MARKET MARGINS FOR BEEF ON THE WINNIPEG MARKET

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This study is mainly concerned with an examination of the wholesale and retail margins in the beef marketing industry. In order to describe these margins adequately, considerable attention has been paid to the operational characteristics of the industry, to supply, and, to a lesser degree, to consumption.

The study was limited to the years 1935 to 1957 inclusive. All price data included refer to medium quality, light and heavy steers, and heifers and to the equivalent carcass grades. The study is confined to the beef marketing industry of Manitoba, more particularly to the Winnipeg market.

The supply side of the industry is first dealt with in detail, followed by an intensive examination of the farm price, the wholesale and the retail margins.

On the basis of evidence obtained during the study, it was found that the wholesale margin tended to rise as volume increased. On the other hand, the retail margin, in the prewar period, varied inversely with supply.

There was some evidence to support the belief that, when supplies of meat were small, inter-packer competition resulted in over-bidding and therefore smaller than "normal" packer margins. At no time did it appear that packers might be charging percentage margins.

It was also found that consumer demand curves and retail and

wholesale derived demand curves moved upwards to the right in the postwar period as compared with prewar. This movement was probably attributable to an increase in the number of consumers, a higher real expenditure on goods and services and to increased per capita consumption of beef.

Little could be said concerning the "war years", as during that time price controls and rationing greatly inhibited the effect of normal economic forces.

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CHAPTER I

INTRODUCTION

Objectives of the Study

The initial objective of this study is to describe the beef marketing system and its operation. Only when this is satisfactorily completed is it possible to evaluate the efficiency of the existing organization and to make tentative suggestions for improvements. A descriptive analysis, once carried out, can be used as a stepping stone to the solving of specific problems and to more intensive examination of particular facets of the industry. Before any attempts can be made to improve marketing operations, it is necessary to first know something of the forces and conditions actually involved and to assess the influence of such agencies on the wholesale and retail margins. Such a description will provide a background for the major hypothesis and will lend a better understanding to the measurements and observations used to verify or refute this hypothesis.

This leads to the major hypothesis of this study, which is: that at the wholesale and retail levels the actual margins are inversely related to the volume of meat handled and that variations in the trends of these margins are mainly due to the degree of competition present and the bargaining powers of the agencies concerned.

The type of situation envisaged in the hypothesis may be ascribed to different causes, but prior to any consideration of these, it is first necessary to confine and simplify the situation by making certain

assumptions. The first assumption is that consumer demand is given and is not subject to alteration by any actions on the part of the retailer. In other words the retailer can control either retail price charged or quantity sold, but can never simultaneously exercise control over both. This, then, leaves us with two demand curves which can be considered as variable, one at the retail and one at the wholesale level. A further assumption is that substitution between beef and other meat products has no significant effect on the margins earned on beef. This latter assumption is rather less realistic than the former, but unless the effect of substitution is taken as negligible, the picture becomes extremely complex.

On this basis, wide margins with a small supply and narrow margins with an increase in supply can largely be explained by variations in the wholesaler's and retailer's cost structures. The packing industry can be realistically considered as a fixed cost industry. Much of the processing expense involved results from the plant and equipment required. Admittedly, labour is an important input, but the amount of semi-skilled labour will generally not vary as greatly as does the volume of product handled. At times, this labour will be under employed and at other times it will be fully employed, but the difference in its aggregate cost will not change greatly with volume handled. From this it can be seen that the greater the volume handled, the lower the per unit processing cost. Provided the actual wholesale margin is directly related to per unit cost, then as the volume handled increases, the margin will steadily decrease. Whether or not the wholesale margin is so closely tied to per unit cost that this continuous variation in the margin's width over volume will become apparent,

can only be determined empirically.

This reasoning may not be completely applicable in the case of retailer operations. In the modern retail chain store, beef is only one of a great many commodities sold, whereas the processing of beef is of major importance to the packer's operation. In the packing plant, the equipment is largely fixed and should the supply of beef greatly increase relative to hogs, a hog-killing line cannot easily be converted into a line for cattle slaughter. This input fixity is also important with regard to handling meat in the retail store. Total costs of handling, i.e. labour, storage, show-cases, etc., will be substantially the same for all volumes handled. For these reasons it becomes apparent that part of the retailer's costs of handling beef will remain fairly stable over all volumes and, therefore, there is some reason to believe that, like the wholesaler's margin, the retailer's margin will also decline as volume increases.

Distortion in these basic trends may become evident where competition will be reflected in higher than "normal" prices and lower than "normal" margins. When volume of meat is large, there may be sufficient to satisfy the requirements of all wholesalers and retailers; at a time of short supply, however, overbidding for this supply may occur. From this, it can be seen that competition may have the opposite effect on the margins to that of cost. It has been suggested that competition is greatest and, therefore, tends to narrow the margin when supply is short, while at the same time per unit processing costs will be greatest. It is from the stresses of these forces that the actual margin will emerge, but

whether, in fact, the hypothesis is a true reflection of the prevailing marketing situation can only be decided when the actual data are analysed.

Important in any description of marketing agencies and directly related to the hypothesis is a discussion of the nature of competition present. It is hoped that it may be possible to describe objectively the extent to which prices result from a free play of competitive forces and to what extent the industry is dominated at any level by a few firms.

Following on consideration of the agencies involved, the next logical step is to decide on the data to be used in support or refutation of the original contentions. This section of the study is particularly important as verification of theories and hypotheses can only be effectively accomplished when the empirical evidence used is reliable. Prior to any discussion of actual prices and margins, some evaluation has to be made of the statistics available. This necessitates a fairly detailed appraisal of existing statistics and modifications made in order to improve and adapt them to the context of this study. At this stage, consideration will also be given to possible limitations and weak points in those statistics finally decided on.

The next part of the study will be devoted to an examination of the supply situation. Presence of any secular or cyclical trends and changes in the seasonality of supply will be examined at length. Particular attention will be paid to variation in individual components making up overall supply. If, as proposed in the hypothesis, the retail and wholesale margins are inversely related to supply, the components which have in the past affected supply, might, therefore, in future be expected to

similarly directly affect the pattern of supply and indirectly affect the margins.

The next objective and perhaps the most important part of the study will consist of a description and detailed analysis of the various prices and margins involved. In this section, previously propounded theory will be restated and expanded and tested against empirical evidence. It is hoped that basic relationships between prices and between margins may be tentatively established. Any radical changes in more recent years will receive special attention. A further purpose of this part of the study is to derive relationships between prices and margins and various levels of supply. When these data are presented, it may be feasible to foresee the effects of the future changes or variations over time.

The method of analysis used will consist of first examining the annual data. In this way, cyclical and secular trends will become apparent especially when the data are presented in graphic form. Where possible, estimated demand curves will be derived from these annual data and margin, supply and price supply relationships will be established.

Following the examination of annual data, the next step will involve the use of monthly figures and will consist of the calculation of a moving average and from this an index of seasonal variation. In this manner, the annual seasonal pattern will be obtained and changes in the seasonal over time observed. Once obtained, the seasonal pattern of price (or margin or supply) will be compared with that pattern of the other statistics.

Brief reference will next be made to consumers, and changes in

their expenditures and tastes will be related to the foregoing supply, price and margin relationships.

Finally, the conclusions and findings of the study will be summarized and possible future avenues of research will be suggested.

Importance of the Problem

In this study, the problem is a normative rather than a positive one. There is not known to be anything definitely wrong with the beef marketing system; instead there exists a feeling that it aberrates from the ideal. Evidence of this can be found in many of the briefs submitted to the Royal Commission on Price Spreads. A specific reference to a beef marketing problem is found in the brief presented by the Canadian Federation of Agriculture.

"In the case of beef, we see that the highest margin in cents per pound for the years 1949 to 1957 was in 1952 the year beef prices dropped and foot and mouth struck. For two later years 1954 and 1955 the margin was maintained at between $4\frac{1}{2}$ to 5 cents per pound below the 1952 peak. These are very significant differences that mean a lot to whoever has to pay them. At what marketing levels did these sharp changes occur and why?"[1]

It may possibly be that positive problems will be pinpointed, as in the previous quotation, but prior to formulation of any hypothesis on

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[1] Canadian Federation of Agriculture Submission to the Royal Commission on Price Spreads of Food Products, November 20, 1957, p. 8.

such positive problems, the facts have to be first collected, observed, described and classified.

In almost all marketing research, one problem involved is that of inefficiency. This study is no exception. Any deviation from the ideal is bound to result in some form of inefficiency. It is at once admitted that the theoretically perfectly efficient market is not practically attainable. It is also believed that the present system is far from working at its optimum possible efficiency. It is between these two levels that this marketing research is directed. The closer the actual is to the theoretically perfect, the more efficient the actual will be.

If it is agreed that the beef marketing industry is operating at less than maximum possible efficiency, then the importance of the problem is immediately evident. However, the importance will differ depending on the viewpoint taken. To any section of the industry making very satisfactory profits, no problem may be felt to exist. To the farmer, there may be a continuing problem of increasing costs of production that threaten to exceed the price received. It is the farmer who will suffer most from inefficiencies in the marketing stages of the commodity. As will be shown in the study, the farmer essentially receives the residual. Therefore, waste due to inefficiency will affect his price more than the price and margin prevailing at the level at which the inefficiency occurs.

For 1956 and 1957, cattle were bought by the packers in Manitoba to a value in excess of 20 million dollars per year. It can easily be seen that inefficiency at any stage can result in beef producers receiving a considerably reduced aggregate income.

Scope of the Study

In any market study where the problem is not confined to a specific geographic area or a homogeneous commodity, several difficulties arise in regard to decisions on the relevance of data and the appropriate limits and boundaries that should be set. It is not until the study is completed that the relative importance of information pertaining to the problem is discerned.

An examination of the beef marketing industry might be carried out in several different ways and at various levels.

Coverage of the industry on a national basis might be attempted. Such a method does possess certain merits which recommend its use. Statistical data are usually more adequate for the entire industry than for particular segments. Regional competition and stocks held in different parts of the country can be more readily handled as aggregates. However, a study on such a broad front can necessarily only lead to similarly broad conclusions. A further limitation is that important regional problems become less significant and may even be cancelled out by problems occurring elsewhere.

If the idea of a country-wide study is rejected, the next most logical level at which to work is on a provincial basis. For units smaller than a province, difficulty would be encountered in obtaining measurements of supply and prices. In this respect, this study was confined to the beef marketing industry of Manitoba. Such coverage has the value that findings are especially applicable to this province rather than to the Canadian beef

industry in general.

Once the location is determined, the time period to be covered must next be decided upon. It is fairly obvious that, unless more recent years are included, there will be little idea of possible future conditions. The earlier limit of the study was set by reason of scarcity of data for the years preceding 1935.

In almost all cases, prices used were arrived at from monthly statistics. Such data are necessary for all analysis connected with changing seasonals. Unfortunately, in many instances, a month is too long a period to allow for adequate analysis of the effects of time lags at successive pricing stages. Apart from this, little is to be gained by going to the shorter period of a week.

Any study of efficiency should be concerned at some point with the actual costs, as opposed to the prices, of the services performed. Although such an approach should prove to be very fruitful, it requires detailed statistical information on the internal operations of the various agencies which are generally rather reticent about releasing such data. In the beef marketing industry, detailed data on costs are not now available and needless to say, this line of investigation was not pursued. This has the effect of imposing restrictions on certain conclusions which may be reached.

Any conclusions drawn from this study must be tentative. The industry has been examined without specific reference to its economic environment. The description is not exhaustive and the tools of analysis used have their limitations. Many variables of possible importance have

not been included in the analysis. It should be remembered that the study

only deals with a segment of the total market and that possible changes in

the structure of the market with regard to changes in the supply and dis-

posal areas have received no attention. It is hoped that, in spite of these

limitations, this study may contribute to a better understanding of the

beef marketing industry of Manitoba.

CHAPTER II

MARKETING OF BEEF

The main purpose of this chapter is to present a description of the agencies involved in marketing beef, their operations and the economic theory relating to these operations. Findings which relate to the wholesale and retail margins will be mentioned at the end of the chapter. The first section will deal with the agencies within the industry and the nature of competition present. The following two sections will be concerned with the theory of demand at consumer, retail and wholesale levels. The final section will apply the theory to the industry and will also examine the views of marketing authorities.

Competitiveness of Beef Marketing Agencies

Marketing of beef involves the services of different agencies which buy and sell with varying degrees of competitiveness. Production of the original animal is carried out by the farmer. The farmer producing beef animals is only one of a great many similar producers turning out very similar products. Add to this the fact that entry into farming is not exceptionally difficult and it is evident that at the farm level the industry is very close to being perfectly competitive.

Buying the product from the farmer are a few large packing plants. Entry into this industry on an efficient scale requires substantial amounts of capital and for this reason is much more restricted. Individual packers produce branded products. For these and many other reasons, it can be

stated that the packing industry operates in a framework of imperfect competition. More specifically, the packing industry might be termed oligopsonistic on the buying side and oligopolistic on the selling side.

Retailers are slightly more difficult to classify in that the degree of competition existing between retail firms has probably decreased over time. In the immediate prewar years, there were many independent retailers in operation. Admittedly some of the larger stores would probably sell what was in effect labelled as a product unique to that store. Be that as it may, the sale of retailer branded goods was the exception. At that time, entry into the retailing business was, perhaps, not easy, but it was certainly less difficult than entry into the packing industry. Since World War II, the growth of chain store retailing outlets has been very rapid. Many small independent stores still survive, but, at least as far as meat is concerned, their volume of business has in most cases declined. It is highly probable that, in more recent years, by far the largest share of the retail meat marketing business has been conducted by a very few large companies. Therefore, it appears that the retailing business, although always to some extent imperfectly competitive, has become increasingly concentrated in the hands of a few very large chain store companies.

That the consumer can be considered as purchasing under conditions of perfect competition is self-evident. Therefore, the beef marketing industry can be said to consist of service agencies operating in conditions of imperfect competition; originally buying from and ultimately selling to, perfectly competitive producers and consumers.

The Theory of Demand

At each point in the industry where a sale is made, a price is determined. Ultimately, price determination occurs at the retail level and it is the retail price which determines the wholesale price and so on down the line. Consequently, the farmer receives what might be termed the residual. The retail price is arrived at by the interaction of consumer demand and the retail supply.

Consumer demand may be defined as the schedule of quantities of a commodity or service which buyers will take at various prices in a given market at a particular time. The actual shape and position of the demand curve are determined by:

(1) Number of consumers in the market.

(2) The amount and distribution of per capita purchasing power.

(3) Consumer habits and preferences.

(4) The availability and prices of potential substitutes.

(5) The law of demand.[1]

The effect of the first four factors on demand is reasonably obvious and does not require further elaboration. Operation of the law of demand is rather more complex, but in a simple form it may be stated that in any market the quantity of a commodity that potential buyers are willing to take varies inversely with the price. This law is illustrated in the negative or downward slope of the demand curve. It has now been

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[1] Frederick L. Thomsen, *Agricultural Marketing*, McGraw-Hill Book Company Inc., New York, 1951, p. 160.

established that the consumer's demand curve, or the demand curve facing the retailer is downward sloping with its position depending on the first four determinants previously mentioned. Slope of the demand curve or its elasticity will depend on the extent to which the quantity bought alters according to changes in price.

Retailer's demand will consist of the consumer's demand minus the retailer's schedule of marketing charges. Such a demand curve is usually referred to as a derived demand curve. If the marketing charges were a fixed amount per unit regardless of the volume handled, the retailer's derived demand curve would have the same shape as the consumer's demand curve. It would also be somewhat less elastic. If the marketing charge per unit was a fixed percentage of the retail price, the derived demand curve of the retailer would have a slope less steep than that of the consumer demand curve, but the same elasticity.

