of the specific item.

The rent index is that of Chambers which was derived from biannual samples of six- to eight-room unfurnished houses drawn from the classified advertising columns of the *Toronto Telegram*. The method employed, its limitations, and a comparison of the findings with previously available partial rent indexes, are found in a previous issue of Histoire Sociale — Social History and will not be described here.[13] In the estimates presented the Chambers index for six-room unfurnished houses is employed. It should be reiterated, however, that not all Toronto blue-collar workers were tenants. Perhaps a third, possibly more, were owner occupants. Shelter costs in a retail price index are in some methodologies separated for tenants and owner occupants. If one of the methods requiring separation is adopted, there is need not simply for a coefficient conveying the proportion of home-

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13.   May 1984, pp. 165-174.

Table 2   **Components and Weights in the Clothing Index**

Group	Men	Women	Boys	Girls	Group Weight
Hats and Caps	Hat, Cap				.0538
Woven Woolen Outerwear	Overcoat Wool Suit	Wool Serge (yd. good)	Reefer knicker-bockers	Winter Coat	.2376
Woven Cotton Outerwear	Raincoat Work overalls	Aprongingham (yd. good)			.1918
Knit Cotton Clothing ex. hosiery	Shirt	Vest Drawers		Underwaist	.0627
Knit Wool Colthing ex. hosiery	Workshirt				.0292
Hosiery	Socks	Stockings			.0672
Corsets, garters suspenders		Corset			.0170
Nightwear, woven underwear	Nightshirt Underwear (winter) Underwear (summer)		Underwear (winter)		.0352
Shoes & Other leather products	Boots Oxfords Dres gloves	High Shoes	High Shoes	High Shoes	.2562
Rubbers and rubber goods	Rubbers overshoes				.0169
Collars and Cuffs	Linen collar				.0041
Other items	Silk tie Workgloves				.0281
Weight by Sex-Age	.4984	.2423	.1442	.1151	1.000

Source: Appendix[1]

ownership but also expenditure coefficients relating to mortgage interest, depreciation, repairs and maintenance, taxes, and purchase price. These data are not available from extant sources and reliance must therefore be placed on the rental equivalence approach to shelter costs adopted here. The key assumption is that a rental evaluation derived from the quoted prices in the classified columns is representative of opportunity rents for home-owners. Of course, it is appropriate to point out that the impact on a household budget of an opportunity rent, in effect paying a hypothetical rent to oneself, is rather less than transmitting a monthly cash payment to a landlord. In the latter case, a negative cash flow occurs while in the former there is no cash requirement.

Table 3   **Group Weights and Representative Items: Home Furnishings**

Group	Representative Item	Group Weight
Floor Coverings	Carpet Linoleum Oil Cloth	.1622
Chairs	Hardwood dining Birch dining Reed Rocking	.0667
Tables	Hardwood kitchen Hardwood dining	.0444
Couch		.0489
Dressers and Chiffoniers	Hardwood dresser Chiffonier	.0356
Buffet and China Closet	Hardwood Sideboard	.0289
Bedstead	Hardwood Metal	.0578
Bed Springs		.0244
Mattresses	Felt and cotton Felt and jute	.0489
Blanket	Wool	.0467
Bedsheets	Cotton	.0400
Pillow Cases	Cotton	.0200
Stoves	Coal and wood	.1511
Sewing machine	Treadle, basic	.0533
Carpet Sweeper	Bissell	.0200
Table Cloth	Damask linen (yd. goods)	.0111
Towels	Huck Turkish	.0178
Baby Carriage		.0778
Other	Tumbler Toilet set Dinner set Dinner knives	.0444
Weight Total		1.000

Source: Appendix 1.

The fuel and light representative items and their weights are found in Table 4. In the pre-1900 period two representative items — coal oil and anthracite — are used, while in the post-1900 years, electric light, illuminating gas and water are added and coal oil is dropped. Hard wood used in cook stoves might have been used after 1900, but was not.

Table 4   **Three Alternate Measures of the Food Index**

	Wholesale (1)	Retail December Prices (2)	Retail 4 months Average Prices (3)
1900	100.0	100.0	100.0[1]
1901	101.6		
1902	109.2		
1903	111.0		
1904	110.1		
1905	112.0	110.5	
1906	116.3		
1907	124.5		
1908	128.8		
1909	129.2	126.9	
1910	132.9	131.8	125.8
1911	134.3	136.0	123.6
1912	150.2	142.1	142.3
1913	144.7	143.9	135.5
1914	153.3	154.0	142.8

[1]   Base is December 1900 = 100.

For tobacco and alcohol two representative series drawn from the Coates II wholesale price quotations are used throughout, and each assigned an equal weight. The series are draught ale and standard-brand plug tobacco.

The Special Difficulty in Constructing a Food Index

Those who have used Coates II retail food price data have employed December prices for the very good reason that these provide consistent points of estimation for 1900, 1905 and 1909 that can be linked to December price reports for 1910-1914.[14] Because what is being attempted is construction of a Toronto retail price index for 1890-1914, to complete the food group it is necessary to use the Coates wholesale price index exclusively for the 1890-1899 years. The key assumption here is the one previously stated, namely, that movements of relevant Toronto price quotations in this source accurately reflect those in food prices at retail. The post-1900 years, however, present special difficulties. The nature of these may be inferred from Table 4. The three columns represent three alternative indexes, one of which is complete and two of which are partial. In column (1) are 1900-1914 wholesale price data for the proximate set of food items carried in the *Labour Gazette*. The wholesale-based index increased by just over 53 percent, a growth that corresponds almost exactly with that in the retail price index using December price quotations, where the index is based on December 1900 prices = 100. However, column (3) is a retail price index obtained by taking *Labour Gazette* quotations for four months in each year from 1910 to 1914, the period for which monthly quotations are available. Based upon December 1900 = 100, this index shows a quite different pattern of year to year changes, and even more importantly reaches a level in 1914 substantially below that in the other two indexes. Any calculation of the rate of growth in prices, or any real wage calculation using 1914 as one of the terminal years, is therefore going to be very much influenced by choice of

14.   Cf. BERTRAM and PERCY, *op. cit.*

index. Since the price shocks at commencement of World War I are apparent in both the wholesale index and the retail price index with December-only quotations, it is doubtful that we want to accept unreservedly evidence on living standards where these shocks bias the results. There is no obvious way in which the information contained in the two retail indexes can be combined with the wholesale index to offer a congruent index of food prices at the retail level over ese years. One approach would be to employ only quotations at the wholesale level, in effect relying exclusively throughout on the wholesale data source. A difficulty with this approach is that it leaves unused available though limited direct evidence on retail prices in 1900, 1905, and 1909, as well as the more thorough evidence of 1910-1914. If such evidence exists, and if it can be incorporated without tainting an index with bias, should it not be used?

A second possible approach is to link either column (2) or (3) with the wholesale index, and derive a synthetic food index for the 1900-1914 period. The apparent presence of a significant seasonal element in December retail price quotations, together with the fact that December 1914 quotations were strongly influenced by the war, tend to preclude the use of this data set and favour, if at all possible, use of the set found in column 3. Such a choice, however, is not without its own difficulties. For one thing the index itself is derived from a base of December 1900 = 100, a fact which is likely to bias somewhat downwards the index levels of 1910-1914, because the seasonality apparent in December prices post-1909 was probably also evident in 1900.

