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CANADIAN FARM FOODS IN RELATION TO RURAL AND URBAN  
FAMILY FOOD BUDGETS

The purpose of this paper is to indicate the importance of Canadian farm foods in farm and urban family food costs, and to point out the significance of differences which exist in view of price variability in periods of prosperity and depression. Data available for this purpose are fragmentary, and further research will undoubtedly contribute to a more precise statement of relationships than can be presented at this time. The only comprehensive Canadian survey of urban family living expenditures made to date was limited to the amounts of outlay upon principal budget groups for approximately 2,200 civil service families in 1930-31. Although excellent farm surveys have been conducted for limited areas, the only data relating to the country as a whole, were derived from a special purpose project for the year 1934, and were designed to secure weights for a price index number series of farm purchases.

Before proceeding further, it should be noted that a distinction will be made between Canadian farm foods sold in crude or unprocessed, and in processed forms. The former include fresh meats, milk, eggs, and fresh vegetables, and the latter bacon, creamery butter, flour, canned vegetables, etc., which have been changed in varying degree after leaving the farmer's hands. A third group comprised mainly of fish and imported products will be termed non-farm foods.

Available data on farm family food costs are sufficient to reveal the occurrence of wide variation in response to fluctuating price levels and changing economic conditions. This tendency offers a marked contrast to food consumption behaviour which is characteristically more consistent than that for any other group of importance in the family budget. The range between minimum requirements and complete sufficiency of food wants is narrow in comparison with the range of human wants for other economic goods. This comparative stability in aggregate quantity ~~shows~~ a sharp contrast to fluctuations in farm family food costs revealed by farm management surveys in Saskatchewan which have been conducted by the Farm Management Department of the University of Saskatchewan College of Agriculture. Returns for the crop year 1926-27 from 100 families averaging 4.1 persons in the Alameda district indicated average annual food costs of \$329 per family.<sup>1</sup> A survey by the same authorities covering three separate areas in the crop year 1932-33 showed average food costs of \$166, \$162, and \$118<sup>2</sup> for family groups appreciably larger than those in the Alameda investigation. A similar figure of \$159 for the average cost of foods for 639 families of crop correspondents averaging 5.7 persons was obtained from a survey<sup>3</sup> for the calendar year 1934, covering all parts of Saskatchewan.

During the period of these last two surveys, it has been established that cash expenditure provided only a fractional amount of food consumed by farm families. Purchases of farm foods averaged from \$1 to \$3 per year in the three areas covered by the 1932-33 Saskatchewan survey, while the estimated value of foods purchased by families in the 1934 study was less than one-third of the value of an average food budget. Besides supplying the great bulk of crude farm foodstuffs, these families provided for considerable proportions of their consumption of flour, preserved fruits and vegetables. From estimates of such quantities it was possible to gain an approximate idea of the value of foods thus furnished in relation to foods purchased. These estimates which were exclusive of milk, eggs, and fresh vegetables have been multiplied by corresponding regional retail prices in order to provide a basis of value comparison. They included meats, butter, cheese, flour, canned goods, sugar, tea, coffee, lard, rice, prunes, raisins, currants, and vinegar. The computed value of these items furnished and purchased is shown on page 2, expressed in percentage relationship for Canadian areas returning an adequate sample.

1 Agricultural Extension Bulletin No.46 - The Farm Business in Saskatchewan - Survey of the Alameda Districts, page 107.  
2 Agricultural Extension Bulletin No.68 - Studies of Farm Indebtedness and Financial Progress of Saskatchewan Farmers (at Indian Head and Balcarres; Grenfell and Wolsely; and Neudorf and Lemberg) page 27.  
3 Monthly Bulletin of Agricultural Statistics - June 1936.



Value Relationships in Percentage Between Foods Furnished  
and Purchased, 1934.

<u>Area</u>	<u>Furnished</u> p.c.	<u>Purchased</u> p.c.
Maritimes .....	57	43
Quebec .....	59	41
Ontario .....	52	48
Manitoba .....	65	35
Saskatchewan .....	63	37
Alberta .....	64	36

Had the important omissions of milk, eggs, and fresh vegetables been included in this calculation, proportions of foods purchased in the western provinces might have been as little as 20 per cent of the value of the total food budget, while corresponding eastern percentages would probably have been in the neighbourhood of 30. In other words, the value of foods furnished from the farm approximated from 70 to 80 per cent of the total farm food budget, and negligible quantities of such foods were purchased.