All discussion of the retailer's demand curve is applicable to the wholesaler's derived demand curve, or the demand curve for live cattle at terminal markets. However, the method of determining packer marketing charges may differ. The retailer apparently endeavours to secure a constant percentage mark-up. Evidence of this can be found in the retail price guides issued by the packers to the retailers. These guides instruct the retailer as to the specific selling price required for each cut of meat in order to obtain the desired percentage gross profits on the whole carcass. His marketing costs per unit would probably vary inversely with the volume handled. Charging suitable percentage mark-ups would be an insurance against selling at below total costs per unit. This can be achieved by

setting the percentage margin equal to or greater than the greatest mar-
keting cost of any cut. On the other hand, if the retailer feels capable
of always being able to charge a high enough constant mark-up, he may pre-
fer this alternative method of computing marketing costs.

These statements at first appear to contradict a previous statement
to the effect that it is the retailer's price that determines the wholesale
price. It should, however, be remembered that the retailer buys from the
wholesaler only that amount he thinks can be sold at the wholesale price
plus his mark-up. The wholesaler, aware of this situation, will usually
attempt to set his price at a point which, with the retailer's mark-up
added, will clear the market.

Demand and Elasticity of Demand for Beef

The consumer's demand curve and the derived demand curves of the
retailer and wholesaler will slope downwards from left to right. It is
rather unlikely that the demand curves will exhibit the same degree of
positional change in the short run as supply curves do. Demand will change,
but examination of the determinants of consumer demand reveals that they can
only be expected to change gradually and therefore, demand itself will most
probably change only gradually. This will depend on the income elasticity
of demand, but as incomes usually undergo only slow changes, than income
elasticity is not too important except in the long run. From this it might
be concluded that over a short period of years demand can be considered as
being fairly stable.

When the price of beef is high due to relative scarcity of beef

rather than to a short supply of all meats, then consumers of beef are liable to be either those who do not consider other meats to be good substitutes or those who are able to buy beef regardless of the price. A further increase in price will not discourage these types of buyers and so, even with an increase in price, the amount sold is not likely to change very much. Demand will, therefore, be relatively inelastic with small supplies and high prices. On the other hand, when the price of beef is low, the majority of purchasers will be reasonably price conscious and will generally consider beef to be a fairly good substitute for other meats. This will result in demand being relatively elastic when supplies are large and prices are low.

It is on these elasticities that the slope of the curve will depend. If demand is initially very inelastic and ultimately very elastic, then the demand curve will, in fact, be curvilinear.

The Operation of the Market

The derived demand curve for the product is unlikely to differ greatly in its characteristics from the consumer demand curve. However, differences that do occur between consumer demand and derived demand will, according to Thomsen, arise from three main factors.

(1) "The demand for products at the farm end of the marketing channel consists of consumer demand minus a schedule of marketing charges .... determined largely by conditions divorced from consumer demand and hence cannot be expected to change in complete harmony with changes

in the retail prices and quantities of commodities marketed."[2]

Examination of the possible effects on the derived demand curves of fixed and percentage market charges per unit was carried out earlier in this section.

(2) "The demands for various commodities in farm markets reflect the differing seasonality of production and consumption of those products that can be stored and hence the demand in farm markets would fluctuate during the year even if there were no change in consumer demand."[3]

As far as beef cattle are concerned, the seasonality is not so much in their production as in the timing of marketing. However, this seasonal effect will only be present when periods of shorter duration than a year are considered. In later analysis of the derived demand curves, annual data are used exclusively.

(3) "Wholesale market dealers anticipate changes in retail demand. Even if marketing costs including storage costs were zero, the demand for farm products in local assembly and other wholesale markets would not coincide with consumer demand, because middlemen in the wholesale markets recognize impending changes in retail demand and adjust their offering prices for different quantities accordingly."[4]

Annual data will tend to minimize the importance of these anticipations. Even so, these factors will have some effect on the relationship

[2] Ibid., p. 160.

[3] Ibid., p. 173.

[4] Ibid., p. 173.

between consumer demand and derived demand curves calculated on an annual basis. For these three reasons in general, and particularly for the first one, it is quite possible that the demand and the derived demand curves should differ.

As mentioned earlier, the packing industry is imperfectly competitive. Therefore, any individual firm must consider its action along with its effect on actions of other firms in the industry. When supply is large and firms can easily fulfill all previously contracted orders and can employ all workers and other productive resources on a full-time basis, then an attitude of "live and let live" may prevail. In this situation a firm may be content with what it considers as its normal share of the market, or as Shepherd writes:

"The constant percentages into which the volume of slaughter is divided among the big packers may be regarded as evidence of what is called a 'non-aggressive' price policy."[5]

However, if supply is very short, any previously implied gentleman's agreement concerning a firm's share of the market may very easily be discarded. The firm is faced with the prospect of cancelling orders and thereby possibly losing regular customers at the same time as it is paying idle workers, or even laying off workers. Concerning this type of situation, Clifton writes:

"The first impact on our individual firm is surprise at the competing firms that apparently follow the dictates of economic logic under

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[5] Geoffrey S. Shepherd, <u>Marketing Farm Products</u>, Iowa State College Press, 1949, p. 255.

assumptions of pure competition. Apparently, the competing firms think they can increase the percentage of livestock purchased by a small price increase. Thus they will avoid paying penalty time. After this reaction of surprise, our firm looks at the supply situation and decides how much can be paid to avoid penalty time and joins the parade to increasing live-stock prices at the expense of operating profits."[6]

This statement clearly brings out the possibility of intense inter-packer competition when supply is small.

Turning next to the retailer's derived demand curve, the situation becomes one where an imperfectly competitive buyer faces an imperfectly competitive seller. In this case, due to the discontinuity of marginal cost and revenue curves, the price is indeterminate. The ultimate price settled on is a negotiated price. Writing about this problem of price determination where both buyer and seller are imperfectly competitive, Nichols states:

"....... price-making between successive stages of bilateral oligopoly is obviously largely a matter of bargaining power, which depends to an important degree upon which of the bargaining parties has the better alternative sources or outlets for its particular product."[7]

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[6] Elliot S. Clifton, "Effect on the Meat Packing Firm of Short-Run Price Variations in Livestock," Journal of Farm Economics, Vol. 39, No. 5, 1957, pp. 1652 - 1653.

[7] William H. Nichols, Imperfect Competition Within Agricultural Industries, Iowa State College Press, 1941, p. 180.

Making the assumption that, in recent years, most of the packer's meat has gone to the large chain store, and that such stores retail a large proportion of the total meat sold, the criterion of judging the relative bargaining powers amounts to whether the retailer can find new sources of meat more easily than the packer can find new outlets. This may be simplified into the question as to whether it is more feasible for the packer to open retail stores than it is for the retailer to operate his own packing plant. As in recent years, consumers have developed the habit of purchasing meat along with other groceries, retailing of meat by the packer would also necessitate the handling of a great many other commodities. Add to this the fact that only one packing plant is required to service a great many stores and it at once appears easier for the retail chain to set up and operate a packing plant than for the packer to build a great many stores. Discussing the bargaining powers of the retailers and the packers; in this instance on a different basis – that of profit and loss, Clifton writes:

"It takes very little other than a look at the relative profit and loss statement of the packers and large buyers to determine that the buyers have the majority of the power in this bargaining situation."[8]

This discussion of the respective bargaining powers has been limited to more recent years. In the prewar years and to a lesser degree, the years immediately after World War II, the retail market was not so completely dominated by a few large firms. On the other hand, the number of

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[8] Clifton, op. cit., pp. 1646 – 1647.

large packers and the volume they handled was much the same then as in
more recent years. In such circumstances the packer sold to many different
firms, few of whom could ever have entertained the possibility of exerting
pressure on a packer by threatening to take their volume of business to one
of the packer's competitors. From this it might be concluded that, over
time, the balance of bargaining power has moved in favour of the retailer.
Relating this conclusion to the original hypothesis, the implication is,
that in the later years of the study, the retail margin would expand at the
expense of the wholesale margin. The validity of this deduction will be
tested when the actual margins are considered.

CHAPTER III

DESCRIPTION OF THE STATISTICS

Prices and Their Calculation

In this section accuracy and modifications of available market
prices and other statistics will be discussed. First, however, it is
necessary to explain the lack of uniformity of method in marketing and the
simplifications required before the major price series can be established.

Especially in its earlier stages, marketing of beef is extremely
complex. Once the slaughter animal leaves the farm where it was reared,
it may enter any one of several marketing channels, almost all of which
will eventually take it to the packing house. Even at this early stage
of the discussion, we will immediately eliminate any consideration of
inter-farm sales, sales direct to local butchers and home killed animals.
As already mentioned, marketing of beef is sufficiently complex in its
simplest form without adding further complications in the form of insig-
nificant marketing channels.

The animals arrive at the packing plant via one of several differ-
ent routes. Farmers living within reasonable distance of the central
market may deliver their cattle either direct to the packers or, alterna-
tively, to the stockyards. For the majority of producers, who live con-
siderable distances from the market, this procedure is impractical. This
latter group of farmers, although unable to take the cattle in themselves,
do have several alternative methods of marketing. They may deliver their
animals to a local shipping point. Such a delivery may be accomplished by

the producer, or it may be carried out by a local trucker. The shipper who receives the animal may be acting independently or he may be an agent of the packer; on the other hand, he may be in the employ of a local co-operative shipping association.

It is quite possible that the farmer will sell the animal directly off the farm, in which case the initial purchaser will most probably be either a packer-buyer or an independent buyer. It may happen that the farmer wishes to by-pass the shipping point and in doing so sends his livestock through a local trucking firm, direct to the stockyards or the packing plant.

Over time, trucking has become increasingly important relative to rail transport, but there are still appreciable numbers of animals sent by rail. Involved in rail transportation costs are miscellaneous charges for partitioning, unloading, car cleaning and stopover, etc. In the event that animals are taken to the stockyards and not directly to the packers, then further costs will be involved. Such primary marketing costs will include charges for feed, yardage, commission, yard insurance and horn deductions. These charges will come into effect regardless of the means of transport used to deliver the animals to the stockyards.

The primary marketing and transportation charges already discussed were by no means constant over time. As mentioned, different charges were involved, depending on the type of transportation utilized. Not only have the many charges altered over time, but the proportion of animals shipped by truck, as opposed to those sent by rail, has also changed. It can easily be appreciated that consideration of all these minor transportation

and primary marketing charges would be a formidable task. Fortunately, although numerous cost items are involved from the time cattle leave the farm until they are purchased by the packer, the sum of these items is a comparatively small percentage of the consumers' beef dollar. From 1935 to 1957, the transportation and marketing share of the consumers' dollar spent for beef varied between 2.1 and 6.4 percent.[1] Not only was the share very small, but changes in this percentage occurred only gradually, with the greatest change from one year to the next being 0.7 percent.

Summing up with regard to the primary marketing and transportation charges, it can be stated:

(1) The proportion of the consumers' dollar involved is relatively small at all times.

(2) Over time, this proportion changes only slowly.

(3) The components of these overall charges are numerous and individually are of insignificant importance.

(4) In that the components are numerous, the final, overall charge is extremely complex.

Mainly due to the points just listed, and to the fact that many transportation and marketing charges are based on factors outside the context of the beef marketing industry, the margin involved between the farm

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[1] These statistics, together with most of the prices mentioned in this chapter, were obtained from <u>Marketing Margins for Beef in Manitoba</u> 1935 to 1957, A. W. Wood, Research Report No. 2, Department of Agricultural Economics and Farm Management, University of Manitoba, January 1959.

and the packing plant is omitted from further consideration. It is not

thought that such an omission should prove to be too serious.

The stockyard is the first place where a recorded price for the

animal is registered. Regular publications list statistics of these prices

for several classes of animals divided up into different grades. In this

study, the price of one grade of cattle (medium) for three classes

(heifers and light and heavy steers) was used in the compilation of a com-

posite price.[2] A weighted average of the prices of these three classes

was taken as the average price for medium heifers and steers. Involved

in the weighting procedure was an allowance for difference between the

average live weights of steers and heifers. Thus the weighted average

price of medium steers and heifers at the Winnipeg stockyards was arrived

at.

The net farm price was found by deducting primary marketing and

transportation charges from the stockyard price described in the previous

paragraph.

In this study, the packers are assumed to act in the capacity of

both processors and wholesalers. It would be interesting, though ex-

ceedingly difficult to separate these two functions. In reality, the

packers possibly consider both functions as an integral part of an overall

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[2] These monthly statistics are listed in the Department of
Agriculture weekly bulletin, Livestock and Meat Trade Reports. Prior to
1939, monthly data were not published as such, but could be calculated
from weekly quotations. Subsequent to February 1949, steers were divided
into those over 1,000 pounds and those below this weight. Before this
date, the dividing weight was 1,050 pounds. This has little effect on
price series comparability.

process and as such are unlikely to establish a "price" between the two functions. Omission of a formal price could be remedied by establishing criteria for the distribution of costs involved and profits earned by the respective wholesale and packer departments of the industry. Such a method would require many assumptions in regard to the distribution of overhead costs between the processing and wholesaling functions. It is realized that the larger retail chains may also act in part as wholesalers, but here, the line between wholesaling and retailing is even less clearly defined.

As far as the Winnipeg market is concerned, steer carcasses of commercial grade are the only carcasses of that grade for which a wholesale price is regularly quoted. It should be stated here that commercial is considered to be the closest carcass grade to the medium grade of live animals. Heifer carcasses generally sell at a somewhat lower price per pound than steer carcasses of equivalent quality. The only economically justifiable price differential between heifer and steer carcasses of equal quality at the wholesale level must be due to consumer preference and/or differing retail cut-out yields.

A four percent discount on the price of live heifers was regarded as representative of the differing dressing percentages between steers and heifers.[3] Any greater discount in live prices was therefore inferred to be due to occurrence of differentials in the carcass prices. This provided

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[3] *Marketing Margins for Beef in Manitoba 1935 to 1957*, A. W. Wood, Research Report No. 2, Department of Agricultural Economics and Farm Management, University of Manitoba, January 1959.

the basis for estimating heifer carcass prices which, when used along with steer prices, provided a composite, weighted, wholesale price for heifer and steer carcasses.

The average retail price of commercial beef was calculated from monthly retail prices for six representative cuts of beef. Such a series necessarily has certain weaknesses, especially as it is questionable as to how closely the commercial grade is analogous to the medium grade for live animals. Apart from this, over time, the cuts of beef have changed in the proportion of fat present, etc. However, as there was no alternative, such a price was accepted. After adjustments were made in order to bring it in line with prices obtained from retail cut-out tests, it was then considered to be a reasonable estimate of average price per pound of medium quality heifer and steer beef sold at retail.

Unfortunately, the prices arrived at, as described in the foregoing, are not completely comparable. To be comparable, they must be prices of identical units. At the stockyard level, the price per live hundredweight includes in the unit not only carcass beef, but also edible and inedible offal and by-products, whereas the retail price is the price for carcass beef only. To remedy this inconsistency, all prices were converted to price estimates for a hundredweight of carcass beef. Once prices are all on the same basis, then both the prices and the margins (the differences between the prices) are as comparable as it is possible to make them.

To sum up, the prices and margins used in this study, all of which are based on an identical commodity, are:

(1) The farm price - the net price received by the farmer.

(2) The wholesale price - the price at which the packer-wholesaler sells the carcass to the retailer.