The approach used in calculating a food index is to start with the four month average retail index in column (3), set the 1914 level of prices at 100, move backwards in time to 1910 where the index is spliced into the wholesale price index and carry it back to 1900. The results are shown in Table 5, columns (1) and (2). The movements in the level of the two indexes are quite consistent in all years except 1910 when the wholesale index declines slightly from 1911 levels, while the retail index shows an increase. However, the difference in levels in 1910 is only 1.6 percent, the source of the splice factor of 1.016. The reconstituted index to be calculated for earlier years is set from a 1910 retail level of 88.1, and the splice factor is applied to the wholesale index for each back from 1910 to 1900.

Finally, in column (3) the reconstituted index, derived from column (2) for 1910-1914 and from the blend of columns (1) and (2) for 1900-1909, is reconverted to a base of 1900 = 100.

The effect of the war on 1914 food prices is reduced but not entirely eliminated by the use of annual averages in the reconstituted index. To grasp the significance of this, the index for average retail food prices in 1914 is about 2.7 percent lower if an index is calculated excluding the last four months of the year. This can be seen by comparing index levels for 1914 under the two conditions: the index excluding September through December from the base calculation is 145.1; while the index when all of 1914 is included in the base calculation is 150.8. Considering that food is assigned an expenditure weight of .4410, the effect of the difference of 5.7 food index points on the overall index is (.4410) (5.7) or 2.5 points. That, of course, is far from trivial particularly if 1914 is used as a terminal year for estimating changes in the real wage. The difference in real wages that would inevitably follow the war-induced external price shock has a contemporary analogy in the effect on real incomes of the food and energy price shocks of the 1970s.

In sum, food in the composite retail price index will be represented by this index in which the *Labour Gazette* Toronto data are spliced to proximately equivalent items from the wholesale data found in Coates II.

Table 5   Conversion of Wholesale and Retail index to a new food index and
                      its reconversion to a base of 1900 = 100

	Wholesale Index[1] 1914 = 100 (1)	Average Retail Index[2] 1914 = 100 (2)	Reconstituted Index[4] 1900 = 100 (3)
1914	100.0	100.0	150.8
1913	94.4	94.9	143.1
1912	98.0	99.6	150.2
1911	87.6	86.5	130.5
1910	86.7	88.1[3] 88.1	132.9
1909		85.6	129.1
1908		85.3	128.7
1907		82.5	124.4
1906		77.1	116.3
1905		74.2	111.9
1904		73.0	110.1
1903		73.6	111.0
1902		72.4	109.2
1901		67.3	101.5
1900		66.3	100.0

(1) This is derived for the years 1910-1914 from column (1) in Table 4 with the base reset at 1914 = 100.

(2) This is derived for the years 1910-1914 from column (3) in Table 4 with the base reset at 1914 = 100.

(3) Splice factor $= \dfrac{88.1}{86.7} = 1.016$. The index for any year t between 1900 and 1909 is then obtained as:

$$\left(\frac{I_t}{I_{1914}} \right)\left(1.016 \right)$$ Where I_t is the wholesale index for the year t related to the new base of 1914 = 100.

(4) The index for any year t between 1900 and 1909 is

$\dfrac{\hat{I}_t}{\hat{I}_{1900}}$ where $\hat{I}$ is the reconstituted index; for 1910 to 1914 the index for any year t is $\dfrac{I_t}{\hat{I}_{1900}}$ where I is the observed 4 month average retail price index for that year from column (2).

The Estimated Retail Price Index

The estimated Toronto composite index and the major groups from which it is composed are found in Table 6. The extreme right hand column reports annual rates of change in the composite. In summary the composite index indicates that between 1890 and 1900 there was a decline of just over six percent, while from 1900 to 1914 an increase of just about one-half was recorded. Beyond that, movements in the composite display alternating years of rising and falling price levels. For example, between 1890 and 1896, generally regarded as a period of falling price levels, there were three years of increase and three of decrease; the effect of the business cycle declines is readily evident. 1896 was followed by more than a decade of continuous price expansion during which the price level rose by one-half, or at an annual rate after compounding of 3.8 percent. There was, however, substantial dispersion about this average, particularly in the post-1900 years. The period from 1907 to 1914 presents an interesting contrast. From the depression year of 1908 to 1914 the price level rose by about 13 percent or at a compound annual rate of 2.1 percent, and in this case the dispersion of annual inflation rates about the trend rate was even more

evident. The difference in inflation rate performance between the respective 1896-1907 and 1907-1914 eras must be attributed in substantial degree to the business cycle. Between the business cycle trough of August 1896 through the end of 1907 there were 96 months of cyclical expansion and only 40 of contraction, a ratio of 2.4:1. In contrast, from the beginning of 1907 through 1914 there were 36 months of expansion and 60 months of contraction, a ratio of .6:1.[15] Note that these ratios are derived from national business cycle reference dates but it is not unreasonable to infer that, because it was a major metropolitan area with commodity and financial links to other North American and overseas centres, Toronto was subject to the cycle, and its local timing was probably not greatly different from the national experience. Strongly evident are the sharp and deep recessions of 1907 and 1908, as well as the less than buoyant conditions of 1909 and the ensuing recession in 1910. The recovery of 1911 and 1912 is apparent in the rapid acceleration of price change across index groups in 1912, while the period closes with the recession of 1913-1914. It is important to recognize that the spectacular changes that occurred during this era in Toronto simply did not occur as a steady trend, but rather were characterized by the acceleration and retardation of the business cycle.

Table 6   Retail Price Index: Toronto (1890-1914)

Year	Food	Rent	Clothing	Home Furnish.	Fuel & Light	Tobacco & Alcohol	Composite	Composite Annual % Change
1890	106.9	96.5	109.5	118.3	116.2	88.6	105.3	
1891	111.0	95.4	102.7	118.7	111.4	92.4	106.0	0.7
1892	99.1	82.3	99.3	114.9	114.9	92.4	97.3	−8.2
1892	110.2	79.9	97.8	105.5	119.7	92.4	99.8	2.6
1894	100.3	78.4	101.6	105.2	118.1	92.4	96.8	3.0
1895	93.0	83.3	99.8	102.1	113.3	92.4	93.9	−3.0
1896	84.4	73.8	97.2	100.0	113.0	100.4	87.4	−6.9
1897	87.6	77.2	97.9	100.2	113.1	101.8	89.5	2.4
1898	95.3	83.8	97.0	96.2	102.5	100.0	93.7	4.7
1899	98.2	94.5	96.2	95.7	100.3	100.0	97.2	3.7
1900	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2.9
1901	101.5	114.1	99.6	100.2	101.3	101.3	103.9	3.9
1902	109.2	122.2	100.4	102.6	106.1	106.6	110.3	6.1
1903	111.0	147.4	100.8	105.5	111.1	106.8	117.5	6.5
1904	110.1	160.9	101.6	108.4	106.1	106.8	120.0	2.1
1905	111.9	170.7	104.3	108.3	102.2	106.8	123.3	2.7
1906	116.3	172.4	105.4	108.6	98.2	106.8	125.9	2.1
1907	124.4	184.7	106.1	112.1	98.5	106.8	133.3	5.9
1908	128.7	169.6	103.9	109.9	97.5	106.5	131.6	−1.3
1909	129.1	155.3	104.3	108.2	96.8	105.6	128.5	−2.3
1910	132.9	168.5	103.7	112.2	110.1	105.0	131.9	2.6
1911	130.5	173.5	103.8	116.7	107.8	102.2	131.1	−0.6
1912	150.2	202.4	106.6	118.2	106.8	100.8	147.4	12.4
1913	143.1	223.5	113.8	121.8	107.6	100.8	150.4	2.0
1914	150.8	208.7	109.8	112.6	106.2	103.8	149.5	−0.6

For items included, weights and sources see Appendix 1.