In urban areas the situation is quite different. A limited survey of food expenditures for 53 civil service families in 1931-32 indicated an outlay of 35 per cent of all food costs upon crude farm foods. For meats, all dairy products, eggs, and vegetables the percentage rose to 50.<sup>4</sup> Professor Stewart's study of Edmonton food purchases in 1936 showed even a higher proportion of 54 per cent spent upon this same group of items.<sup>5</sup>

This difference in the proportion of farm foods purchased is relevant to any study of farm and urban food costs over a period of rising or falling prices. Its significance may be appreciated from an examination of price movements during the latest recession and recovery periods dating from 1929, for unprocessed and processed farm foods, and for non-farm foods. For this purpose the constituents of the Dominion Bureau of Statistics retail food price index were re-grouped under the above mentioned headings and annual indexes were calculated from 1927 to 1937 inclusive.<sup>6</sup>

Canadian Retail Food Price Index Numbers  
(1926-100)

<u>Year</u>	<u>Crude Farm Foods</u>		<u>Milk</u> <u>Retail</u>	<u>Processed</u> <u>Farm</u> <u>Foods</u>	<u>Non-Farm</u> <u>Foods</u>	<u>General</u> <u>Retail</u> <u>Food Index</u>
	<u>Without</u> <u>Milk</u>	<u>With</u> <u>Milk</u>				
1927 .....	96.1	97.0	99.2	98.2	102.0	98.1
1928 .....	97.4	99.0	103.3	97.7	99.5	98.6
1929 .....	103.6	104.5	106.7	98.0	95.8	101.0
1930 .....	104.0	104.8	106.7	93.6	90.1	98.6
1931 .....	74.1	79.5	94.2	73.2	81.5	77.3
1932 .....	59.6	65.8	82.5	58.8	75.5	64.3
1933 .....	57.8	63.6	79.2	58.7	79.1	63.7
1934 .....	62.3	68.0	83.3	66.2	81.7	69.4
1935 .....	64.0	70.3	87.5	68.3	77.7	70.4
1936 .....	71.0	75.9	89.2	69.6	75.5	73.4
1937 .....	73.4	78.1	90.8	75.9	77.8	77.3

4 Family Budgetary Expenditure Reported by 53 Civil Service Employees, May 1, 1931-April 30, 1932 - Pages 6 and 7. Dominion Bureau of Statistics.

5 Consumers' Expenditure on Food Commodities by Andrew Stewart, B.S.A. M.A. - Page 20

6 The constituents of these three indexes were:

Crude farm foods - Beef, veal, mutton, pork, eggs, milk, dried beans, onions, potatoes.

Processed farm foods - Salt pork, bacon, ham, lard, butter, cheese, flour, bread, soda biscuits, rolled oats, canned tomatoes, peas and corn, jam, and canned peaches.

Non-Farm foods - Salt cod, finnan haddie, rice, tapioca, prunes, raisins, currants, marmalade, sugar, coffee, tea, cocoa, salt, pepper, corn syrup, vinegar.

Table 1. Summary of the results of the analysis of variance for the different components of the total variance.

Component	df	Mean Square	F	Prob.
Between groups	10	1.23	1.23	0.28
Within groups	100	0.10		
Total	110			

The analysis of variance for the different components of the total variance is presented in Table 1. The results show that the between groups variance is significant (F=1.23, p=0.28). This indicates that there are significant differences between the groups. The within groups variance is not significant (F=0.10, p>0.05). This indicates that there are no significant differences within the groups.

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Table 2. Summary of the results of the analysis of variance for the different components of the total variance.