(3) The retail price - the price that is received by the retailer in selling to the consumer.

(4) The wholesale margin - the difference between the stockyard price and the wholesale price.

(5) The retail margin - the difference between the wholesale price and the retail price.

It should be noted that, in later analysis, the packer buying price is considered as synonymous with the farm price. As most of the analysis is connected with relative rather than absolute charges and as already mentioned, the stockyard margin (transportation plus primary marketing costs) is relatively stable, then no serious error is considered to be introduced by this approximation.

Measures of Supply

In calculating the various prices, weighting was carried out by using the numbers of heifers and steers of the appropriate grade marketed through the stockyards. These animals by no means represent the total supply of animals of those classes and grades. A large and varying proportion of animals is sold direct to the packers and apart from the actual number of animals involved, little or no data are available as regards classes or grades.

In the early stages of the study, when supply and the determinants

of its variation are studied, the overall slaughter of cattle in Manitoba is first taken as representative of supply. Monthly statistics for total slaughter of cattle in Manitoba are regularly published by the Canadian Department of Agriculture in the Livestock Market Review.[4] To gain a better understanding of supply, the individual components have to be studied, which requires examination of relative changes in the different classes of animals making up total supply. In order to consider these different classes, it was necessary to again revert back to data regarding the numbers in classes passing through the stockyards.

In studying the various levels of demand, a further measure of supply was found to be very useful. Regarding this latter case, total slaughter of medium heifers and steers in Manitoba was estimated on the basis of the number passing through the stockyards. If, for the appropriate grade and classes, the proportion of the total number of animals passing through the stockyards is the same as the proportion that these classes make up of the total number of animals sold direct to the packers, then a close estimate of the overall number of medium heifers and steers slaughtered in Manitoba can be arrived at.

This, then, gives two measures of supply which are:

(1) Total monthly slaughter of all grades and classes of cattle for Manitoba.

(2) Estimated monthly slaughter of medium grade heifers and steers in Manitoba.

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[4] Prior to 1950, this publication was known as the Annual Market Review.

As already mentioned, the supply data were pertinent to cattle in
Manitoba, while the price data used were mostly obtained by modifying
prices ruling at the Winnipeg stockyards. The study was, in fact, limited
to Manitoba, but more particularly to the Winnipeg market.

Length of the time period considered was limited by the availa-
bility of data. It was finally decided to limit the coverage of the study
to the years 1935 to 1957 inclusive. This length of time includes three
very distinct and different periods. The first consists of the prewar
period followed by the war years of price control and finally the postwar
period. In one particular instance, when earlier reliable data were
available, earlier years were also included.

<h2 style="text-align:center">Problems of Deflation</h2>

It was mentioned earlier in this chapter that after certain modifi-
cations, the prices ultimately obtained were reasonably comparable one with
another. This is true only for the short time period. Over a longer
period, the value of the dollar markedly changes, resulting in the dollar
of one year (and therefore the then prevailing price) differing in "real
value" from the dollar and the price of other years.

In order to eliminate this inconsistency of value, at least
partially, it is essential to use a deflator. As regards this study, de-
flation is involved in three different price series - the retail price, the
wholesale price and the farm price. Ideally, each price series should be
deflated by an index peculiar to that particular series. Unfortunately, it
is not possible to develop separate reliable indices for the deflation of

each series. An examination of available indices reveals that the choice is limited to either the general wholesale price index or the retail price index.

Deflation of one price series by one index and deflation of another comparable price series by a different index is not a wholly desirable practice. It is most unlikely that indices used will be "perfect" deflators. If at certain times they deflate incorrectly, it is possible that these errors may work in opposing directions.

To use an extreme example, for a specific point in time, it may be that if the indices were completely representative of the changing value of the dollar, then at this point they would have comparable deflationary effects on the price series. However, due to errors in the indices, it could happen that one could have an excessive and the other too slight a deflationary effect. One price series would then be higher than it should, while the other would be too low. Remembering that we are concerned with relative rather than actual prices and margins, then some of the conclusions drawn from the relative position of one price to the other or the margin involved with another margin, would be erroneous. However, if only one deflator was used on both price series, then although it might incorrectly adjust the series, these price series would both be wrongly adjusted in similar directions. The difference of the relative price positions thus achieved from the true relative positions would be slight, and the width of the margin would fortuitously be correct.

The general wholesale price index was the deflator finally decided upon. This index, compared to the retail price index, was expected to be

more suitable at all levels with the possible exception of the retail price
level. When tested statistically over a two-year period, there was no
significant difference (at the five percent level) between deflation of
the retail price by the retail price index or by the general wholesale
price index. Deflation by the general wholesale price index was not con-
sidered entirely satisfactory at all price levels, but for want of a
better series it was believed to be the best one available.

Deflation by any index will be subject to error when weighting of
the index fails to keep in line with changes in the relative importance
of the factors used by the industries concerned. The general wholesale
price index base 1935 to 1939 equalling 100, is very vulnerable on this
particular point. While in the packing industry, the relative importance
of the various factors of production have remained fairly constant over the
time period considered, this is not the case in the retail industry. Over
time, the phenomenon of decreasing importance of labour and increasing
importance of capital is well known.

Measures of Consumption

So far, little attention has been paid to the ultimate purchaser -
the consumer - and unfortunately very little is known about him. As a
measure of the number of consumers, the population of Manitoba has, with
considerable misgivings, been used. It is immediately recognized that the
provincial population does not directly represent the actual number of
people consuming beef, but such an estimate should provide some indication
of changes in the number of consumers. It is assumed that a change in

population in one direction would result in a corresponding change in the number of consumers in a similar direction.

Estimates of per capita consumption of beef are especially open to question. Such data are only available on a nation-wide basis and, therefore, will fail to reflect regional differences. These data, published annually in the Canada Year Book are used as a measure of changing consumer purchases and as such should be reasonably reliable.

A measure of changes in per capita spending on goods and services was obtained from the Dominion Bureau of Statistics booklet National Accounts Income and Expenditure 1926 to 1956. In this publication, annual per capita expenditure on consumer goods and services is listed. As these statistics are given in constant (1949) dollars, the need for deflation does not arise.

In essence, then, we now have measurements of three variables affecting consumption, which are:

(1) A measure of the total number of consumers - the average annual population of Manitoba.

(2) A measure of annual consumption - per capita consumption of beef in Canada.

(3) A measure of annual consumer expenditures - per capita personal expenditure on consumer goods and services.

The accuracy of any analysis or description based on measures of quantity or quality can never be greater than the accuracy of the individual measurements. In this respect it is hoped that the measurements mentioned in this chapter will adequately reflect the variables they describe.

CHAPTER IV

THE SUPPLY OF CATTLE

In this chapter, emphasis will be placed on a description of the
characteristics of the supply side of the beef marketing picture. Annual
data will first be examined to establish cyclical and secular trends.
Next, the seasonal pattern will be measured by using an index of seasonal
variation and the remainder of this chapter will be devoted to changes
over time in this seasonal pattern. Any findings will later be related
to variations and changes in the wholesale and retail margins.

The Cyclical and Secular Patterns of Supply

The slaughter of cattle in Manitoba was taken as a measure of the
supply of cattle. Although monthly data were not obtainable for earlier
years, annual estimates of slaughter were available from 1912 onwards.
Annual slaughter for the period 1912 to 1957 is shown in Figure 1. An
examination of these data reveals a more or less recurring movement of in-
crease and decrease in supply, together with a general long-time tendency
to increase. These recurring movements are referred to as production
cycles. Their cause lies in the actions of individual producers. High
prices encourage new producers to enter into production and existing pro-
ducers to increase their output. The length of time required for this ex-
pansion of output is closely related to the gestation and maturation period
of the species. As production and subsequently marketings increase, prices
decline until they reach a point at which some producers become discouraged

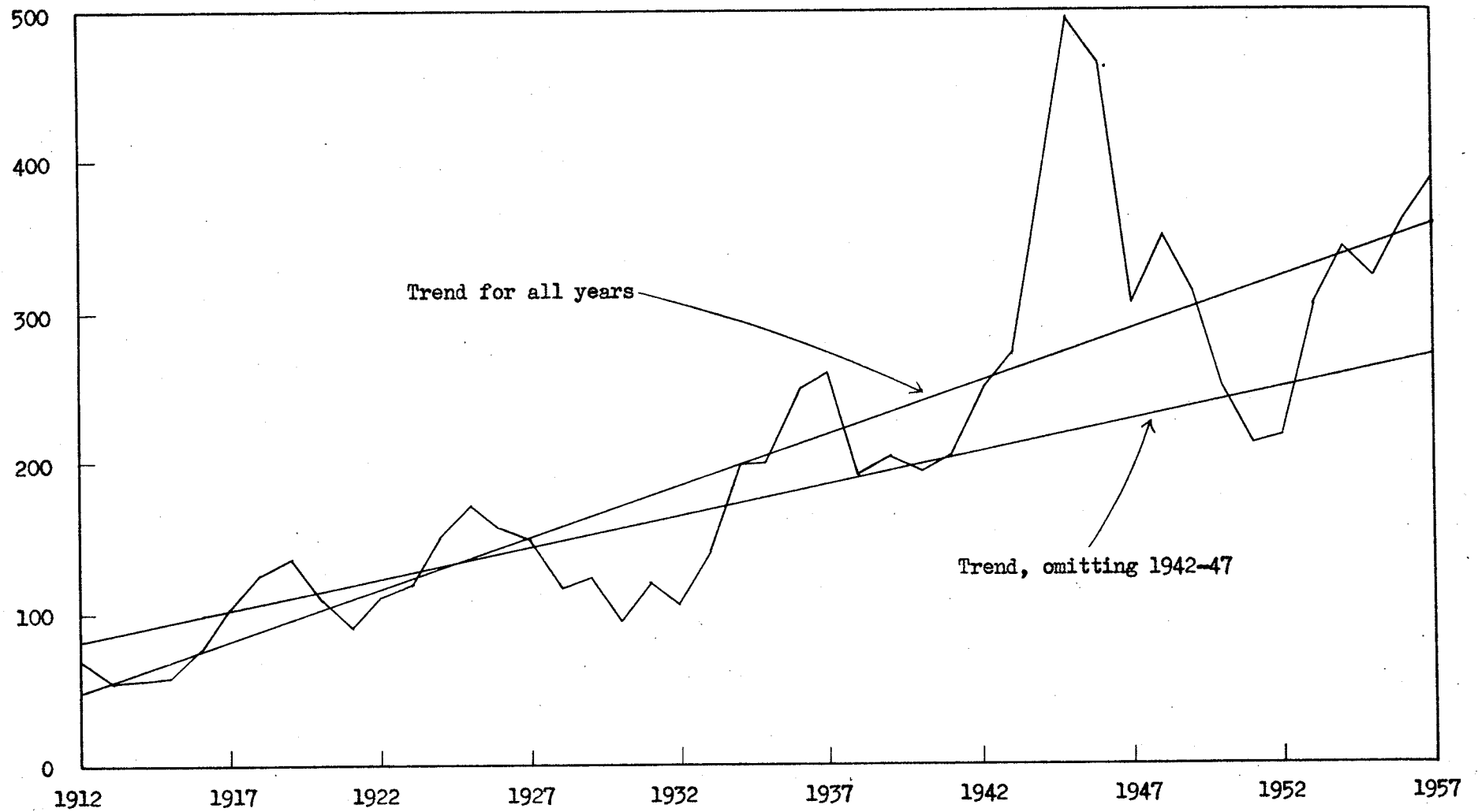ANNUAL SLAUGHTER OF CATTLE IN MANITOBA, 1912-57*
(Thousand head)

FIGURE I

*Source: <u>Livestock and Animal Products Statistics</u>

and drop out of production, while many more begin to curtail their opera-
tions. Accompanying this fall in production is a reversal of the downward
movement of prices. As production further declines, prices rise until
they reach a level that again encourages expanded production and a new
cycle is begun.

This explanation implies that farmers in general tend to base
their production decisions on present rather than on probable future
prices. Or else, in their prediction of future prices, they tend to
extrapolate the present trend into the future without due consideration of
the possibility of a change in the direction of the trend.

The length of the cycle in Figure 1 varies quite markedly, in-
dicating that the animal's life cycle is not the only factor affecting the
production cycle. This point is brought out when it is noticed that the
length of the cycles in Figure 1 appear to have been increasing over time.
Successive troughs are approximately 7, 9, 10 and 11 years apart. Over the
same period animals were slaughtered at an increasingly earlier age. If
the length of the production cycle was solely dependent on the animal's
life cycle, earlier slaughter ages and longer production cycles would give
rise to a contradiction. It is only to be expected that other variables
such as availability of fodder and price of grain,etc., would have some
effect on cattle production. The years 1942 to 1947 clearly demonstrate
this point. During this period it was abnormal economic rather than nat-
ural conditions which resulted in exceptionally high production and an ex-
tended cycle.

As mentioned previously, along with the cyclical effect, there is

also a long-time tendency for production to increase. This secular trend is presumably the result of an ever-increasing demand for animals caused by an increasing population, together with more intensive and efficient methods of producing beef cattle.

Cyclical and secular movements describe major variations in the supply of cattle. Within each cycle are other variations of a more minor nature. In order that these smaller fluctuations might be analysed, intra-annual slaughter has to be considered, necessitating the use of monthly data. For reasons of availability of data and computational time involved in considering long time periods, monthly data from 1935 to 1957 only were employed.

Over the entire period considered, slaughter was consistently highest in the months of September, October and November. There were no months persistently low in slaughter and monthly variation both between and within years was fairly large. Monthly variation in average slaughter over the whole period is illustrated in Figure 2, which shows the general tendency to increase from April to October, the very sharp decline from November to December and the slight irregularities of amount of slaughter in the first four months of the year. For reasons mentioned later, the war years of 1942 to 1947 were omitted from the averages used in plotting the figure.