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15.   Canadian business cycle turning points as reported in E.J. CHAMBERS, "Late Nineteenth Century Business Cycles in Canada," *Canadian Journal of Economics and Political Science*, Aug. 1964, pp. 391-412 and K.A.J. HAY, "Early Twentieth Century Business Cycles", *Canadian Journal of Economics and Political Science*, August 1966, pp. 354-365.

In examining the behaviour of individual components the most striking fact is the increase in the relative price of housing especially in the post-1900 years. The housing index for Toronto shows a quite different profile from those constructed for U.S. cities by Rees using similar methods. For example, his rental indexes for Chicago, Philadelphia, Boston and New York increased by 31.6, 5.3, 21.9 and 13.6 percent respectively between 1900 and 1914.[16] The increase in the Chambers index reported here is much greater but is, however, consistent in rate of increase with the fragmented index reported for Toronto in Coates II (pp. 400-405) for the 1900-1913 period. Rees obtained quotations on unfurnished apartments in New York, Boston and Chicago and on houses in Philadelphia. In each instance the form of dwelling was that characteristically occupied by blue-collar workers. Housing is, of course, a non-traded commodity but why its price in Toronto should differ so significantly from that in major U.S. cities is a matter that warrants some explanation. A place to begin is in the fact that the intercensal rate of population increase in Toronto was substantially higher than that in any of the U.S. cities. Between 1901 and 1911 the Toronto population rose at a compound rate of 6.0 percent annually and from 1911 to 1914 at a rate of 6.9 percent.[17] The more rapid rate from 1911 to 1914 arose not only from the larger immigrant numbers of those years, but also from the relatively larger share of immigrants who indicated Ontario as their destination. Significantly lower compounded annual rates of population growth were experienced from 1900 to 1910 in New York, Boston, Chicago and Philadelphia. These were 3.4, 2.0, 2.9 and 2.0 percent respectively.[18] A reasonable hypothesis is that a rate of population growth in the Toronto area twice that in the American cities is the key starting point in explaining the more rapid rise in the price of shelter, which to reiterate, is a non-traded commodity. Since shelter is assigned a weight of .221 in the index it is readily apparent that the very high increase in the real price of shelter between 1900 and 1914 has a substantial impact on the changing level of the composite.

As indicated previously rental equivalence is but one approach to measuring shelter costs and, since the increase in the real price of shelter resulting from its application is so great, some speculation is not out of place about how alternate methods might affect reported results. Suppose an outlay approach (like that used in the CPI at the present time) were adopted in which shelter expenditures for homeowners are estimated separately from those of tenants. For homeowners key shelter costs are depreciation of the structure, mortgage interest, property taxes, repairs and maintenance, and insurance. The increases between 1900 and 1914 in four of these items (excluding insurance) can be estimated.[19] They are: depreciation 47.6%; mortgage interest 25.4%; property taxes 0.0% repairs and maintenance 36.2%. To obtain an alternate shelter index these results applicable to homeowners would be combined with the rental index for tenants. To do that we need (i) the homeownership

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16. Calculated from indexes in REES, *op. cit.*, p. 97.

17. 1921 Census, Vol. 1, Table 10, p. 221. Estimates of 1914 population reported as 470.1 thousand are from the Canada Year Book 1914, p. 571.

18. Basic population data for metropolitan areas are from U.S. Thirteenth Census 1910, Vol. 1, p. 74.

19. Depreciation at replacement cost is calculated from the author's own index of residential construction costs (exclusive of land) for the period 1890-1914. Mortgage interest rate index was calculated from Coates II, p. 721 and Ontario Sessional Papers 1914, No. 12, pp. 368-373. The rates in the index for 1914 (from which the change is calculated) represent the average gross interest rate earned on mortgages for loan and trust companies. Property tax increase is based on the Toronto mill rate from Coates II, p. 333. Repair and maintenance costs are derived from an index composed of hourly wage rates for painters and glaziers (.33); and prices of window glass (.10), paint (.25), varnish (.10) and linoleum (.22). Sources for wages are Coates II, pp. 484-489 and *Wages and Hours of Labour in Canada 1901-1920*, p. 7; for the price of paint, varnish and window glass, Coates II, pp. 484-489; price of linoleum from issues of Eaton's catalogue.

ratio, and (ii) the expenditure coefficients for the stated homeownership costs (including the implicit outlay for depreciation) across all homeowners, i.e. both for those with and those without mortgage indebtedness. While "guesstimate" about homeownership proportions is possible, the absence of any usable data with respect to (ii) precludes estimation of a defensible alternate measure. However, rates of increase in the above components of outlay do indicate rather strongly that given a homeownership ratio of one-third for instance, any index constructed on an outlay basis would display measurably lower rates of increase over these years than a rental equivalence-based measure, perhaps sufficiently to affect materially conclusions regarding real wage change.

There may be some interest in comparing these results for Toronto with the U.S. national price index constructed by Rees, and also with the all-Canada estimates of Bertram and Percy covering selected years in the 1900-1914 period. The Rees estimates indicate that living costs in 1914 were 19 percent higher than those in 1900, while Bertram and Percy's index in 1914 was 33 percent above that in 1900. The dominant explanation for the difference in both these indexes from the one presented here is to be found in shelter costs. Rees' rental index increased by 17.6 percent while the national rental index reported by Bertram and Percy increased by 62 percent.[20]

Estimating an Index of Money Wages

If data for construction of a Toronto retail price index are scarce, data for an index of money wages are even more so. Any index that can be constructed will therefore be partial in occupational coverage and limited to wage rates per hour, day, week or month. Where the rate is per day, per week or per month it is defined in terms of standard hours of employment, i.e., standard wages and standard hours. As Bertram and Percy point out, this is a characteristic that seriously restricts its utility because the only measure of money income that can be derived is for an employed person working the established hours of work per week at the standard wage. In periods of excess (deficient) labour market demand actual money income may considerably exceed (fall short of) such an estimate.[21]

There are two basic sources of urban wage data for the years 1900 to 1914. These are Coates II, (pp. 482-557) and *Wages and Hours of Labour in Canada, 1901-1920*.[22] The former reported wages from 1900 to 1913 (or for selected years in the period) for occupations within a variety of industries: construction, metal industries, printing and publishing, ready- made clothing, distilleries, steam railway transportation, and municipal employment. Data were also provided for a number of domestic service occupations. The latter publication reported occupational wage data for designated building, metal and

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20.   REES, *op. cit.*, p. 74, and BERTRAM and PERCY, *op. cit.*, pp. 304-306. It is of interest to economic historians to note the high relative price of the non-traded commodity (shelter costs) both in the national index and in the Toronto index reported here. An important avenue of inquiry has been the higher rate of price level increase in Canada from 1900 to 1914 than in other countries, particularly the United States and the U.K. Viner stated, for example, that "no factor was operating during this period, other than the import of capital, which would adequately explain a substantially greater rise in prices in Canada than in the world at large. (*Canada's Balance of International Indebtedness 1900-1913*, Cambridge, 1924, p. 215). However Ohlin's critical evaluation of Viner emphasizes the possible contribution of a rapid rise in population on the real price of non-traded commodities (*Interregional and International Trade*, Cambridge, 1933, p. 467). The sharp rise in the real price of housing indicates the importance of this particular sector in any analysis of pre-1914 Canadian price level behaviour.