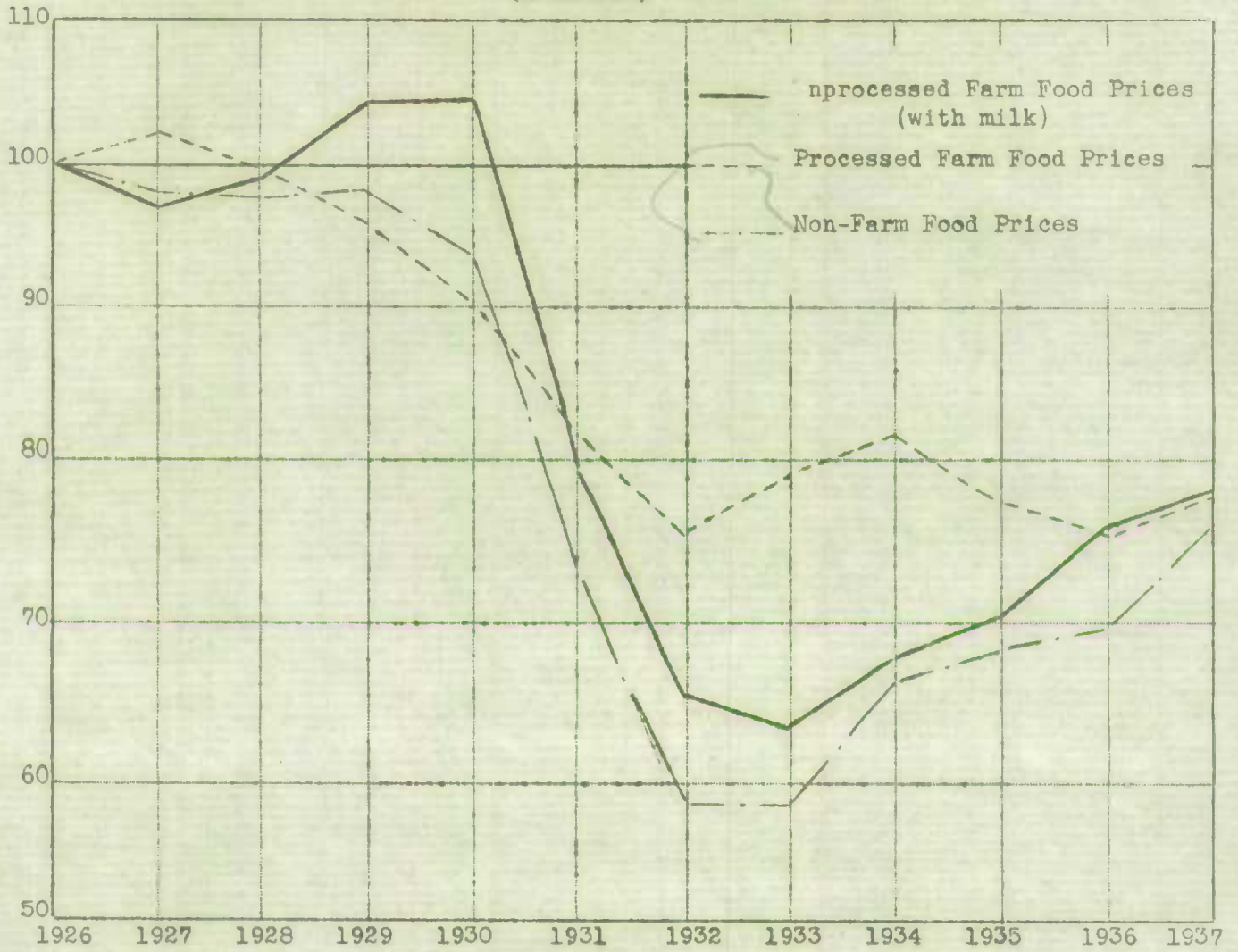
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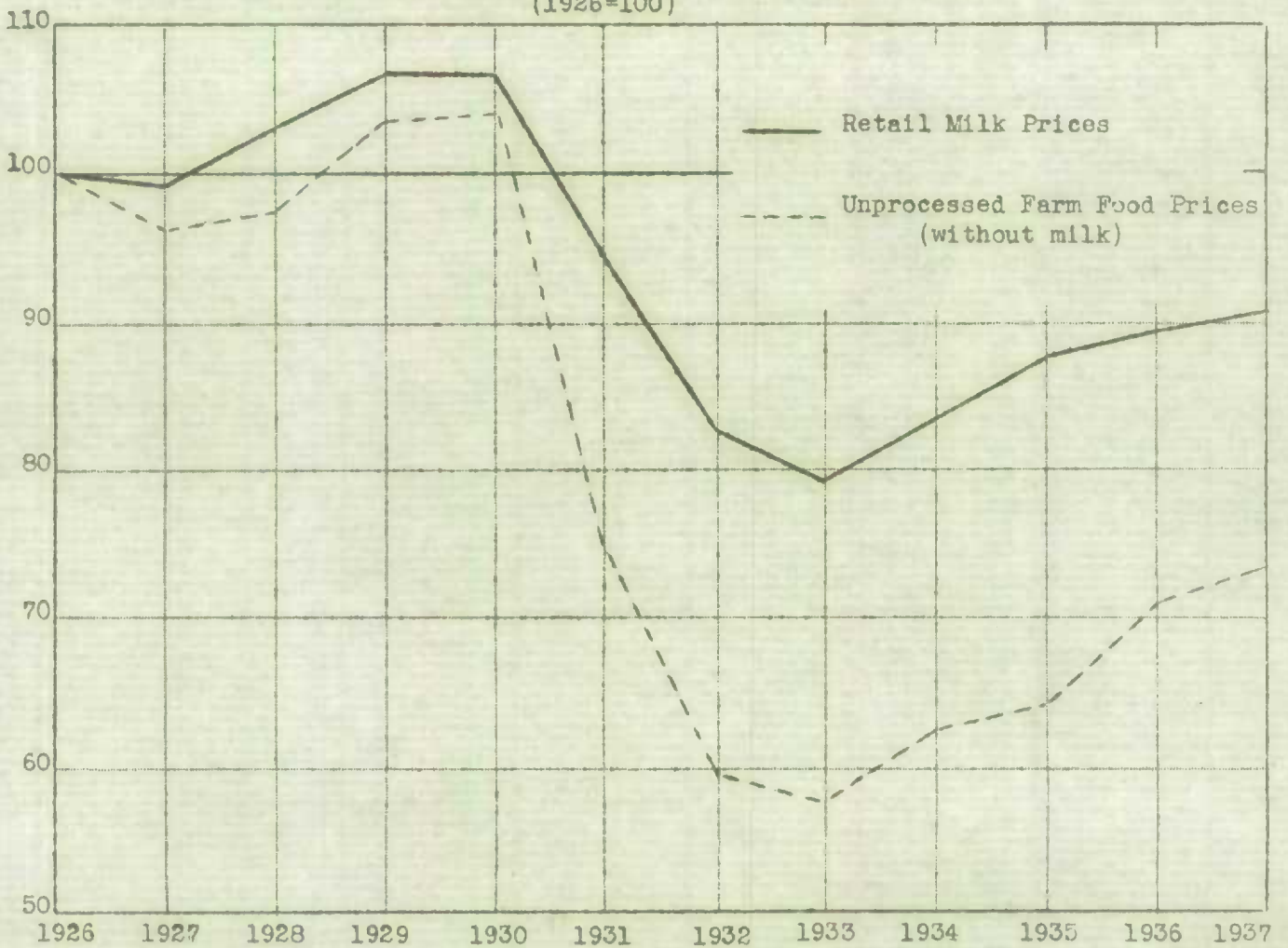
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Canadian Retail Price Index Numbers of Foods, 1926 - 1937  
(1926=100)