The general seasonal trend is fairly easily explainable. The most expensive time of the year for keeping cattle is winter; the cheapest time is spring and summer. It is fairly obvious that, other things being equal, once a farmer has over-wintered his animals and is faced with the possibility of having, for three or four months, cheap, easily-available feed, he

AVERAGE MONTHLY SLAUGHTER OF CATTLE IN MANITOBA, 1935–41 AND 1948–57*
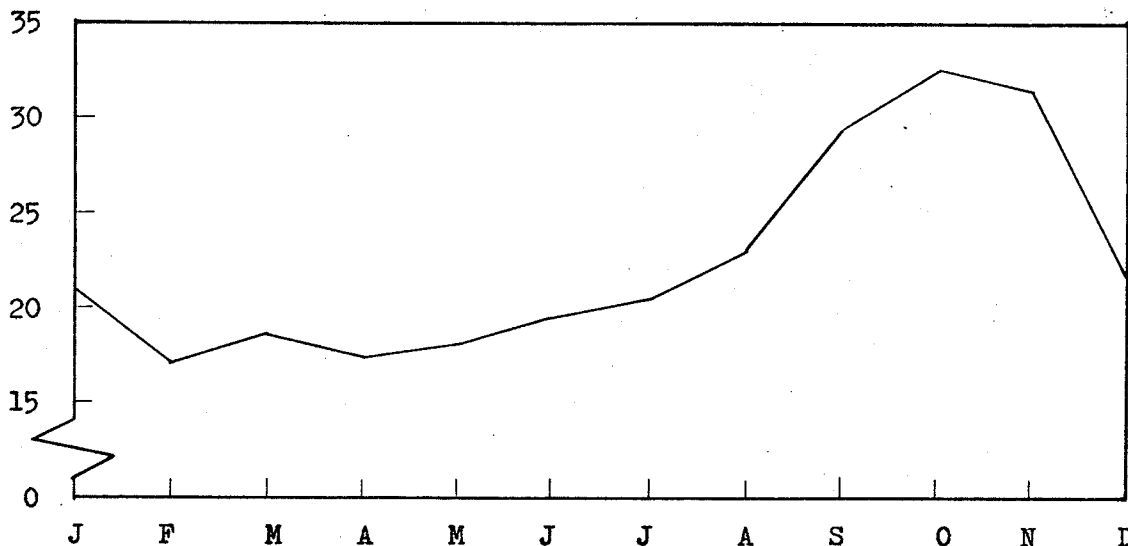(Thousand head)

FIGURE 2

*Source: See Figure I

DIRECTIONAL CHANGES IN CATTLE SLAUGHTER BY MONTHS: NUMBER OF TIMES
CATTLE SLAUGHTER IN MANITOBA WAS HIGHER OR LOWER THAN
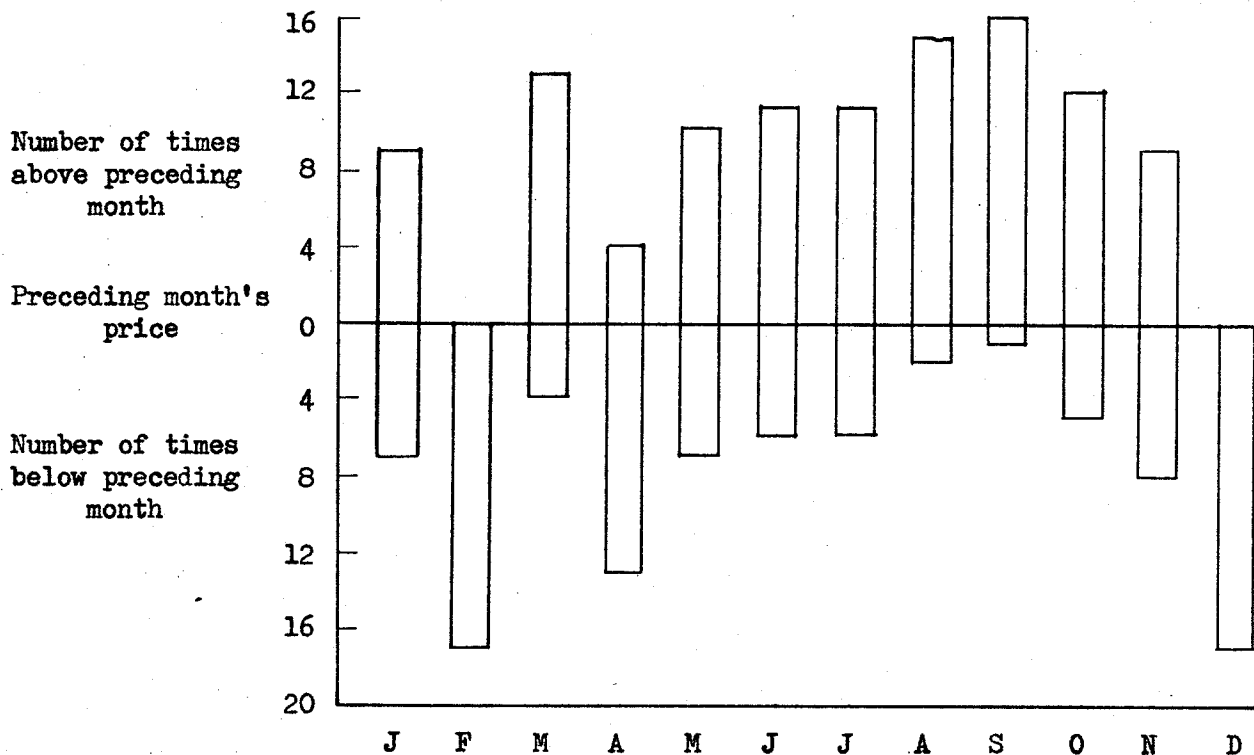IN THE PRECEDING MONTH, 1935–41 AND 1948–57**

FIGURE 3

*Source: See Figure I

will be inclined to keep the animals for those extra months. Other things
are not equal, but the tendency to market in late fall has been so strong
that higher spring prices have succeeded in only slightly diminishing the
high slaughter in the later months of the year. As can be seen from the
figure, there is a very sharp decline in slaughter from November to
December. This is not particularly surprising. It is only to be expected
that a month containing several holidays and experiencing poor weather,
would not have a very high slaughter. January and February are months of
relatively low slaughter because once the farmer has kept his animals for
half the winter, he is rather loath to sell them when in only a few months'
time he would have the opportunity of turning them out to grass. Lack of
transportation is also important at this time of year.

During most winters, after November, transportation difficulties
become a fairly important factor. At this time of the year, many farms, at
least in the prewar years, were relatively inaccessible to cattle trucks
and so once they reached December, many farmers were more or less forced
to keep their animals at least until the early spring. Transportation as
a factor influencing winter slaughter would naturally be of greatest im-
portance in the earlier years of the 1935-57 period.

Slightly higher slaughter in March may be due to the farmer's need
for money to buy seed and also to the fact that at that time of year some
farms at least would be running short of feed.

Average month to month changes in cattle slaughter are illustrated
in the bar chart (Figure 3). Here it should be remembered that the height
of the bar depends solely on the current month's and the previous month's

slaughter and as such does not necessarily bear a close relation to Figure 2. In this respect it may be noted that in 13 of the 17 years, March had a higher slaughter than February, but the graph above the chart shows that on the average March was only slightly higher than the preceding month. The bar chart also demonstrates that for some months, especially January, May and November, there was no consistent increase or decrease in slaughter from the previous month. On the other hand, such months as February, August, September and December showed that with regard to respective preceding monthly slaughter they followed a very definite and consistent pattern.

General Movements in the Seasonal Pattern

The seasonal pattern previously described is not constant and as the variables affecting it change with time, so then will the resultant seasonal pattern change. As transport becomes better, it would be expected that more cattle would be sold in the early part of the year, while, as farmers become better acquainted with the higher prices paid in the spring, one would imagine that more cattle would be sold in the spring and early summer.

To examine changes in the seasonal, the ratio of actual monthly slaughter to the twelve month moving average was calculated for the years 1935 to 1941 and 1948 to 1957. The ratios, or monthly relatives, are plotted over the whole time period for each month individually, in Figures 4 and 5. Due to the large monthly variation and the extreme values, the "war years" of 1942 to 1947 were omitted. It can be seen from the freehand

MONTHLY INDICES OF CATTLE SLAUGHTER IN MANITOBA, 1935-41 AND 1948-57*
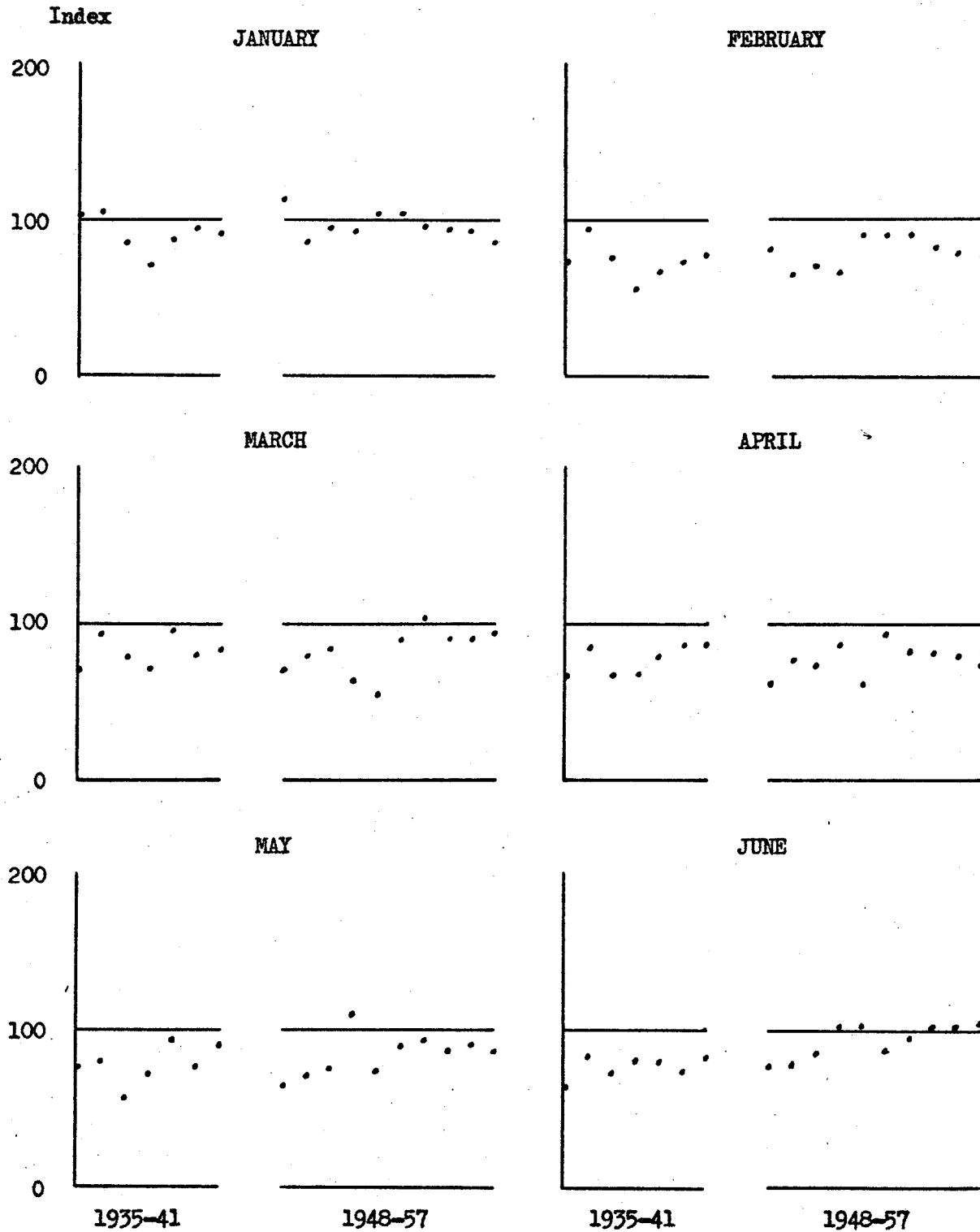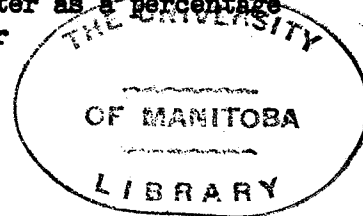(January to June)

FIGURE 4

* Calculated by taking actual monthly slaughter as a percentage
of the 12 month moving average of slaughter

MONTHLY INDICES OF CATTLE SLAUGHTER IN MANITOBA, 1935-41 AND 1948-57*
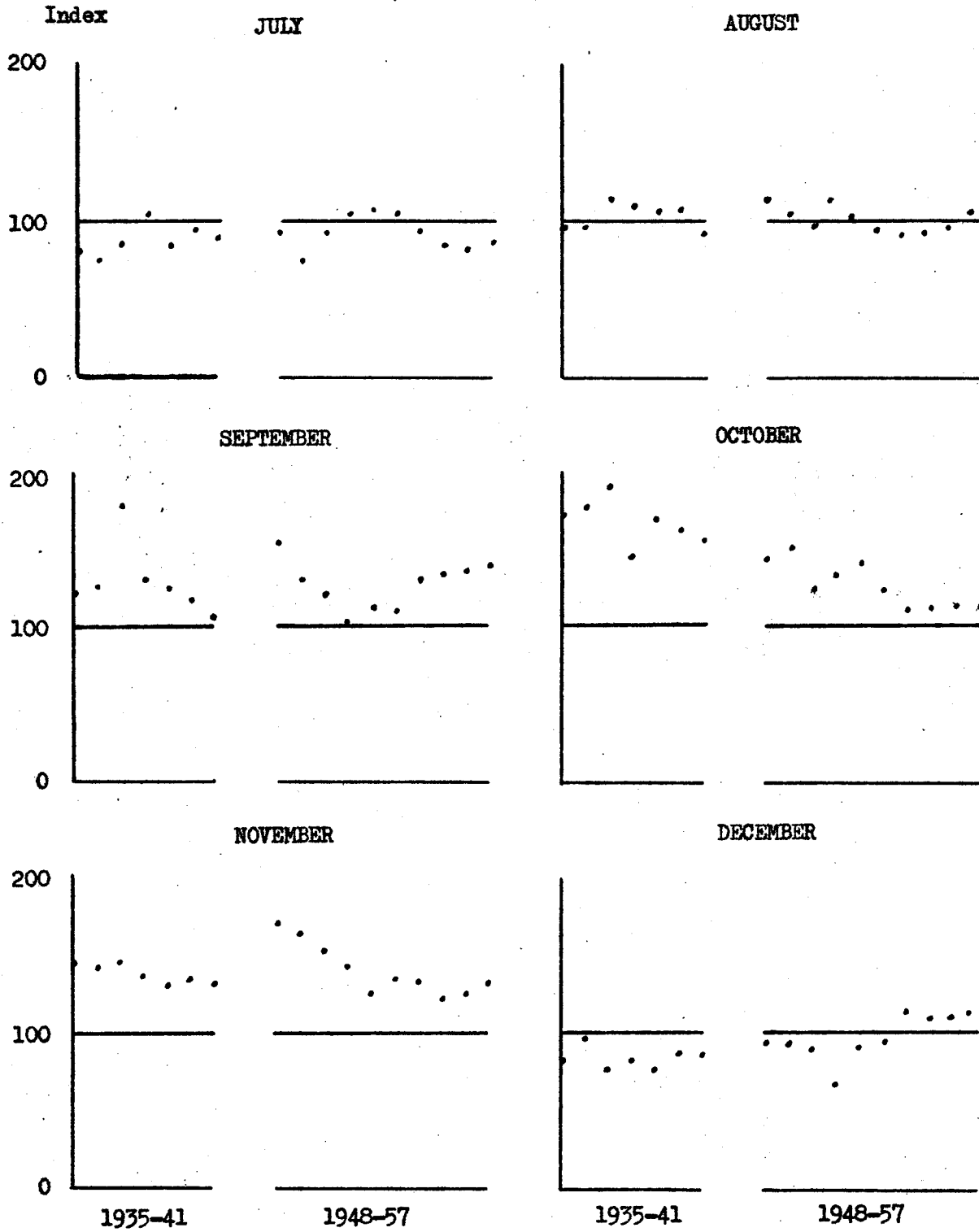(July to December)

FIGURE 5

*Source: See Figure 4

monthly trends that compared to prewar, the months of January, February,

May, June and December have, in the postwar period, become more important

as far as the number of animals slaughtered is concerned. September, since

1951, also appears to be a month of generally increasing slaughter. On the

other hand, October markedly declined in importance. November, extremely

high in 1947 and 1948, has declined sharply since those years.

The comparison of the prewar and postwar periods is shown in Figure

6. In this presentation it is amply evident that following the war, October

had declined in importance and that the peak month of slaughter had moved

later in the year to November. It may also be observed that for the months

of traditionally low slaughter - December to July inclusive, the relative

number slaughtered during the 1948 to 1957 period was in every month higher

than in the 1935 to 1941 period. For the months of high slaughter, the

change was not so clear cut. The relative numbers slaughtered in August,

September and November were about the same for both periods, while October's

share of the annual slaughter was much greater in the former than in the

later period. This indicates a definite change in magnitude of seasonal

variation. In the later period, the peak was lower and the trough was

higher than in the prewar years.