21.   BERTRAM and PERCY, *op. cit.*, p. 306.

22.   Department of Labour, Supplement to the *Labour Gazette*, March 1921.

printing trades, and for street railway and steam railway transport. The wage data in *Wages and Hours in Canada, 1901-1920* are reported to have been obtained from a variety of sources: from Department of Labour correspondence, trade union officials, employers, and copies of signed labour agreements. It is stated that "as far as possible the rates quoted for each year are those in effect in September, which in general reflect conditions up to the end of the year."[23]

In Table 7 is a weighted index of wages for the period 1900-1914 consisting of four major trade groups: building (.4756); printing and publishing (.1374); transportation (.1563); and metal (.2307). In parentheses are the weights assigned, and these in turn are obtained from the 1911 Census data on occupations in Toronto.[24] Over the period the composite wage index rose from 100 to 154.1 or at a compounded annual rate of 3.1 percent.

Table 7   **Index of Money Wage Rates: 1900-1914**

Year	Building (1)	Printing & Publishing (2)	Transport (3)	Metal (4)	Composite (5)	Composite Annual % Change (6)
1900	100.0	100.0	100.0	100.0	100.0	
1901	102.9	103.8	100.0	100.0	101.9	1.9
1902	116.3	108.2	106.9	100.7	110.1	8.0
1903	120.2	111.4	108.8	109.3	114.7	4.2
1904	120.6	118.9	114.5	115.7	118.3	3.1
1905	125.7	123.1	114.5	117.9	121.8	3.0
1906	127.8	123.8	116.8	119.9	123.7	1.6
1907	128.4	138.1	123.7	124.8	128.3	3.7
1908	128.4	140.8	124.5	125.7	128.9	0.5
1909	129.5	148.5	124.5	119.2	129.0	0.1
1910	138.8	148.5	136.1	123.5	136.2	5.6
1911	142.3	153.0	136.8	130.2	140.1	2.9
1912	148.5	162.1	136.8	138.7	146.3	4.4
1913	158.5	164.3	146.0	141.2	153.3	4.8
1914	158.5	164.3	150.0	141.9	154.1	0.5

Building trades include stonecutters (.0585), bricklayers (.1206), carpenters (.3311), painters and glaziers (.1892), plumbers (.1198), and labourers (.1808). Weights are in parentheses. Data for 1900 to 1913 from *Coates, Vol. II*; data for 1914 from *Wages and Hours of labour in Canada, 1901-1920*. Weights from Census of Occupations. Printing and publishing include floormen, linotype operators, job and web pressmen, stereotypers and bookbinders. Equal weight is assigned each category because of inadequate census information. Data from 1900 to 1913 is from *Coates, Vol. II* and for 1914 from *Wages and Hours of Labour in Canada, 1901-1920*. The data for 1914 is based upon hand compositors in newspaper offices and cylinder pressmen in job offices.
The transport trades include cconductors (.1127), brakemen (.1904) engineers (.0520), firemen (.0722), sectionmen (.0549), and street railway conductors and motormen (.5178). Weights are in parentheses. Data for 1900 from *Coates, Vol. II, and for 1901-1914 from Wages and Hours of Labour in Canada, 1901-1920*.
The metal trades include sheet metal workers (.1858), blacksmith (.0971), boilermakers (.0380), iron moulders (.3869), and machinists (.2922). Index for 1900 is estimated at 1901 levels; data for 1901-1914 from *Wages and Hours of Labour in Canada, 1901-1920*.

23.   p. 1.
24.   Census of 1911, Vol. VI, pp. 262-274. The index is based on trades representing 29,508 workers out of a reported total male labour force of 126,654.

With respect to individual trades, the greatest wage flexibility and the lowest rate of increase are apparent in the metal trades where wages actually declined during 1909 in the wake of the sharp recession of 1907-1908. The largest money wage growth is shown by the printing and publishing trades. It is also apparent that underlying the changes in the composite index is considerable dispersion in hourly wage rates of the respective trades during these years. Though between 1900 and 1914 the composite index increased at a compounded annual rate of 3.1 percent, as in the case of prices there is substantial year to year variation from a maximum of 8.0 percent in 1902 to a minimum of one-tenth of one percent in 1909. Again the impact of the business cycle is apparent, particularly in the decline of 1907-1908 and its aftermath, and again in the very modest increase in 1914 accompanying the decline of 1913-1914.

Estimated Real Wage Change

By combining the composite money wage index shown in Table 7 with the 1900-1914 composite price index shown in Table 6, an index of Toronto real hourly wages can be obtained. This is found in Table 8 which shows that, over the entire period, the index of real wages rose from 100.0 to 103.1 or at a compounded annual rate of two-tenths of one percent. It is possible to discern two separate phases in the behaviour of the index, i.e., 1900 to 1907 and 1907 to 1914. Between 1900 and 1907 the real wage index declined at an annualized rate of just over one half of one percent; it is interesting that in this period there were four years when the real wage rate fell, and three when it increased. During the last half of the period real wages rose in six of seven years, and the index increased at a compounded annual rate of just about one percent whether 1913 or 1914 is taken as the terminal year.[25]

Additional light can be cast on real wage change by looking at separate indexes for skilled as opposed to unskilled labour. This is illustrated in Table 9 where money wage indexes for skilled and unskilled are divided by the retail price index. Unskilled labour is defined to include sectionmen from the transport trades and labourers from construction. These two groups together had a weight of .0946 in the composite wage index reported in Table 8. The results of Table 8 indicate that unskilled workers fared worse than the skilled and semi-skilled over the 1900-1914 era. Again the real wage changes in the 1900-1907 years are markedly different from those 1907-1914 period.

A final calculation is used in both Tables 8 and 9 to adjust proximately and crudely for the impact of the business cycle on these numbers, by using the rate of growth between years in which the national economy was in approximately the same business cycle phase, specifically between high employment years. 1902 and 1912 can be regarded as such years. Over this ten-year period standard real wages changed scarcely at all, in fact falling at an annual rate of 0.06 percent; for the skilled real wages fell by 0.05 percent and for the unskilled they declined by 0.25 percent per year. In Table 8 calculations are also presented for intervals between the designated high employment years. The growth results of -0.37

25. Readers may be interested in contrasting these results with those of BERTRAM and PERCY, *op. cit.*, p. 307. In the first sub-period they have estimates only for 1901 and 1905 but for these years they record an annualized rate of increase of 1.4 percent in contrast to the small negative increase evident in Table 7 for the same period. Between 1905 and 1914 their rate of increase is 1.0 percent, but much of this is attributable to their estimated 4.0 percent increase in the single year 1914; for 1905-1913 their annualized rate of increase is 0.6 percent.