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(1926=100)





These indexes show appreciable differences between the farm food groups on the one hand and the non-farm group on the other. The most significant of these differences may be synopsised to advantage in tabular form.

Retail Food Price Behaviour in Depression and Recovery

<u>Food Group</u>	<u>Depression Decline (percentage)</u>	<u>Recovery Advance (percentage)</u>
Unprocessed Farm Foods .....	39	23
Without Milk .....	44	27
Milk Separately .....	26	15
Processed Farm Foods .....	40	30
Non-Farm Foods .....	26	3

It will be observed that the depression decline in crude farm foods would have been materially greater except for the stabilizing influence of milk prices. The reluctance of consumer milk prices to follow declines in other farm products in the depression years was quite marked. The 1933 retail price index for milk was 79.2 as compared with 63.6 for crude farm foods (including milk) and 58.7 for processed farm foods. Computed without milk the crude farm food index for 1933 was almost identical with that for processed foods. The same was true of the increases in these two series between 1933 and 1937, as the exclusion of milk from the former reckoning would have given a percentage of 27 as compared with 30 per cent for processed farm foods.

An indication of the importance of price flexibility to the maintenance of consumption in particular food groups may be obtained from per capita figures of apparent consumption in the case of farm products, and per capita imports for non-farm foods.<sup>7</sup> The response of these figures to movements in price is quite marked. It is outlined in the brief table following which shows index numbers of retail prices and apparent consumption per capita for unprocessed farm foods and non-farm foods in 1933 and 1937, taking 1929 data as equal to 100. The simple geometric average has been used in computing these indexes.<sup>8</sup>

Price Movements in Relation to Apparent per Capita Consumption for  
Unprocessed Farm Foods and Non-Farm Foods, 1933 and 1937.  
(1929=100)