The War Years

The war years here denote the years 1942 to 1947 inclusive. In

most analysis so far conducted, this period has been omitted; the reason

being that abnormal economic conditions prevailing at that time caused

great variations in the supply of cattle. Not only were there large monthly

INDEX OF SEASONAL VARIATION IN SLAUGHTER,
1935-41 AND 1948-57*

Index
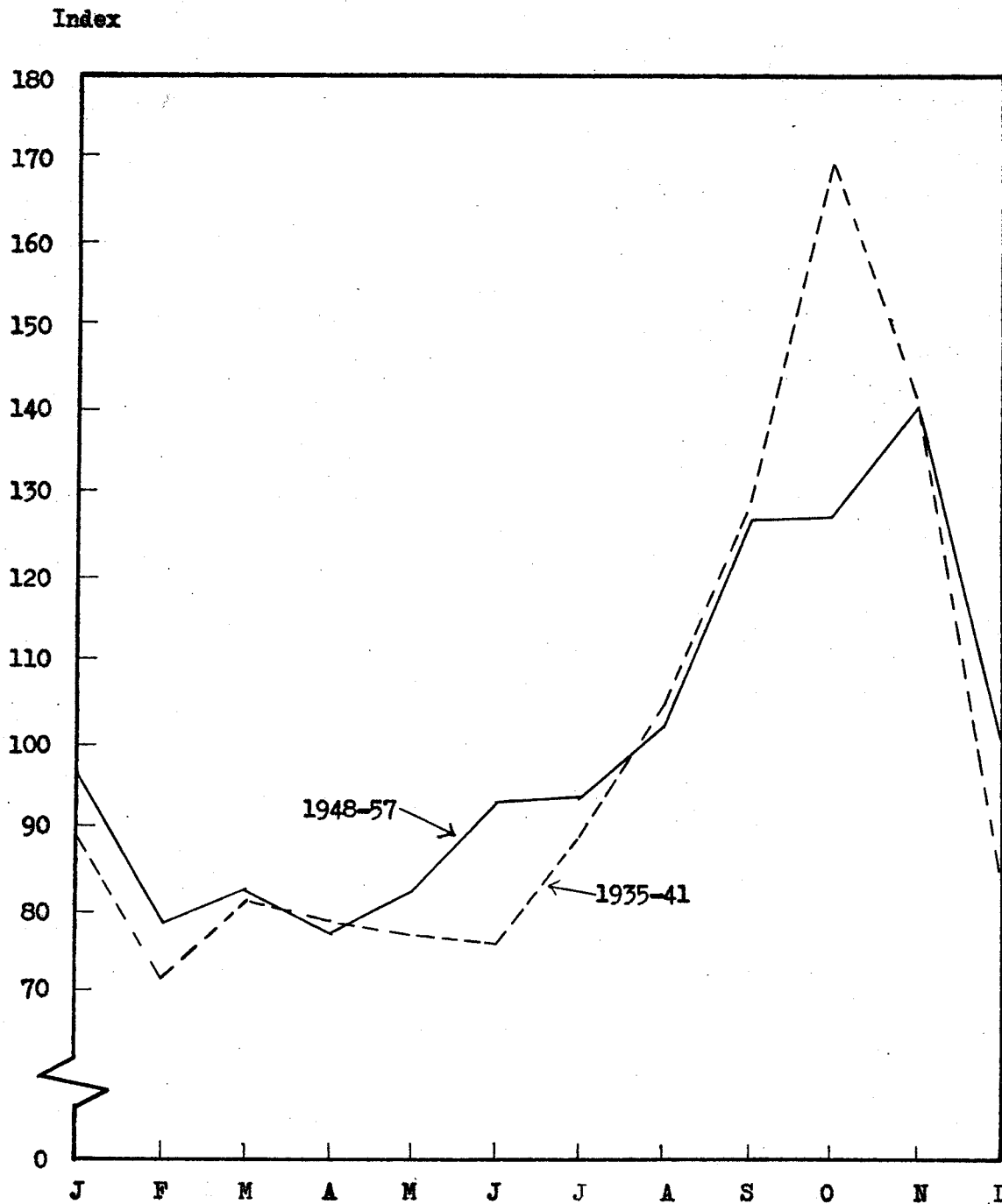
FIGURE 6

*Source: See Figure 4

variations, but the magnitude of the cycle was abnormally greater than for

any previous cycle. These points are illustrated in Figures 1 and 7. It

should first be noted that a seasonal pattern of slaughter, similar, though

more extreme to that of other years, was present. Month to month variations

during the war period were much greater than for any other time period con-

sidered.

It appears that at this time extremely high slaughter in some way

magnified the relative monthly changes. This is demonstrated in Figure 7,

where the contrast between the war years and all other years considered, is

made. Considering the range between the maximum and minimum monthly values

for both series, it is seen that for eight of the twelve months, the range

was greater during the six war years than during the other seventeen years.

If the 1935 to 1957 period had been considered as a whole, then the years

1942 to 1947 would have provided fourteen of the twenty-four maximum or

minimum monthly values. It was due to this extreme monthly variation in

slaughter, plus the occurrence of abnormally high slaughter that made it

necessary to omit the period 1942 to 1947 from the analysis at this stage.

Movements in Postwar Seasonal Pattern of Slaughter

It has already been noted that, comparing prewar and postwar periods,

the latter showed a decrease in the magnitude of the peak at the same time

as there was a tendency for the peak to move one month later in the year.

The 1948 to 1957 period was also characterized by a rather lower month to

month variation in slaughter.

However, the postwar period itself can be divided into two periods,

MAXIMUM AND MINIMUM MONTHLY INDICES OF SLAUGHTER FOR
1942-47 AND FOR 1935-57 EXCLUDING THE YEARS 1942-47*

Index
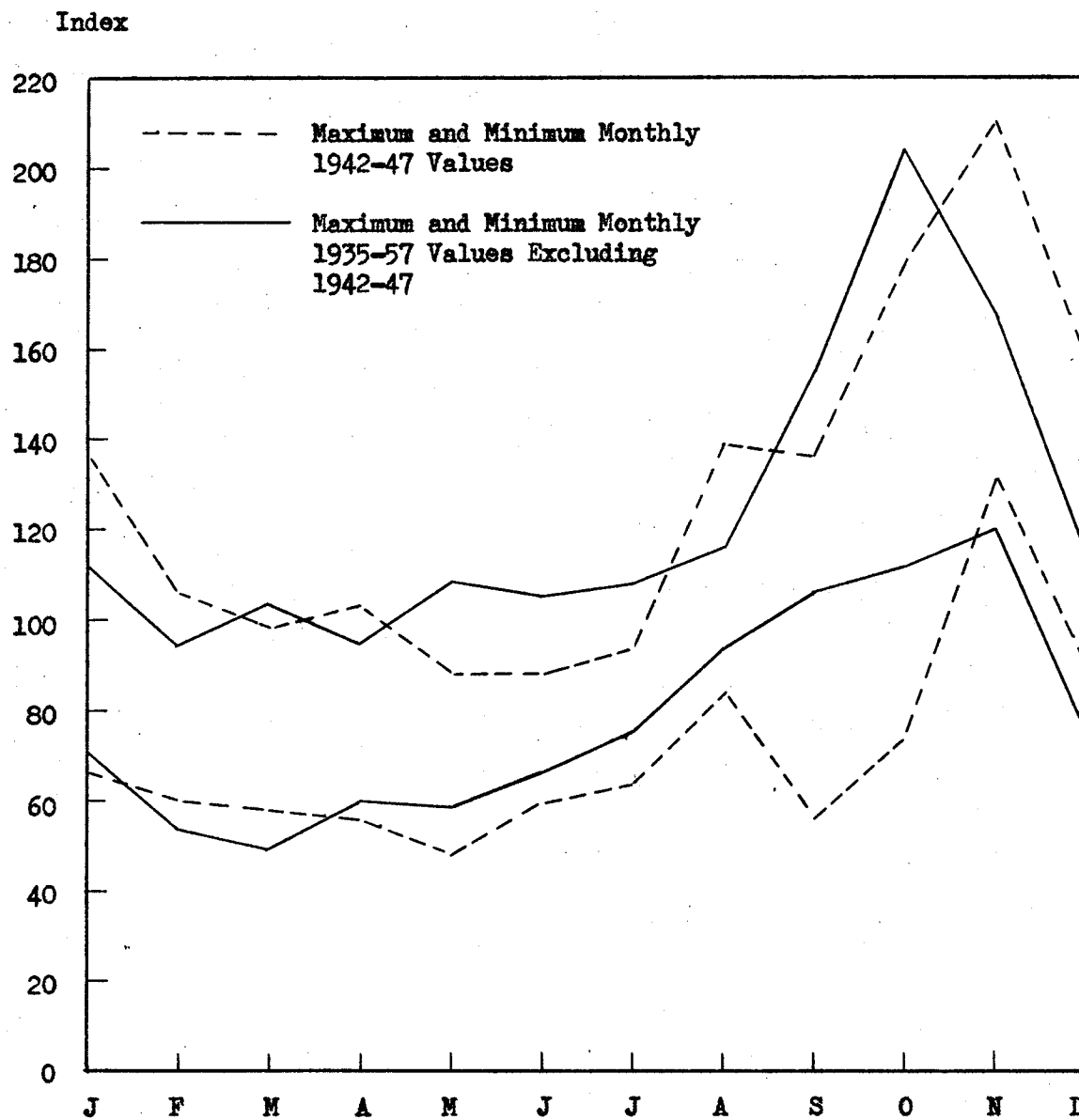
FIGURE 7

*Source: See Figure 4

each with its own distinctive seasonal pattern of slaughter. These periods were 1948 to 1953 and 1954 to 1957. The two seasonals referred to appear in Figure 8. The first period, 1948 to 1953, was typified by more or less regular changes in slaughter culminating in the peak slaughter month of November. There was a very noticeable fall off in slaughter from November to December, indicating that the large October and November slaughter was probably due, at least in part, to a preference for selling in these months as opposed to selling in December.

The seasonal pattern for the years 1948 to 1955 presents quite a different picture. The most conspicuous feature of this seasonal is its irregularity, which was present in all four years and was not the result of any one exceptional or abnormal year. Further interesting features of this particular seasonal are the twin peaks in the fall, with the month of highest slaughter being September. Considering individual monthly relatives, for three of the four years the September relative was higher than that of October or November. In the fourth year, the September and November relatives were almost equal and both were higher than that of October. In spite of the irregularity, the range between the low and the high months was not so great in the 1954 to 1957 series as in the previous years of 1948 to 1953. This smaller range implies an "evening out" of marketings over the year. As can be seen in the following table, slaughter has in fact over time, tended to be spread out more evenly over the year. The percentage of average annual slaughter for the first six months of the year for three periods is as follows:

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INDEX OF SEASONAL VARIATION IN SLAUGHTER,
1948-53 AND 1954-57*

Index
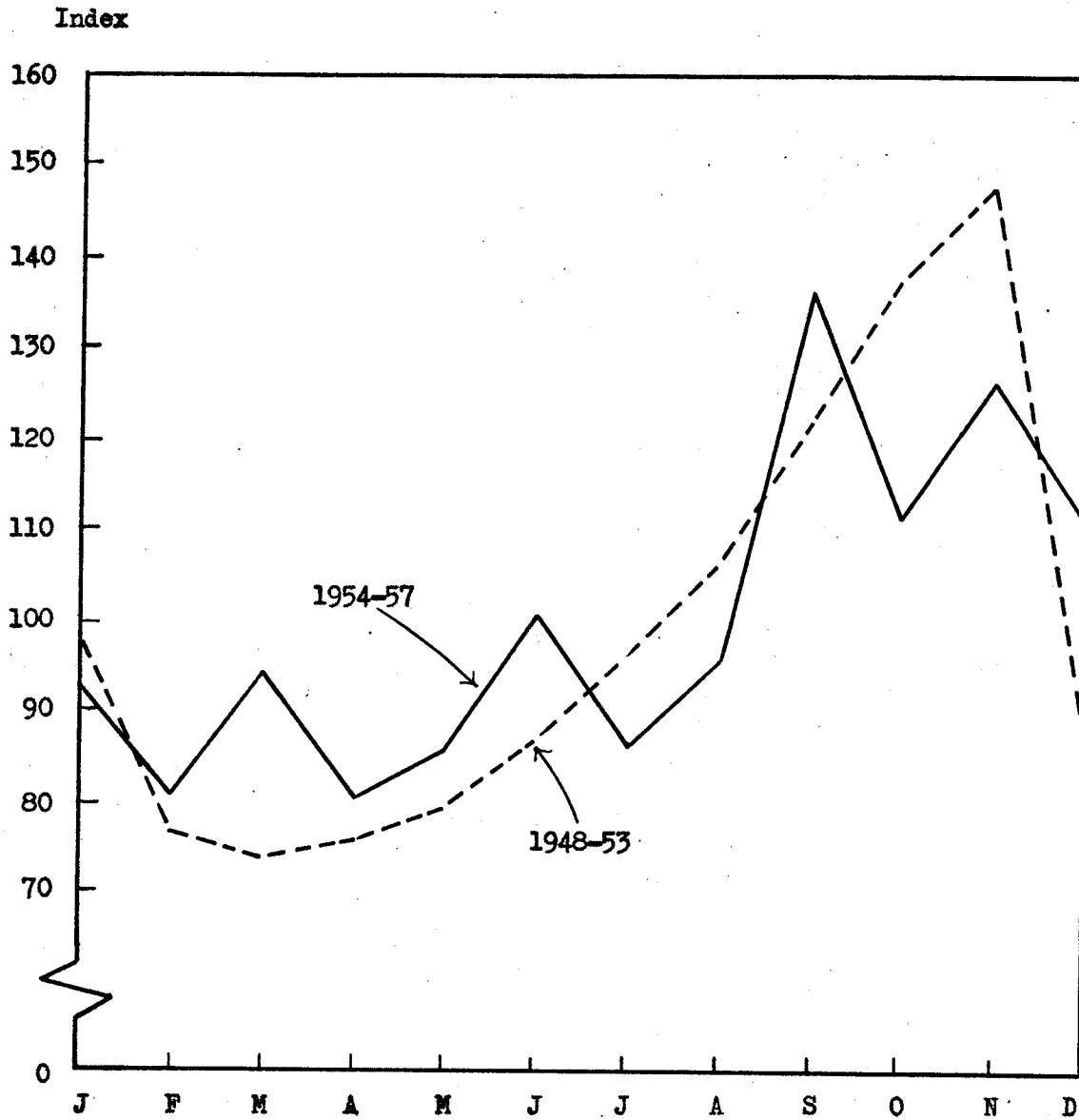
FIGURE 8

*Source: See Figure 4

	1935 to 1941	1948 to 1953	1954 to 1957
Percent of Total Annual Slaughter	39.6	41.1	44.0

For the period 1954 to 1957 the number of animals slaughtered during the first six months of each year was on the average only six percent below that number required to equalize slaughter in the first and second halves of the year. This progressively more even spread of slaughter and therefore of marketings over the year is probably due to many factors including better knowledge of the market, improved transport facilities and more diversified farming.

Irregularity of the 1954 to 1957 seasonal and the shift in the peak month of slaughter from November to September are not so easily explained; especially as there does not appear to have been any transitional stage between the two very different seasonals.