Table 8   **Index of Real Hourly Wages, and their Rate of Change, 1900-1914**

Year	Money Wage Index (1)	Retail Price Index (2)	Real Hourly Wage Index (3) [(1)(2)×100]	Annual % Change in real wage Index (4)
1900	100.0	100.0	100.0	
1901	101.9	103.9	98.1	−1.9
1902	110.1	110.3	99.8	1.7
1903	114.7	117.5	97.6	−2.2
1904	118.3	120.0	98.6	1.0
1905	121.8	123.3	98.8	0.2
1906	123.7	125.9	98.3	−0.5
1907	128.3	133.3	96.2	−2.1
1908	128.9	131.6	97.9	1.8
1909	129.0	128.5	100.4	2.6
1910	136.2	131.9	103.3	2.9
1911	140.1	131.1	106.7	3.3
1912	146.3	147.4	99.2	−6.9
1913	153.3	150.4	101.9	2.6
1914	154.1	149.5	103.1	1.2

Growth rate in real hourly wages for Selected periods: **Annual % Change**

1900-1913	0.14
1900-1914	0.22
1902-1912	−0.06
1900-1907	−0.55
1902-1906	−0.37
1907-1913	0.96
1907-1914	0.99
1906-1912	0.17

for 1902-1906 and 0.17 for 1906-1912 are consistent with interpretation of dissimilar experience in the first and second portions of the era.

One effect of the business cycle in clouding the suitability of the real standard wage as a proxy for real income has been emphasized, that is, actual hours worked may differ from standard hours with attendant effects upon nominal income. Also, because much standard wage data were obtained from union sources, the cycle makes it riskier, particularly during a cyclical contraction, to extrapolate the standard hourly union wage rates to non-unionized workers. This has special relevance to the latter part of the era when at the national level years of contraction exceeded those of cyclical expansion. To the degree that this national experience was also applicable to Toronto, we may feel less certain about applying the union wage across all workers in an occupational group. This reinforces the downside effect on nominal income of a shortfall in actual from standard hours.

Finally, it is important to comment on how the results of this study (and to a degree those of Bertram and Percy) which indicate very little apparent increase in real wages relate to other research findings of annualized compounded rates of change in GNP/capita of just over two percent between 1901 and 1911. Some reconciliation of these results is possible, as shown in Table 10, which contains evidence on relevant output and demographic measures. The most notable feature in the table is that the numbers participating in work

Table 9   **Indexes of Money and Real Wage Rates: Skilled and Unskilled Occupations**

	UNSKILLED		SKILLED	
	Money Wage	Real Wage[1]	Money Wage	Real Wage[1]
1900	100.0	100.0	100.0	100.0
1901	104.1	100.2	101.7	97.9
1902	105.2	95.4	110.6	100.5
1903	113.8	96.8	114.8	97.7
1904	113.8	94.8	118.8	99.0
1905	113.8	92.3	121.5	98.5
1906	114.2	90.7	124.7	99.0
1907	115.3	86.5	129.6	97.2
1908	115.3	87.6	130.3	99.0
1909	115.3	89.7	130.4	101.5
1910	127.7	96.8	137.1	103.9
1911	128.8	98.2	141.3	107.8
1912	137.1	93.0	147.3	99.9
1913	137.1	91.1	155.0	103.1
1914	137.1	91.7	155.9	104.3

Growth in real hourly wages for selected periods (in percent per year):

1900-1913	−0.72	0.23
1900-1914	−0.62	0.30
1900-1907	−2.07	−0.4
1902-1912	−0.25	−0.05
1902-1906	−1.26	−0.38
1907-1913	0.86	0.98
1907-1914	0.83	1.00
1906-1912	0.42	0.15

[1] Money wage for each group divided by the index of retail prices. Unskilled labour includes sectionmen from transport and labourers from the building trades.

grew at a significantly more rapid rate than the population. The "gainfully occupied" and the "labour force" defined either as those ten and over or those 14 years and over grew by almost four percent in this decade while the population grew by just under three percent.[26] The effect is sharp increases in participation ratios during the era. There is evidence in the Census of 1921 that this national increase was occasioned particularly by shifts in Ontario and the western provinces.[27] For the national measures as reported in the table, this means that about one-half of the two percent increase in GNP/capita is accounted for by expanded labour force involvement.

Recently the new Urquhart estimates of GNP for the 1870-1926 period have been made publicly accessible.[28] These estimates are considerably different from those of Firestone that are used in constructing Table 10. The Urquhart estimates show that GNP

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26. The difference between the gainfully occupied measure as used in the census and the more modern concept of the labour force is explained in F.T. DENTON and Sylvia OSTRY, *Historical Estimates of the Canadian Labour Force*, 1961 Census Monograph (99-549), especially pp. 2-12.

27. See Census of 1921, Vol. IV, OccUpations, Table IV, p. xiv.

28. M.C. URQUHART, *New Estimates of Gross National Product, Canada, 1870 to 1926: Some Implications for Canadian Development*, Discussion Paper No. 586, Institute for Economic Research, Queen's University (1984).

Table 10   **Rates of Growth in Selected Output and Demographic Measures, 1901-1911**

		1901	1911	Annualized Percent Change
(1)	GNP ([1]) (millions of 1935-39 $)	$2031	$3355	5.02
(2)	Popn ([2]) (thousands)	5371	7207	2.94
(3) a	Gainfully Occupied 10 + ([3])	1842	2732	3.94
(3) b	Labour Force 10 + ([3]) thousands	1899	2809	3.91
(4) a	Gainfully Occupied 14 + ([3])	1828	2722	3.98
(4) b	Labour Force 14 + ([3]) thousands	1885	2799	3.95
(5)	GNP/Capita	$ 378.14	$ 465.52	2.08
(6)	GNP/Gainfully Occupied 10 +	$1102.61	$1232.55	1.11
(7)	GNP/Labour Force 10 +	$1069.51	$1194.38	1.12
(8)	GNP/Gainfully Occupied 14 +	$1111.05	$1232.55	1.04
(9)	GNP/Labour Force 14 +	$1077.45	$1198.64	1.07

([1]) O.J. Firestone, *Canada's Economic Development 1867-1953*, International Association for Research in Income and Wealth Series VII, London 1958, p. 276.

([2]) Historical Statistics of Canada, 2nd Edition, Ottawa 1983, Series A-1.

([3]) F.T. Denton and Sylvia Ostry, *Historical Estimates of the Canadian Labour Force*, 1961 Census Monograph (99-549), p. 29.

increased by 5.89 percent annually between 1901 and 1911 compared with Firestone's 5.02 percent. The effect of this is to increase the growth in GNP/capita during these years to 2.95 percent and the growth in GNP/gainfully occupied for those ten and over and 14 and over to 1.93 and 1.89 percent respectively. With the new estimates about one-third rather than one-half of the growth in per capita income is accounted for by increased participation rates.