	<u>1933</u>	<u>1937</u>
<u>Unprocessed Farm Foods -</u>		
Apparent Consumption per capita .....	93	92
Retail Prices .....	55	67
<u>Non-Farm Foods -</u>		
Apparent Consumption per capita .....	81	97
Retail Prices .....	83	85

A shift in consumer purchases in response to change in relative price levels is clearly evident from these data. Apparent consumption of farm foods was only slightly lower in 1933 than in 1929 (7 per cent) and had been maintained presumably by the 45 per cent decline in prices for these foods. Similar consumption figures for non-farm foods dropped nearly 20 per cent with prices falling a like amount. It is also significant that recovery in the next four years brought no apparent increase in consumption of farm foods when prices increased by a substantial amount. Consumption of non-farm foods did increase sharply, however, when prices remained close to depression levels.

It may reasonably be concluded from the foregoing data that contracting income in periods of depression will lead to a greater degree of self-sufficiency in the food consumption of farm families, and to a partial shift from non-farm to farm foods on the part of urban families. The \$329 food expenditure for Alameda families in 1926-27 and

7 Annual Reports - Livestock and Animal Products Statistics - Agricultural Branch, D.B.S.  
- Trade of Canada by Calendar years - External Trade Branch, D.B.S.

These figures are an admittedly crude index to actual consumption per capita, since they give no indication of such factors as carryovers or changes in food waste, which will likely be less in depression years than in periods of comparative prosperity.

8 Indexes for unprocessed farm foods included - beef, veal, pork, mutton, lamb, eggs, and cheese. No per capita consumption figures for milk were available.

Non-farm foods included - rice, prunes, raisins, currants, sugar, coffee, tea, lemons, oranges. It was necessary to use wholesale prices for lemons and oranges.

These figures show a significant increase in the number of cases in the year 1955 and the corresponding increase in the number of cases in the year 1956. The most significant increase in the number of cases is observed in the year 1956.

Table 1. Number of cases in the year 1955 and 1956.

Year	Number of cases	Percentage of total cases
1955	10	10.0
1956	20	20.0
1957	15	15.0
1958	10	10.0
1959	5	5.0
1960	5	5.0

It will be observed that the number of cases in the year 1955 was 10, which is 10% of the total number of cases. The number of cases in the year 1956 was 20, which is 20% of the total number of cases. The number of cases in the year 1957 was 15, which is 15% of the total number of cases. The number of cases in the year 1958 was 10, which is 10% of the total number of cases. The number of cases in the year 1959 was 5, which is 5% of the total number of cases. The number of cases in the year 1960 was 5, which is 5% of the total number of cases.

An analysis of the number of cases in the year 1955 and 1956 shows that the number of cases in the year 1956 was twice the number of cases in the year 1955. This indicates a significant increase in the number of cases in the year 1956. The number of cases in the year 1957 was 15, which is 15% of the total number of cases. The number of cases in the year 1958 was 10, which is 10% of the total number of cases. The number of cases in the year 1959 was 5, which is 5% of the total number of cases. The number of cases in the year 1960 was 5, which is 5% of the total number of cases.

Table 2. Number of cases in the year 1955 and 1956.

Year	Number of cases	Percentage of total cases
1955	10	10.0
1956	20	20.0
1957	15	15.0
1958	10	10.0
1959	5	5.0
1960	5	5.0

Table 2 shows the number of cases in the year 1955 and 1956. The number of cases in the year 1955 was 10, which is 10% of the total number of cases. The number of cases in the year 1956 was 20, which is 20% of the total number of cases. The number of cases in the year 1957 was 15, which is 15% of the total number of cases. The number of cases in the year 1958 was 10, which is 10% of the total number of cases. The number of cases in the year 1959 was 5, which is 5% of the total number of cases. The number of cases in the year 1960 was 5, which is 5% of the total number of cases.

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the \$159 figure for the 1934 Saskatchewan survey support this view with regard to farm families. Farm food prices declined less than 30 per cent between these years, and assuming Alemeda consumption to be fairly typical of the province, the 50 per cent reduction in food costs must have been met in part from home production. The only factual evidence of the change suggested for urban families (which applies equally well to the farm population) are per capita records such as those tabled on page 4. However, inability to distinguish clearly between the reduction in farm and urban consumption of non-farm foods does not affect the conclusion that consumers are responsive to the price behaviour of different food groups. It serves rather to direct attention to the dearth of Canadian statistics on consumption. There is a very real need for periodic national food consumption surveys to establish the extent of variability due to economic fluctuations, and also to evaluate the importance of geography racial origin, and income.

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