The Seasonal at Different Stages in the Cycle

It might be expected that the seasonal slaughter of cattle would differ according to the part of the cycle in which the seasonal was located. In other words, a seasonal experienced during a period of declining slaughter would possibly differ from that encountered during rising slaughter. Assuming for the moment that the prices received by the farmer are inversely related to the number of animals being slaughtered, then during a time of falling slaughter, the price would be rising. A rising price, or expressed another way a price higher than previously experienced, will encourage farmers to sell more animals than they otherwise would. This could

include some of their breeding stock. As mentioned previously, farmers appear to be more interested in the prevailing than in possible future prices.

During a time of falling slaughter, if farmers are concerned with present rather than future prices, then the proportion of cows and heifers slaughtered would be greater than at other times. When slaughter is increasing and price is falling, farmers who remain in production do not have the same incentive to sell as many animals as possible. This results in less heifers and cows and more steers sold. Steers lose their "value" more quickly than do heifers and cows. The latter, while maintained on the farm during a period of declining prices, can at least be used for breeding purposes, while steers kept longer than "normal" will merely accumulate excess fat and weight.

This conception of classes of animals being of lesser or greater importance according to the part of the cycle considered is verified to a certain extent in Figures 9a and 9b. Figure 9a is the breakdown, into the three main classes, of animals going through the Winnipeg stockyards. This admittedly is not the same as animals slaughtered in Manitoba, but should be a close approximation, at least as far as the distribution between classes of animals concerned.

It can be seen from Figure 9a that from 1948 to 1951 cows were of greater numerical importance than were steers. From 1952 to 1957 the positions were reversed and steers were of greater importance than were cows. Heifers also showed greater relative importance during the 1948 to 1951 period. If attention is turned to Figure 9b, which depicts the total

NUMBERS OF STEERS, HEIFERS AND COWS SOLD ON
WINNIPEG STOCKYARDS, 1948-57*
(Thousand head)
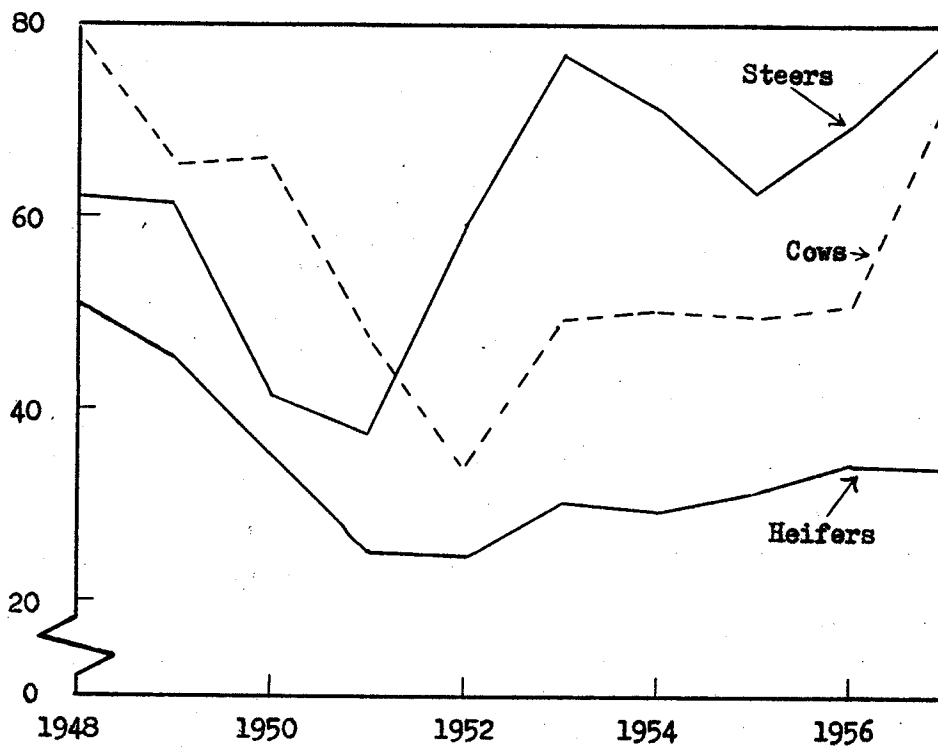
FIGURE 9a

*Source: Livestock and Meat Trade Reports

NUMBERS OF CATTLE SLAUGHTERED IN MANITOBA, 1948-57**
(Thousand head)
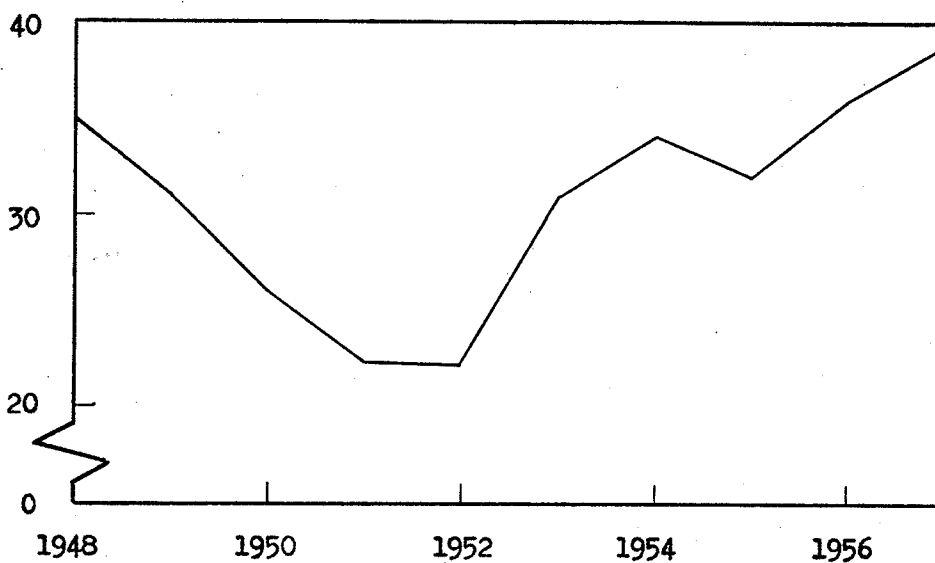
FIGURE 9b

**Source: See Figure 1

number of animals slaughtered in Manitoba from 1948 to 1957, it is imme-
diately evident that the period 1948 to 1951 was a time of downward swing
in the cycle. On the other hand, 1952 to 1957, the years when more steers
than cows, and relatively more steers than heifers were sold, was a period
of the upswing in the cycle. This, then, appears to support the hypothesis
that at different points on the cycle, more especially points connected
with a declining cycle, classes of animals vary in importance.

As has been previously demonstrated, there was a strong tendency
for more animals to come on the market in the fall. If the tendency to
market more or less animals at different times of the year is equally
strong for all classes of animals, then an increased number of heifers and
cows coming on the market would in no way distort the "normal" seasonal.
Greater numbers of animals would increase the magnitude of the seasonal,
but this increase in magnitude would be proportionate for all parts of the
seasonal. If, however, the tendency to market different classes of animals
at certain times of the year differed from class to class, then an increase
in the proportion of any class marketed would result in a changed seasonal
pattern.

If the proportion of various classes of animals going through the
stockyards is accepted as representative of the proportion of the different
classes slaughtered, then differences in seasonal slaughter of the three
main classes can be illustrated by taking marketings in the first six months
of the year as a percentage of annual marketings.

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	Steers %	Heifers %	Cows %
Average 1948 to 1957	48.6	36.1	33.7
Range 1948 to 1957	37.7 - 56.6	27.1 - 42.4	24.7 - 41.6

It is evident that marketings of steers were more evenly spread over the year than either heifers or cows. In fact, for five of the ten years, more than half the steers marketed during the year were sold in the first six months. Both heifers and cows showed greater variation in sales over the year with a preponderance going on the market from July to December.

From this evidence it can be stated that the marketings of cows and heifers were a major factor determining the occurrence of peak slaughter in the latter part of the year. Emerging from the discussion of Figures 9a and 9b is the fact that when slaughter was declining, cows and heifers were of greater relative numerical importance with regard to steers than they were in a period of increasing slaughter. This implies that seasonal patterns would differ in the two periods. When slaughter was falling, cows and heifers were relatively more important than steers. Cows and heifers showed a greater tendency to be marketed in the latter part of the year than did steers. Therefore, the seasonal for this period should show a lower trough in the first six months of the year and a higher peak in the second half of the year than would the seasonal for a period of rising slaughter.

These two propositions are borne out in Figure 10, where it can clearly be seen that for the years 1948 to 1951, when slaughter was falling, the index of seasonal variation was lower for the first six months and

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INDEX OF SEASONAL VARIATION IN SLAUGHTER FOR A RISING CYCLE,
1952-57, AND A FALLING CYCLE, 1948-51*
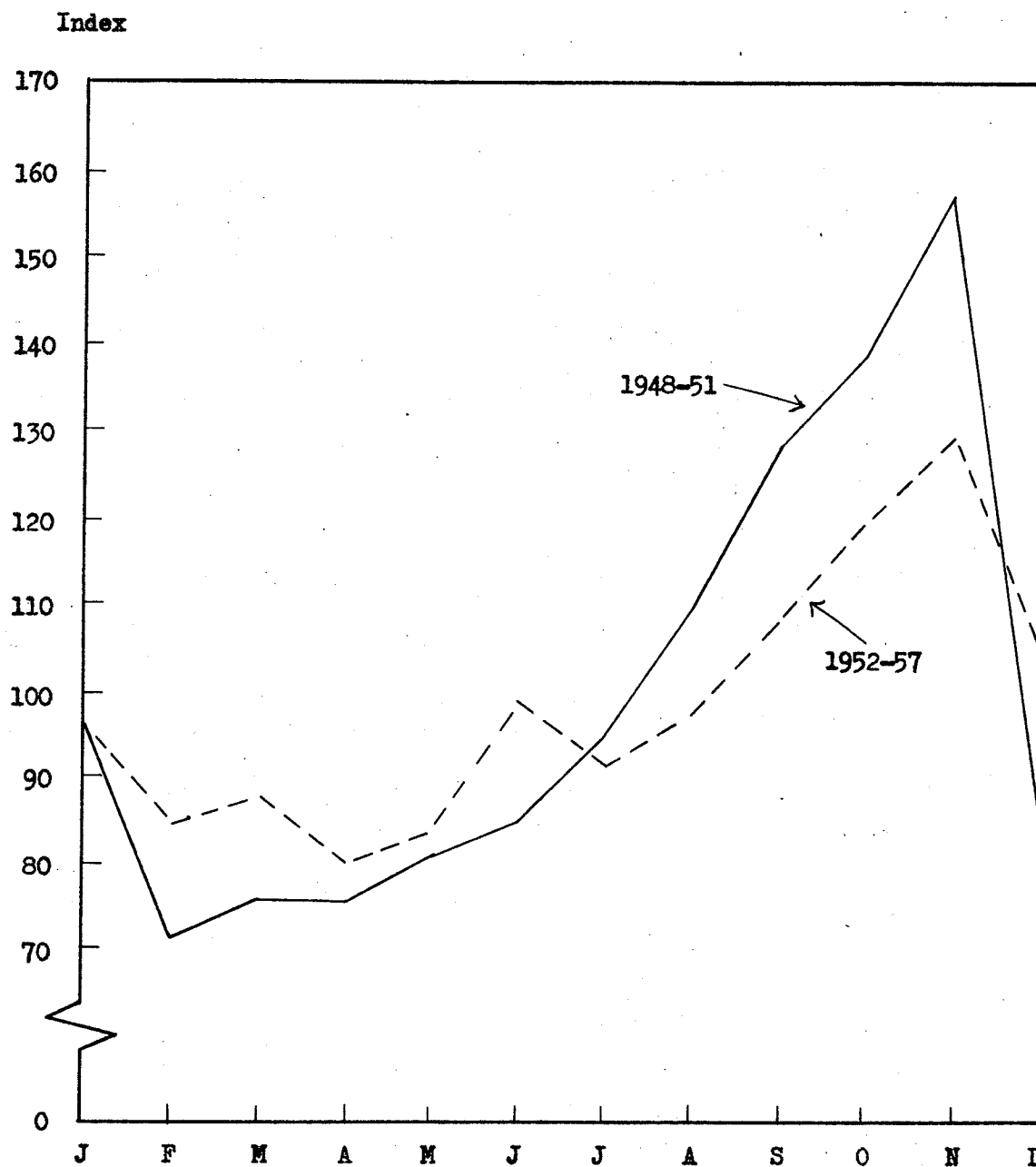
FIGURE 10

*Source: See Figure 4

higher for the last six months of the year than the seasonal for the years 1952 to 1957 - a period of rising slaughter.

It is realized that this chapter has covered more ground than was necessary in the terms of the original hypothesis. But it should be remembered that the initial objective of the study was to describe the beef marketing industry and its operation and to make use of this description as a background against which the hypothesis and its implications could be more easily understood. In this light, it was felt that a fairly intensive examination of supply was fully justified and it is intended that findings of the chapter will be later related to the margins.

CHAPTER V

FARM PRICE VARIATION

Prior to any consideration of the wholesale margin, the lower
limit of that margin, the farm price must first receive attention. In
this chapter, following discussion of cyclical and secular price movements,
the seasonal price pattern and changes in this pattern will be considered.
When the wholesale margin is later discussed, changes in the farm price
will be related to the margin and to variations in it.

The Farm Price

The farm price is here defined as being the net price received by
farmers for animals sold through the stockyard. It is admitted that a
large and varying proportion of animals is sold either directly to the
packer or to intermediaries acting as individuals or as agents for the
packer. Prices received from these different sources will generally differ.
However, even assuming complete knowledge of all the various prices, the
use of all of these moderately dissimilar price series would prove to be
unmanageable. Therefore, mainly for reasons of simplicity and non-
availability of data, the net price series of animals sold through the
stockyards - here referred to as the farm price - was taken to be
representative of all these differing prices received by the farmer for
his animals.

Even taking into account the above-mentioned simplification, this
price series, in order to make it comparable with other price series used

in this study, is not itself the price per live hundredweight received by
the farmer. It is based not on the animal as sold by the farmer, but
rather on the carcass sold at the retail level. It is, in fact, a farm
price per hundredweight of beef sold at retail. This necessarily excludes
the value of all edible and inedible offal and of non-food by-products.

The period examined consisted of the years 1935 to 1957 inclusive.
As can be observed from Figure 11, this period showed a range in farm price
of approximately 1000%. It should be noticed that the peak price was ex-
perienced not during the war years, as was the case with peak cattle supply,
but rather in a period beginning three years after the end of the war.
From 1935 to 1943, prior to the peak in prices, farm prices rose fairly
steadily. From 1943 to 1947, the price levelled off before rising very
rapidly to a high value in 1951 and then declining sharply to 1953. A fur-
ther period of relatively steady prices was experienced from 1953 to 1957.