Conclusion

The results of this study do not really clarify to the extent that could be wished what happened to blue-collar living standards in this era. There are a variety of reasons why this is so. The item data are from an amalgam of sources, some representing prices at retail, others representing quotations taken at an earlier stage in the distribution channel. There is uncertainty about expenditure weights, and while those used in constructing the price index are not unreasonable, one wishes for a firmer factual foundation on which to base a choice. There are difficulties with the food index, a non-trivial matter because it is assigned an expenditure weight of some 44 percent. The use of two food series and a heuristic approach to combining them into a single index are a source of unease. The rent or shelter index has been constructed on the principle of rental equivalence, is derived from the rent of six room unfurnished houses, and displays a rate of increase substantially in excess of

the composite. To reiterate, for those blue-collar workers who owned homes (perhaps one-third or more in the case of Toronto) the rent measure can be understood as a proxy for opportunity rent on their dwellings. The use of a rental equivalence method, in addition to its theoretical justification, has the practical advantage of permitting a comparison of these results with those reported by Rees. But, of course, there are also problems simply because alternate methods for incorporating home-ownership into a consumer price index are almost certain, in a time of rapid market change, to yield measurably different results. An outlay measure of shelter costs separating renters from homeowners would likely produce a lower shelter index. A similar effect would be less clear were a "point of purchase" approach used, i.e., one in which the acquisition of a home is treated like the purchase of any other commodity (say oranges), since in these years the partial evidence available suggests that house prices were increasing rapidly. If a "user cost" methodology were adopted, in which capital gains (or losses), either realized or unrealized, are included in estimating home-owner shelter costs, the bias would probably be in a direction opposite to that implied by the "point of purchase" method. All of this is simply to underscore the potential impact of alternate methodologies respecting home-ownership.

The money wage index employed is not a measure of annual income but of payment per unit of time (generally hours) for a standard work period. Evaluating the observed rates of change over the entire period is made difficult because of the impact of the business cycle which was the strongest influence on standard hour real wages. Further, because of this influence, any equivalence of standard hour real wages with real income is distorted by the impact of the cycle on actual hours worked, and possibly also by a difference between actual wage paid and contract scale wage that may have occurred in response to cyclical forces. The prevalence of the business cycle indicates that choice of initial and terminal years will influence interpretation. If 1902 and 1912 are taken as high employment years there is no evidence of an improvement in standard hour real wages. A slight deterioration from 1902 to 1906 is not quite offset by a marginal improvement between 1906 and 1912. Another perspective is obtained if the 1900-1914 period is segmented into the 1900-1907 and the 1907-1913/14 years. These results indicate that real wage experience was very different in 1900-1907 from what it was in 1907-1913/14, with the first period showing some decline and a majority of negative year to year changes, and the second period showing real hourly wages rising with annual positive changes dominant. These results also emphasize the difficulties in interpreting economic changes based upon two observation points — an initial and a terminal year. At times and in given circumstances this may be all that is possible, yet all too frequently conclusions are pushed beyond what the evidence will sustain.

Taken as a whole (and subject to the effect of the rental equivalence methodology employed in calculating shelter costs) the evidence indicates that in the pre-World War I era of the twentieth century the living standards of Toronto blue-collar workers remained quite stagnant. Thus, Piva's hypothesis cannot be dismissed even within a more appropriately bounded time period than the one he used. The results of this research, even if they do not fully answer at least provide a new empirical dimension to the important question of how Toronto blue-collar workers materially benefitted from the rapid extensive expansion of this era.

It is time to find out in concrete, empirical terms what actually was happening during this period to income distribution, not simply in Toronto but also in Canada.

Appendix 1   **Items in the Index: Source, Periods and Weight**

Group	Item	Source	Period in Index	Weight by Period			Notes
				1890-92	1893-99	1900-14	
(1) Food:	Beef, hindquarter or sirloin	1890-1908 *Coats II* Wholesale data; 1909-1914 *Labour Gazette*	1890-1914	.02191	.0219	.0219	
	Beef, forequarter or medium chuck	,,	,,	.0158	.0158	.0158	
	Veal	,,	,,	.0080	.0080	.0080	
	Mutton	,,	,,	.0095	.0095	.0095	
	Pork roast or dressed hogs	,,	,,	.0099	.0099	.0099	
	Pork salt or short cut mess	,,	,,	.0175	.0175	.0175	Montreal quotation in *Coats II*
	Bacon	,,	,,	.0124	.0124	.0124	Montreal quotation *in Coats II*
	Lard	,,	,,	.0211	.0211	.0211	
	Eggs, new laid	,,	,,	.0207	.0207	.0207	Montreal quotation in *Coats II*
	Eggs, packed	,,	,,	.0163	.0163	.0163	
	Milk	,,	,,	.0294	.0294.	0294	
	Dairy tub butter	,,	,,	.0356	.0356	.0356	
	Creamery butter	,,	,,	.0205	.0205	.0205	
	Cheese, old	,,	,,	.0247	.0247	.0247	Montreal quotation in *Coats II*
	Bread, loaf	,,	,,	.0447	.0447	.0447	
	Flour, bakers	,,	,,	.0201	.0201	.0201	
	Rolled Oats or Oatmeal	,,	,,	.0145	.0145	.0145	
	Rice, good medium	,,	,,	.0084	.0084	.0084	
	Beans, handpicked	,,	,,	.0069	.0069	.0069	
	Apples, evaporated	,,	,,	.0080	.0080	.0080	
	Prunes	,,	,,	.0092	.0092	.0092	
	Sugar, granulated	,,	,,	.0174	.0174	.0174	
	Sugar, yellow	,,	,,	.0080	.0080	.0080	
	Tea, common Japan	,,	,,	.0136	.0136	.0136	Montreal quotation in *Coats II*
	Coffee	,,	,,	.0069	.0069	.0069	
	Potatoes	,,	,,	.0194	.0194	.0194	
	Vinegar	,,	,,	.0006	.0006	.0006	

Appendix 1 (cont.)

Group	Item	Source	Period in Index	Weight by Period			Notes
				1890-92	1893-99	1900-14	
(2) Clothing	Boy's reefer, wool	Eaton's Catalogue	1893-1914	0	.0065	.0065	
	Boy's knickerbockers	''	1893-1914	0	.0065	.0065	
	Boy's underwear (winter), wool	''	1893-1914	0	.0015	.0015	
	Boy's high shoes	Eaton's Catalogue; data for 1890-92 is men's box calf bleecher, *Coats II*, p. 50	1890-1914	.0113	.0112	.0112	
	Girl's winter coat	Eaton's Catalogue	1893-1914	0	.0066	.0066	
	Girl's high shoes	Eaton's Catalogue; data for 1890-92 is women's dungola bleecher, *Coats II*, p. 50	1890-1914	.0113	.0112	.0112	
	Underwaist	Eaton's Catalogue	1900-1914	0	0	.0029	
	Women's Corset	''	1893-1914	0	.0031	.0031	
	Cotton vest	''	''	0	.0039	.0028	
	Cotton drawers, ribbed fleece lined	''	''	0	.0038	.0028	
	Women's high shoes	Eaton's Catalogue; data for 1890-92 is women's dungola bleecher, *Coats II*, p. 50	1900-1914	.0096	.0096	.0096	
	Women's stockings	Eaton's Catalogue	1893-1914	0	.0060	.0060	
	Men's overcoat	''	1893-1914	0	.0100	.0100	
	Raincoat	''	''	0	.0091	.0091	
	Good Suit, wool	''	''	0	.0065	.0065	
	Men's cap	''	''	0	.0048	.0048	
	Men's hat	''	''	0	.0048	.0048	
	Silk tie	''	''	0	.0010	.0010	
	Men's shirt	''	''	0	.0037	.0028	
	Linen Collar	''	''	0	.0007	.0007	
	Men's winter underwear	''	''	0	.0016	.0016	
	Men's summer underwear	''	''	0	.0016	.0016	
	Men's nightshirt, flannalette	''	''	0	.0016	.0016	

Group	Item	Source	Period in Index	Weight by Period			Notes
				1890-92	1893-99	1900-14	
	Men's workshirt	,,	,,	0	.0052	.0052	
	Men's overalls, heavy denin	,,	,,	0	.0126	.0126	
	Men's socks, wool	,,	,,	0	.0060	.0060	
	Men's boots	Eaton's Catalogue; data for 1890-92 is men's box calf bleecher, *Coats II*, p. 50	1900-1914	.0115	.0060	.0060	
	Men's oxfords	Eaton's Catalogue; data for 1890-92 is men's box calf bleecher, *Coats II*, p. 50	,,	.0093	.0060	.0060	
	Men's rubbers	Eaton's Catalogue	1893-1914	0	.0015	.0015	
	Men's Overshoes	,,	,,	0	.0015	.0015	
	Dress gloves	,,	,,	0	.0018	.0018	
	Work gloves	,,	,,	0	.0040	.0040	
	Wool serge 42″	Eaton's Catalogue; data for 1890-92 is washed wool, *CoatsII*, p. 64	1890-1914	.0278	.0065	.0065	
	Apron gingham 36″	Eaton's Catalogue; data for 1890-92 is Cotton woven coloured, *Coats II* p. 64	,,	.0339	.0126	.0126	Residual clothing weights for 1890-92 are assigned to apron gingham (.2), wool serge (.2) and labour (.6)
	Labour	Series D-488 *Historical Statistics of Canada*, 1st edition	1890-92	.0640	0	0	
(3) House Furnishings	Brussell's Carpet	Eaton's Catalogue	1893-1914	0	.0053	.0053	Chain index; 2 links
	Linoleum	,,	,,	0	.0010	.0010	
	Floor oilcloth	Eaton's Catalogue; data 1890-92 is floor oilcloth, *Coats II*, p. 48	1890-1914	.0086	.0010	.0010	
	Hardwood dining chair, leather seat	Eaton's Catalogue	1900-1914	0	0	.0010	Chair index; 3 links
	Birch dining chair	Eaton's Catalogue; data 1890-92 is kitchen chairs, *Coats II*, p. 62 Eaton's Catalogue	1890-1914	.0044	.0015	.0010	Chain index; 3 links

Appendix 1 (cont.)

Group	Item	Source	Period in Index	Weight by Period 1890-92	1893-99	1900-14	Notes
	Reed rocker	Eaton's Catalogue	1893-1914	0	.0014	.0010	Chair index; 4 links
	Hardwood kitchen table	Eaton's Catalogue; data 1890-1914 is kitchen table, *Coats II*, p. 62	1890-1914	.0033	.0010	.0010	Chain index; 4 links
	Hardwood dining room extension table	Eaton's Catalogue	1893-1914	0	.0010	.0010	Chain index; 2 links
	Couch	''	1893-1914	0	.0022	.0022	Chain index; 1 link
	Chiffonier	''	''	0	.0008	.0008	Chain index; 5 links
	Hardwood dresser with mirror	''	''	0	.0008	.0008	Chain index; 3 links
	Sideboard	Eaton's Catalogue; data 1890-92 is sideboard *Coats II*, p. 62	1890-1914	.0025	.0013	.0013	Chain index; 5 links
	Bedstead, Hardwood	Eaton's Catalogue; data 1890-92 is bedroom suite hardwood, *Coats II*, p. 62	1890-1914	.0025	.0013	.0013	Chain index; 2 links
	Bedstead, Metal	Eaton's Catalogue; data 1890-92 is iron beds, *Coats II*, p. 62	1890-1914	.0081	.0047	.0013	
	Bed springs	Eaton's Catalogue; data 1890-92 is iron beds, *Coats II*, p. 62	1890-1914	.0057	.0045	.0011	
	Mattress, felt & cotton	Eaton's Catalogue	1893-1914	0	.0011	.0011	Chain index; 2 links
	Mattress, jute	''	1893-1914	0	.0011	.0011	
	Blanket, wool	''	1893-1914	0	.0021	.0021	
	Bedsheets, cotton	''	1893-1914	0	.0018	.0018	
	Pillow case, cotton	''	1893-1914	0	.0009	.0009	
	Damask yard goods linen	''	1893-1914	0	.0005	.0005	
	Towel, huck	Eaton's Catalogue; data 1890-92 is *Coats II*, p.	1890-1914	.0009	.0004	.0004	Chain index; 4 links
	Towel, turkish	Eaton's Catalogue	1893-1914	0	.0004	.0004	Chain index; 2 links
	Tumbler	Eaton's Catalogue; data 1890-92 is tank glass tumbler, *Coats II*, p. 64	1890-1914	.0005	.0005	.0005	

Group	Item	Source	Period in Index	Weight by Period			Notes
				1890-92	1893-99	1900-14	
	Toilet set	Eaton's Catalogue; data 1890-92 is toilet sets, *Coats II*, p. 64	,,	.0005	.0005	.0005	
	Dinner set, semi-porcelain	Eaton's Catalogue; data 1890-92 is earthenware dinner set 97 pieces, *Coats II*, p. 64	,,	.0005	.0005	.0005	Chain index; 4 links
	Dinner knives, plated	Eaton's Catalogue; data 1890-92 is table knives, *Coats II*, p. 64	,,	.0005	.0005	.0005	Chain index; 4 links
	Sewing machine, drophead	Eaton's Catalogue	1900-1914	0	0	.0012	Chain index; 1 link
	Sewing machine, hand	,,	,,	0	0	.0012	
	Kitchen stove	Eaton's Catalogue	1900-1914	0	0	.0068	Chain index; 4 links
	Carpet sweeper	,,	1890-1914	.0034	.0034	.0009	
	Baby carriage	,,	1890-1914	.0036	.0036	.0036	Chain index; 5 links
(4) Fuel, Heat, Light	Electric light	*Coats II*, p. 318	1900-1914	0	0	.0072	Data for Ontario
	illuminating gas	*Coats II*, p. 329	,,	0	0	.0216	Data for Ontario
	Coal oil, water white	*Coats II*, p. 67 wholesale data	1890-1899	.0238	.0238	0	
	Anthracite coal	1890-1908 *Coats II*, p. Wholesale data 1890-1914 1909 Labour Gazette	.0270	.0270	.0202		
	Water	*Coats II*, p. 312	1900-1914	0	0	.0072	
(5) Tobacco, Alcohol	Tobacco, plug	*Coats II*, p. 68 Wholesale data	1890-1914	.0200	.0200	.0200	
	Draught ale/porter	*Coats II*, p. 68 Wholesale data	,,	.0200	.0200	.0200	