To a considerable extent, the increase in prices and the magnitude
of the peak were amplified by the inflationary trend in prices generally.
In order to adjust the series for this trend, the absolute prices were de-
flated (see Figure 11). Much less variation was apparent in the deflated
series. The deflator used was the general wholesale price index (1935-
1939 = 100). That the base period was 1935 - 1939 explains why there was
such a close relationship between the deflated and non-deflated series in
the first four years of the time period considered. Even with deflation,
there still remains a very obvious peak period from 1948 to 1952. Attrib-
utable to deflation is the fact that the years immediately succeeding and
preceding the peak period now show fairly stable prices at the same

Dollars
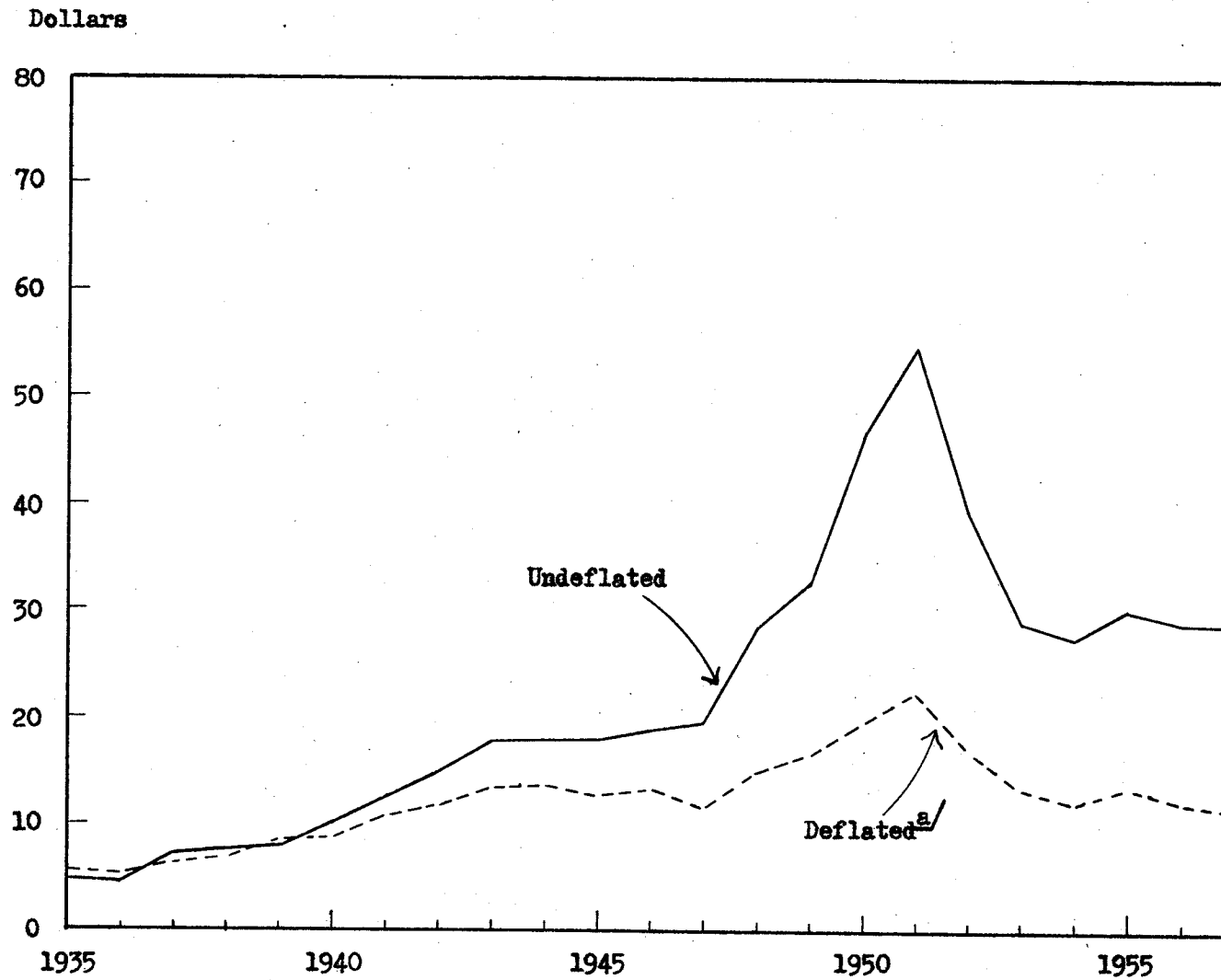
FIGURE 11

*Source: See Appendix Table I

a/Deflated by General Wholesale Price Index, base 1935-39 = 100

relative level. In fact, there is some evidence of a slight downward trend in deflated prices from 1953 onwards.

It is rather surprising that the two periods of stable prices should assume similar deflated price levels, especially when it is remembered that the level of farm prices over the war years was held fairly constant by wartime price controls. Assuming the deflator to be correct, this means that the "real" average annual farm price for the years 1952 to 1957 was little different from the wartime controlled price. With the further assumption that the demand supply relationship remained substantially unchanged, it is then implied either that controls applied during the war years were superfluous as far as the maintenance of farm prices was concerned or a similar effect to that created by price controls was later produced by some other factor.

Seasonal Price Movement

Seasonal price pattern is best illustrated by use of an index of seasonal variation. As it is calculated from a twelve month moving average, the need for deflation does not arise. From Figures 12 and 13, it may be observed that for several months, particularly March, April and May, there was a fairly definite downward trend over time in relative price levels. This downward trend was also apparent for the later years in the months of January and December. On the other hand, August, September, October and November showed rather persistently rising trends. This, to some extent, indicates that over time the farm price has tended to decline less in the later part of the year while in the earlier part of the year there has been

MONTHLY INDICES OF MEDIUM HEIFER AND STEER PRICES IN MANITOBA, 1935-57*
(January to June)

Index
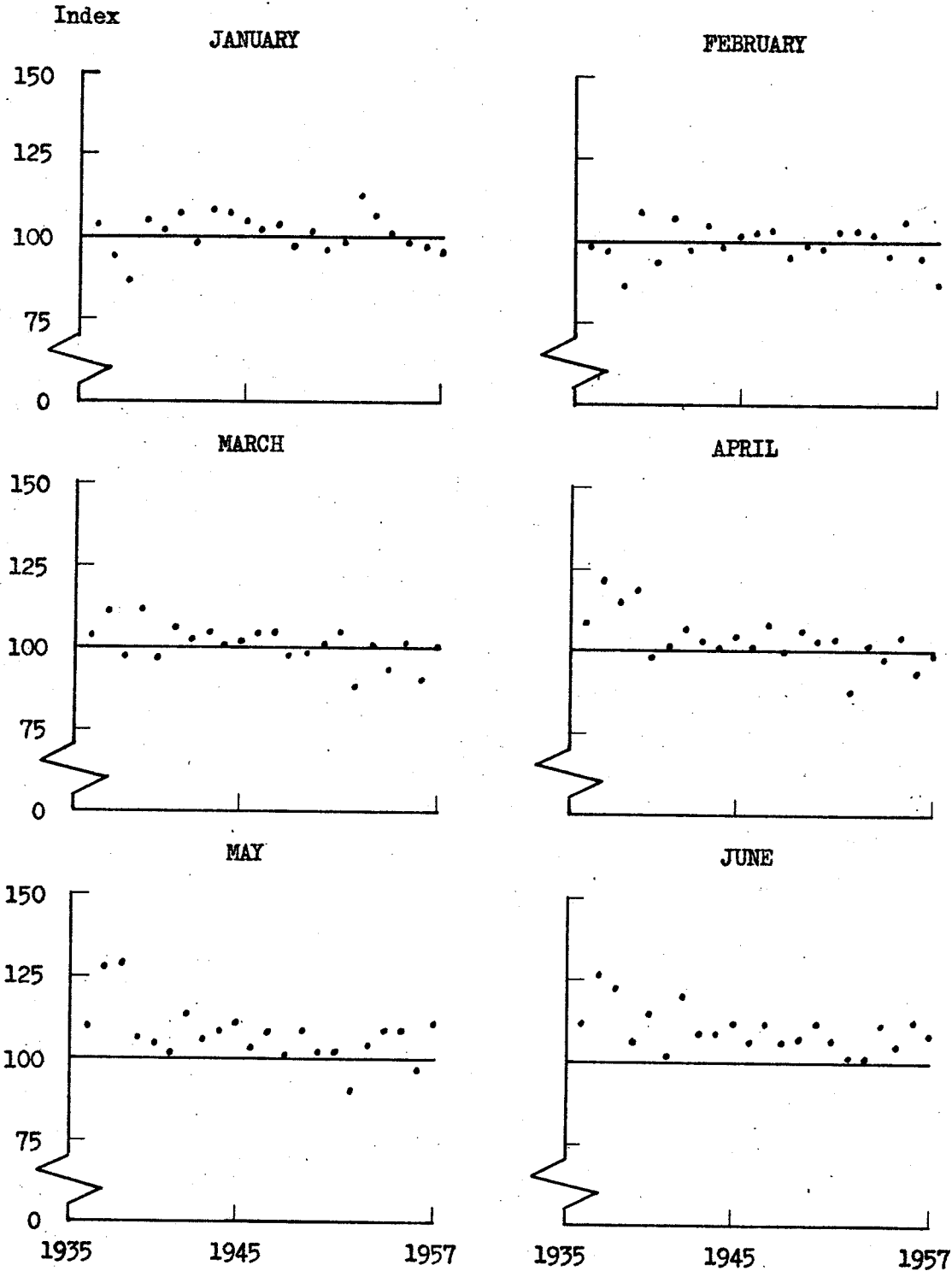
FIGURE 12

*Calculated by taking actual monthly farm prices (See Appendix
Table I) as a percentage of the 12 month moving average of farm prices.

MONTHLY INDICES OF MEDIUM HEIFER AND STEER PRICES IN MANITOBA, 1935-57*
(July to December)
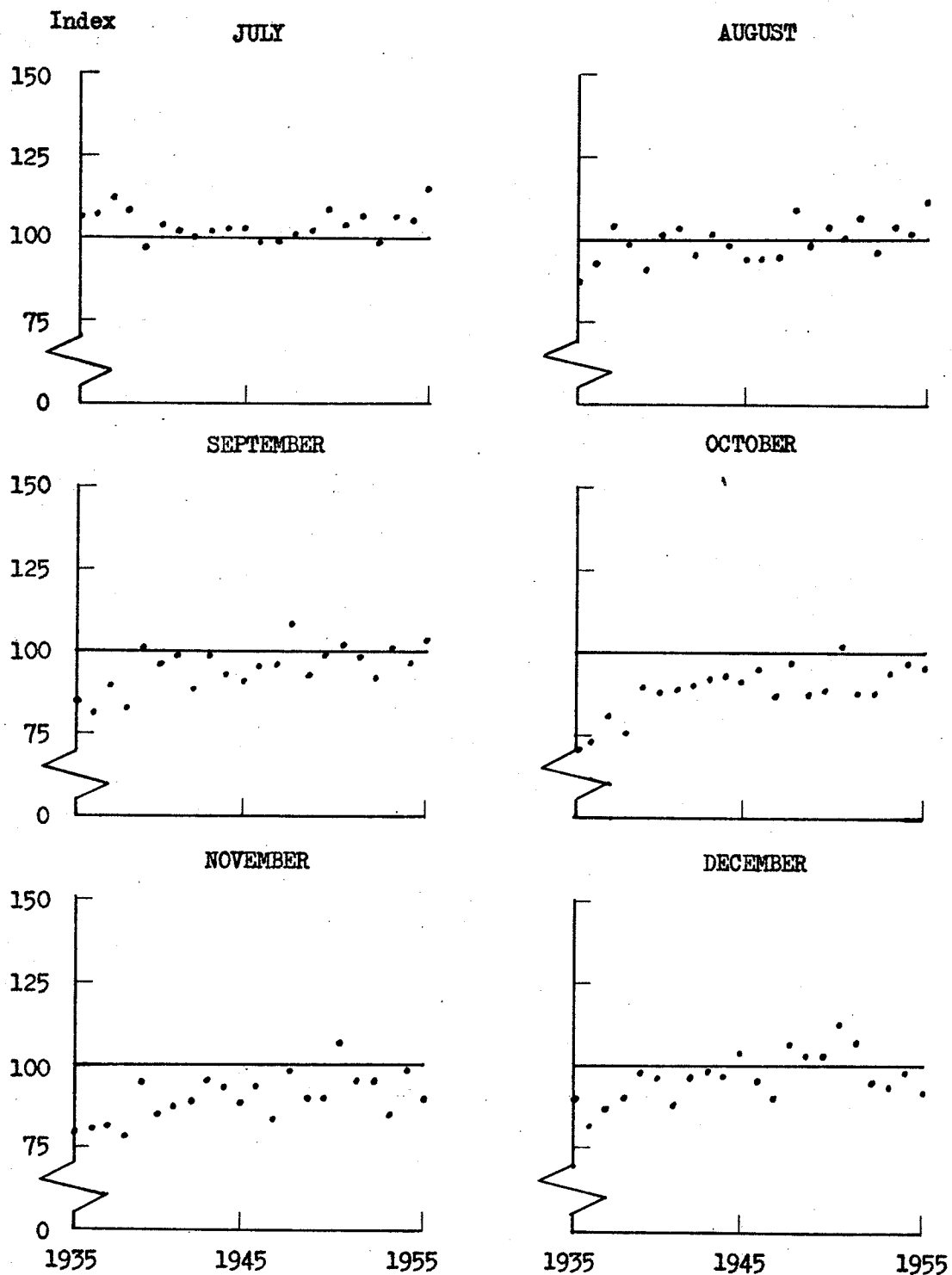
FIGURE 13

*Source: See Figure 12

a smaller seasonal increase.

The July seasonal is rather interesting in that it first declined and then returned to its original level. This can be compared with February, a month in which the farm price initially showed a rising trend which was followed by a fairly steady period and eventually by a decline to the original level. Apart from these two months, all other months, if they moved at all, tended to move in only one direction. It should be noted that these rises and declines in the index were only relative to the particular month concerned. Although August, September, October and November all showed a rising trend, over the whole time period farm prices were consistently highest in the first seven months of the year.

The Changing Seasonal Pattern

Change in seasonality of farm price is illustrated in Figure 14. This figure is essentially composed of indices of seasonal variation in price for different periods of time. Unequal time periods of five, eight and ten years were chosen because such selection most clearly demonstrated the change in the seasonal farm price pattern. It can be seen that, over time, the peak in farm prices, occupying most of the first half of the year, has markedly decreased while the trough has become much shallower. Not only has the range between high and low prices declined, but the period of higher prices has tended to move later in the year. For the years 1935 to 1939, the months of March to July were higher than average, while in the later period, 1948 to 1957, the months of April to August inclusive, were above average for the year.