Appendix 2   List of Items in the Price Index for Clothing

Item No.	Description and Major Changes	Unit	1914 Price	Series Begins	Chain Index	# of Links	1914 Eaton's Catalogue Number	Page
Man's								
47a	Overcoat, wool	1	$12.95	1892	Yes	6	44-211	
47b			12.50				44-231	
47c			10.00				44-228	
47d			6.60				44-237	
48a	Raincoat	1	12.50	1890	Yes	6	44-090[1]	162
48b			5.00				44-775[1]	162
49a	Good wool suit	1	13.50	1892	Yes	5	44-184	
49b			12.50				44-014	
49c			12.50				44-038	
49d			8.75				44-039	
50a	Cap	1	1.00	1892	Yes	5	42-460	
50b			.75				42-450	
51	Hat, velour felt	1	.95	1892	No	0	42-303	
52	Tie, silk	1	.25	1893	No	0	40-215	193
53	Shirt, cotton white, laundered	1	.75	1890	No	0	40-295	194
54	Collar, linen	1	.125	1890	No	0	40-302	194
55a	Underwear, winter	1	2.00	1892	Yes	4	40-712	202
55b	Woollen (Shirts or drawers)		2.00				40-732	204
56	Underwear, summer (shirts or drawers)	1	.75	1892	No	0	40-614[1]	152
57	Nightshirt, flannelette	1	.59	1893	No	0	40-800	197
58a	Workshirt	1	1.25[2]	1892	Yes	1	40-509[2]	462
58b			1.00				40-614	198
58c			.50				40-626	198
59	Overalls	1	.75	1894	No	0	44-255	74
60a	Socks	Pair	.29	1892	Yes	0	20-287	167
60b			.25				20-251	166
60c			.25				20-269	166
61a	Boots, leather	Pair	3.00	1890	Yes	1	52-237	135
61b			2.65				52-333	134
62a	Shoes, dress leather	Pair	2.90	1894	Yes	3	52-300[1]	140
62b			1.85				52-301[1]	140
63	Rubbers	Pair	.90	1892	No	0	52-724	141
64a	Overshoes	Pair	1.75	1892	Yes	3	52-762	140
64b			1.65				52-717	140
65	Gloves, leather dress	Pair	.95	1892	Yes	0	20-865	175
66	Gloves, work, oil tanned black leather	Pair	1.00	1892	No	3	20-895	177
Woman's								
42a	Corset	1	2.25	1892	Yes	7	74-212	98

Appendix 2 (continued)

Item No.	Description and Major Changes	Unit	1914 Price	Series Begins	Chain Index	# of Links	1914 Eaton's Catalogue Number	Page
42b			1.75				74-322	99
43a	Vest, cotton	1	.50	1892	Yes	0	74-910	110
43b			.50				74-914	110
43c			.25				74-900	110
44a	Drawers, cotton	Pair	.50	1892	Yes	0	74-910	110
44b			.50				74-914	110
44c			.25				74-900	110
46	Stockings, cotton	Pair	.25	1892	No	1	20-139	168
45a	High Shoes	Pair	4.50	1893	Yes	3	52-101	136
45b			2.65				52-117	136
45c			1.75				52-126	137
Boy's								
35a	Reefer, wool	1	5.15	1892	Yes	6	44-723	76
35b			3.45				44-725	76
36a	Knickerbockers, wool	Pair	1.60	1892	Yes	1	44-914	77
36b			1.05				44-921	77
37	Underwear, winter wool, medium weight			1892	Yes	0	40-748	201
38a	High shoes, leather	Pair	2.35	1892	Yes	6	52-402	133
38b			2.00				52-404	133
Girl's								
39a	Winter coat, wool	1	4.75	1893	Yes	5	56-711	40
39b			3.25				56-707	40
40a	High shoes	Pair	1.25	1892	Yes	1	52-509	133
40b			1.15				52-510	133
41	Underwaist, cotton	1	.35	1900	No	0	74-011	101
Piece Goods								
28	Wool serge 42″, Campbell	Yard	1.25	1890	Yes	2	46-184	145
29	Gingham cotton 36″	Yard	.10	1890	No	0	49-635[1]	10

[1]   Spring and Summer Catalogue
[2]   1913 Catalogue reference

Appendix 3   **List of Items in Price Index for Home Furnishings**

Item No. (1)	Description and Major Changes (2)	Unit (3)	1914 Price (4)	Series Begins (5)	# of Links (6)	1914 Eaton's Catalogue (1) Number (7)	Page (8)
01	Brussells all wool carpet 27″	1 yd.	$ 1.10	1893	0	66-340	288c
02	Linoleum, printed (6 ft. per running yard)	1 yd.	.80	1893	0	66-350	288d
03	Oilcloth	1 yd. sq.	.28	1890	0	66-358	288d
04	Hardwood dining chair, leather seat	1	2.79	1894	3	63-430	305
05	Birch dining chair, hard seat	1	.76	1893	2	62-892	304
06	Reed Rocker	1	6.80	1892	4	63-493	301
07	Hardwood kitchen table, drop leaf (44″ × 44″)	1	4.70	1893	4	63-940	302
08	Hardwood dining room extension table	1	7.45	1892	2	63-025	303
09	Couch 28″ x 76″	1	10.90	1892	1	63-156	296
10	Chiffonier, Oak 5-drawer 19″ × 32″	1	7.00	1892	5	63-310	293
11	Hardwood dresser with mirror 4-drawer 17″ × 34″	1	8.50	1892	3	63-682	292
12	Sideboard, oak 20″ × 48″ double topped with 18″ × 30″ plated mirror	1	16.75	1895	5	63-411½	305
13	Bedstead, hardwood 54″ wide	1	6.75	1893	2	63-850	294
14	Bedstead, metal 54″ wide	1	4.80	1895	0	63-390	289
15	Bed Springs	1	2.60	1892	0	63-711	290
16	Mattress, felt and cotton 54″ wide	1	6.15	1892	2	63-115	290
17	Mattress, felt and jute 54″ wide	1	4.05	1892	0	63-211	290
18	Blanket, all wool 60″ × 80″ 6 lb. weight	pr.	3.90	1890	0	49-650	154
19	Bedsheets, cotton 2 × 2 yds.	pr.	1.45	1893	0	49-529	153
20	Pillow case, hemmed cotton 46″ × 33″, 45″ × 33″	pr.	.25	1893	0	49-522	153
21	Damask yard goods, linen 60″ wide	yd.	.45	1892	0	48-830	161
22	Towel, cotton huek 19″ × 39″; 1908 linen	pr.	.37	1892	4	48-112	160
23	Turkish towel 23″ × 45″	pr.	.75	1892	2	48-816	137

Appendix 3 (continued)

Item No. (1)	Description and Major Changes (2)	Unit (3)	1914 Price (4)	Series Begins (5)	# of Links (6)	1914 Eaton's Catalogue (1) Number (7)	Page (8)
24	Tumbler, 10 oz.	1	.05	1892	0	10-608	331
25	Toilet set 10 piece semi-porcelain	1	2.35	1892	0	10-554	331
26	Dinner set, 94 piece semi-porcelain	1	6.75	1892	3	10-632	332
27	Dinner knives plated; 1896 celluloid handles	doz.	4.00	1892	3	30-651	221
30	Sewing machine, drophead	1	19.00	1898	1	62-115	307
31	Sewing machine, hand, iron base	1	11.00	1898	0	62-21	307
32	Kitchen stove, coal burning 9″ lids	1	32.95	1898	4	15-931	324
33	Carpet sweeper, Bissell's Grand Rapids	1	3.00	1890	0		286
34	Baby Carriage, reed	1	17.50	1890	5	19-420	127

[1]   All items in 1914 takenfrom the Fall and Winter Catalogue.