INDEX OF SEASONAL VARIATION IN FARM PRICE
1935-39, 1940-47 AND 1948-57*
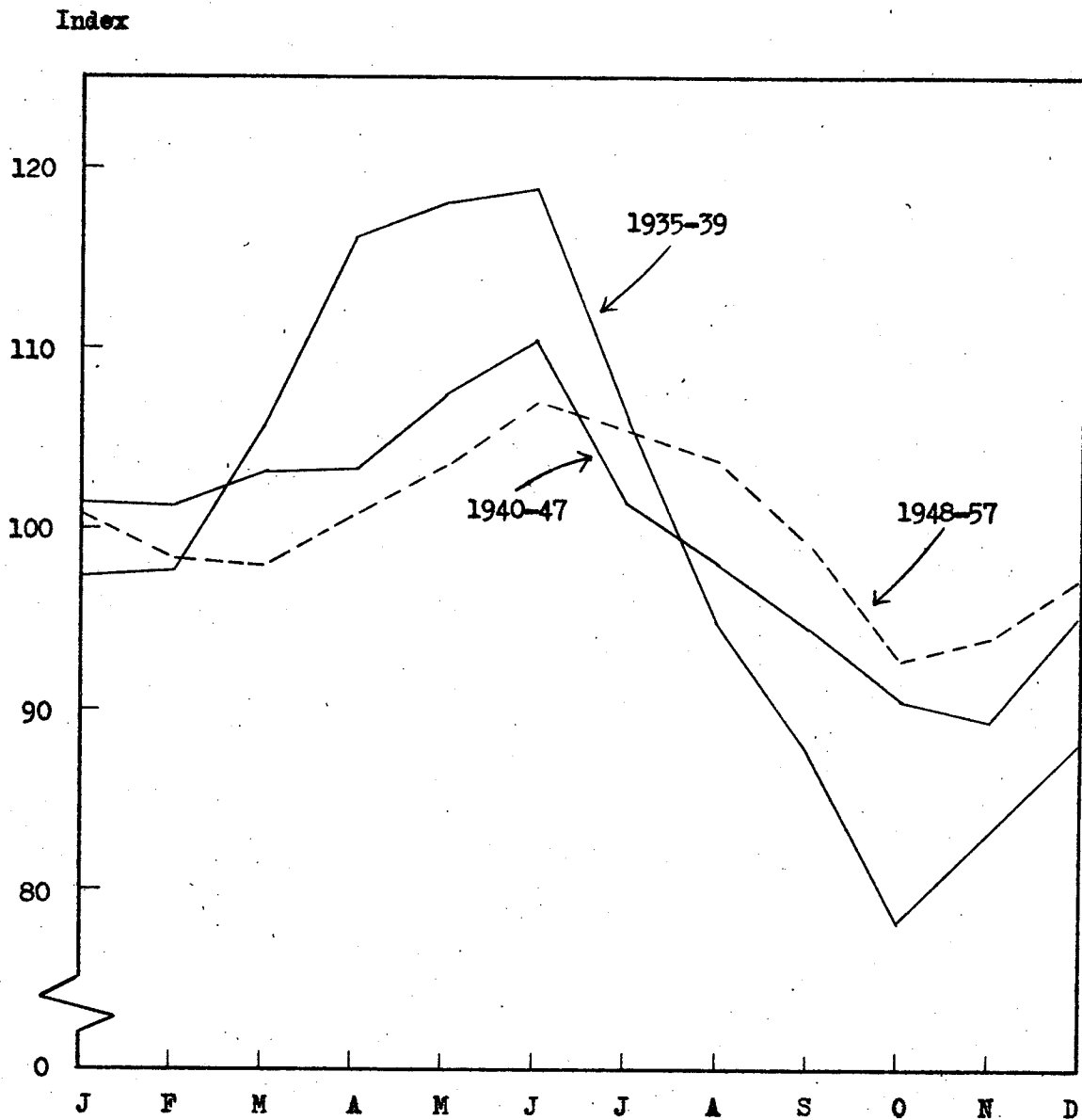
Index

FIGURE 14

*Source: See Figure 12

From 1935 to 1939, the first month in which the index rose above the average was March, as compared with January for the two later periods. There does, however, seem to be appearing, in the 1948 to 1957 period, evidence of a second trough in the early part of the year - February and March. It should be mentioned that, as shown in Figure 14, the decline in the variation between the high and low prices was greatest in the first two periods considered (1935 to 1939 and 1940 to 1947). From 1940 on, there was comparatively little difference between the magnitude of the peaks or troughs.

The War Years

It was seen earlier that monthly supply of cattle was subject to considerable random variation during the war years. With monthly farm prices, this was not the case. For the years 1943 to 1947, the farm price continued to show its typical seasonal pattern. Especially from 1943 to 1946, and to a lesser degree for 1947, the seasonal pattern from one year to the next was very similar both in timing and magnitude. This is illustrated in Figure 15. From Figure 15, it can be seen that in the 1943-1944-1945 seasons, the farm price followed very similar patterns. In December 1945, prices rose to a new higher level. This higher level was followed by very little variation in farm price in 1946 though January 1947 showed a further increase to a still higher level of price. Of the six years considered here, the last year, 1947, showed greatest variation between peak and trough.

During a further period of relatively stable average annual prices,

AVERAGE MONTHLY FARM PRICE, 1943-47*

Dollars
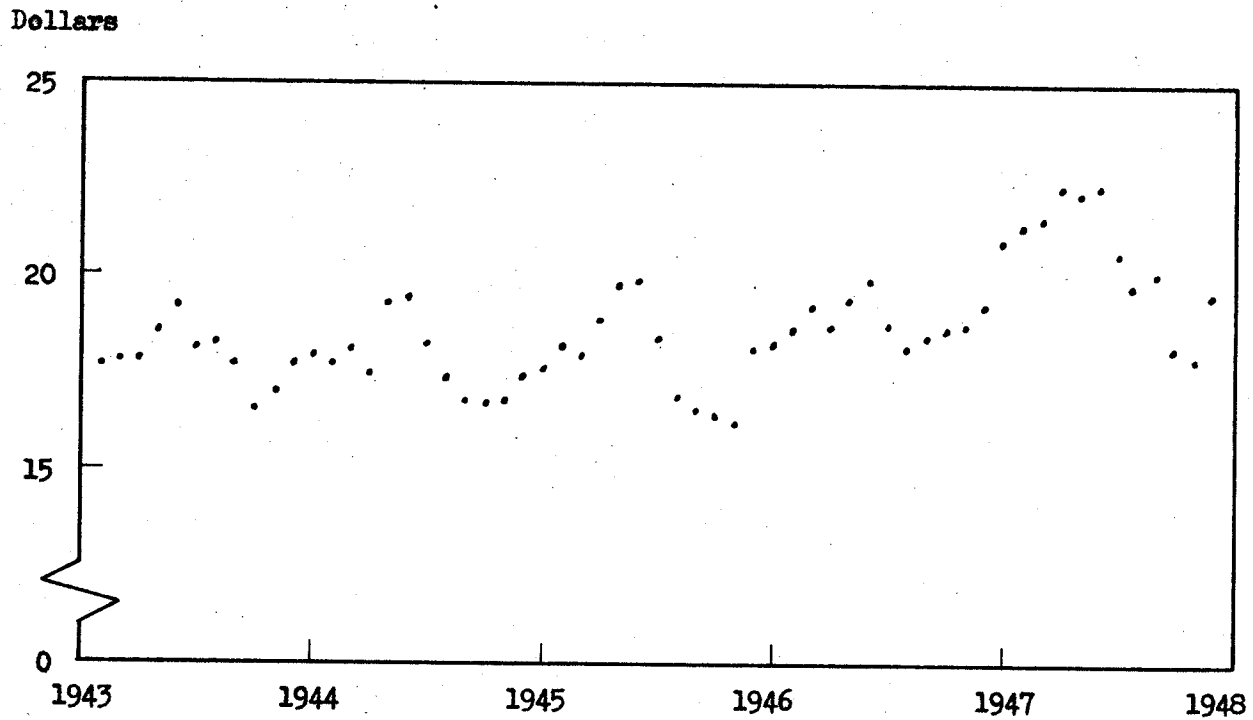
FIGURE 15

*Source: See Figure 11

1954 to 1957, monthly variation within each year was also generally lower than at other times. This appears to indicate that the degree of month to month price variation is positively related to or associated with, inter-annual farm price variation. The years which showed greatest change in average farm price from the previous year, i.e. 1948, 1950, 1952 and 1953, also showed the greatest range of monthly prices within the year. This occurrence was not so consistent for the prewar years of 1935 to 1942.

CHAPTER VI

THE WHOLESALE MARGIN I

In the previous chapter the farm price, which forms the lower

limit of the wholesale margin, was discussed. This chapter deals with

the wholesale margin itself, but prior to consideration of the margin it

is first necessary to examine the wholesale price - the upper limit of

the margin. Therefore, the first section is concerned with the packing

industry and the forces present which determine the wholesale price, while

later sections of this chapter will deal with the theoretical and actual

wholesale margins.

The Packing Industry and Wholesale Price Determination

The packing industry is subjected to variations in supply and de-

mand conditions to a degree that is uncommon in most other large industries.

Packers use a raw material that is quite perishable and produce a finished

product which in most cases is also extremely perishable. It is not

feasible for them to stockpile the raw material nor are they able, to any

great extent, to store their product should demand fall off. The packing

industry is typical of those industries which operate on a rapid, large

volume turnover at a small per unit profit.

Two major problems face the packer in his buying and selling

operations. If he does not buy sufficient cattle to satisfy the demand

of the retailer, then he is liable to lose custom to other packers. If

he buys too many cattle, he must either hold them at considerable expense

or turn them into meat for which there is insufficient demand to permit recovery of his costs. The packer's most important decisions relate to this question of the balance between supply and demand.

Supply of fresh meat offered for sale by packers over a short period may be relatively fixed. However, an immediate sale may not necessarily be of major importance as there are a number of other ways of disposing of the product. It may be temporarily placed in cold storage and still meet the requirements of the fresh meat trade. It may be frozen and some of it may be cured or otherwise manufactured. If prices for frozen or cured meat are expected to be more favourable several months in the future, a future sale may be preferred to an immediate sale of fresh meat.

The process of arriving at a wholesale price for fresh meat is essentially one of bargaining. Salesmen are provided with an asking price for their product. It will be based upon the actual cost of the product, insofar as this can be determined, and upon an estimate of prospective future prices for the product in alternative forms. This asking price is the basis for bargaining with retail dealers. If it is higher than the retailers are willing to pay, it will presumably be lowered, but not below the price likely to be realized in other uses. If stocks are depleted more rapidly than expected at current prices, salesmen are soon likely to become aware of the situation and an upward revision in prices will no doubt be made. The price at which the final deal is made may not, in fact, cover actual costs, but it will be the highest obtainable.

The Theory of the Wholesale Margin

The margin under discussion is defined as being the difference between the price received by the farmer - known as the farm price or wholesale buying price - and the price received for the product when sold by the packer to the retailer - known as the wholesale price or wholesale selling price. In this particular discussion, the terms "wholesaler" and "packer" are synonymous.

Theoretically at least, actions of the packer regarding the margin can be in one of three main directions. Packers may attempt to charge a constant margin above costs regardless of the volume handled. In the strictest sense of the word, this margin would not be constant as with increasing costs it would tend to increase over time. The important feature of such a margin would be its constancy, in spite of the variability of volumes handled. In the long run, such a margin would necessarily cover average costs and might be described as a "cost plus" margin.

The second possibility is that the packer would try to charge a percentage margin, either attempting to add to the farm price a margin the width of which depends on the magnitude of the farm price, or else the packer could accept the wholesale price as given and merely subtract a fairly constant percentage from such a price in order to arrive at the farm price. Setting of a percentage margin implies that the absolute margin changes according to the level of price. Presumably, the smaller the supply of cattle, the higher the price the packer has to pay - competition between individual packers would be keen and the price would be raised. This increase in price, due to a shortage of animals for slaughter, would

be in evidence at both the farm and wholesale price levels. It would, therefore, be immaterial whether the percentage margin was calculated from the farm or wholesale price.

Although in percentage terms, the mark-up might be constant, in absolute measure, the margin would vary inversely with the supply of cattle - a small supply means a high price, a certain percentage of which would be of greater absolute value than the same percentage of a lower price.

The third possibility is that cited in the original hypothesis. In this last case, the wholesaler's margin is assumed to be closely tied to his per unit processing cost. If as suggested, the per unit cost decreases as more animals are handled, then both costs and the margin would decrease as volume increased.

Even if the packer has a definite policy, his ability to follow it closely will depend on many factors outside his immediate control. Inter-packer competition at the farm price level may be so fierce that the individual packer is in no way able to influence the price. On the other hand, the retailer may, if he buys in large volume, be able to exert pressure on the wholesaler and at least to a certain extent dictate the price paid to the wholesaler. As far as the margin is concerned, such influences on prices leave the packer in rather an indeterminate position. Presumably the margin would never for any great length of time fall below the packer's cost calculations, yet deviations of the margin above cost could be wide and variable. Packer's policy in this latter case would consequently be to maintain as large a margin as possible above cost. Success of the packer in obtaining a wide margin would then depend upon the relationship between the supply of

cattle coming onto the market and retail and export demand for such cattle. Further factors affecting the margin would be the degree of competition between retailers, between packers, and the strength of farmers' marketing organizations.

With a strong export demand, a relatively weak retail demand and a small supply of animals, the packer's margin would be expected to be relatively narrow. Small supply and strong export demand would increase the farm price. Low retail demand would depress the wholesale price, resulting in the margin being squeezed from both its upper and lower limits.

This appears to indicate that a particular demand curve of the wholesaler or retailer will only be applicable under a particular set of circumstances and that a demand schedule will alter according to the economic milieu. The wholesaler may aim at a constant margin or a percentage margin, but in either case is unlikely to be completely successful in attaining his desired position.

The Actual Wholesale Margin

The previous section dealt with the theoretically probable margin and the reasons for such a margin. This section is devoted to the actual margin and to variations which occur over time in that margin.

Actual farm and wholesale prices for two periods of time are plotted in Figure 16. The lines drawn through the dots represent the functional relationship between quantity and price. These lines may be considered as approximations to the demand curves facing the wholesaler and the retailer. Although all prices used were deflated and therefore the estimated demand

ESTIMATED WHOLESALER AND RETAILER DEMAND CURVES
1935-41 (16a) AND 1950-57 (16b)*

Deflated Dollars **

Estimated Annual Slaughter of Medium Steers and Heifers
(Thousand Head)

FIGURE 16a

Deflated Dollars **

Estimated Annual Slaughter of Medium Steers and Heifers
(Thousand Head)
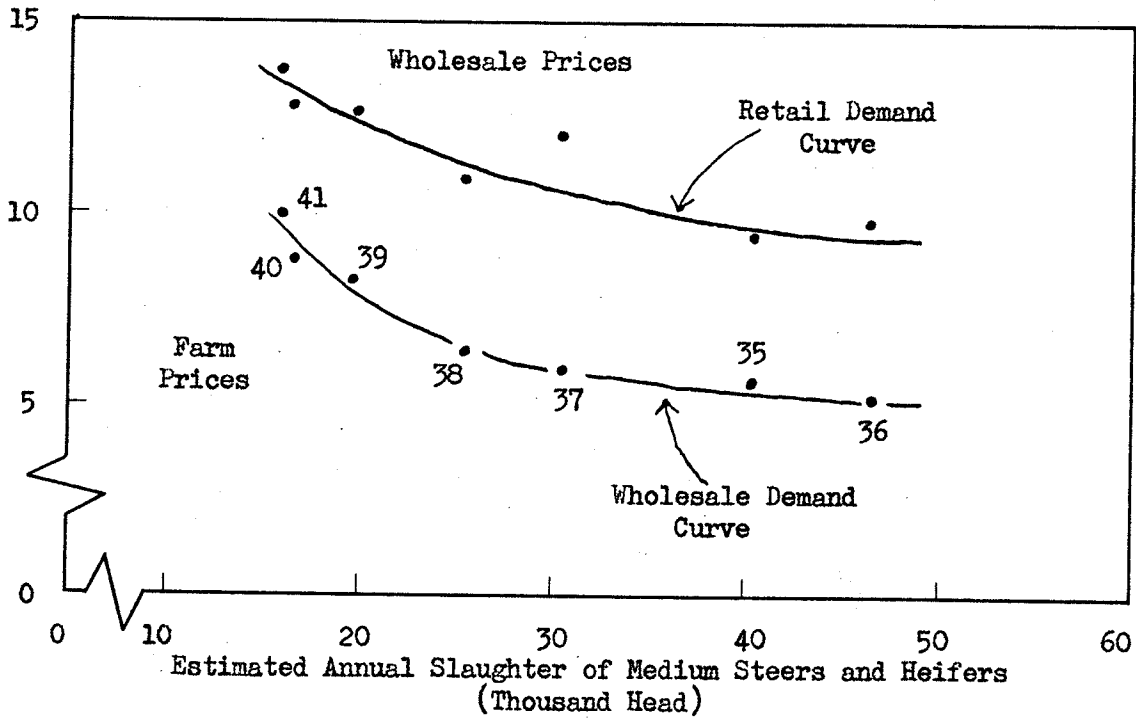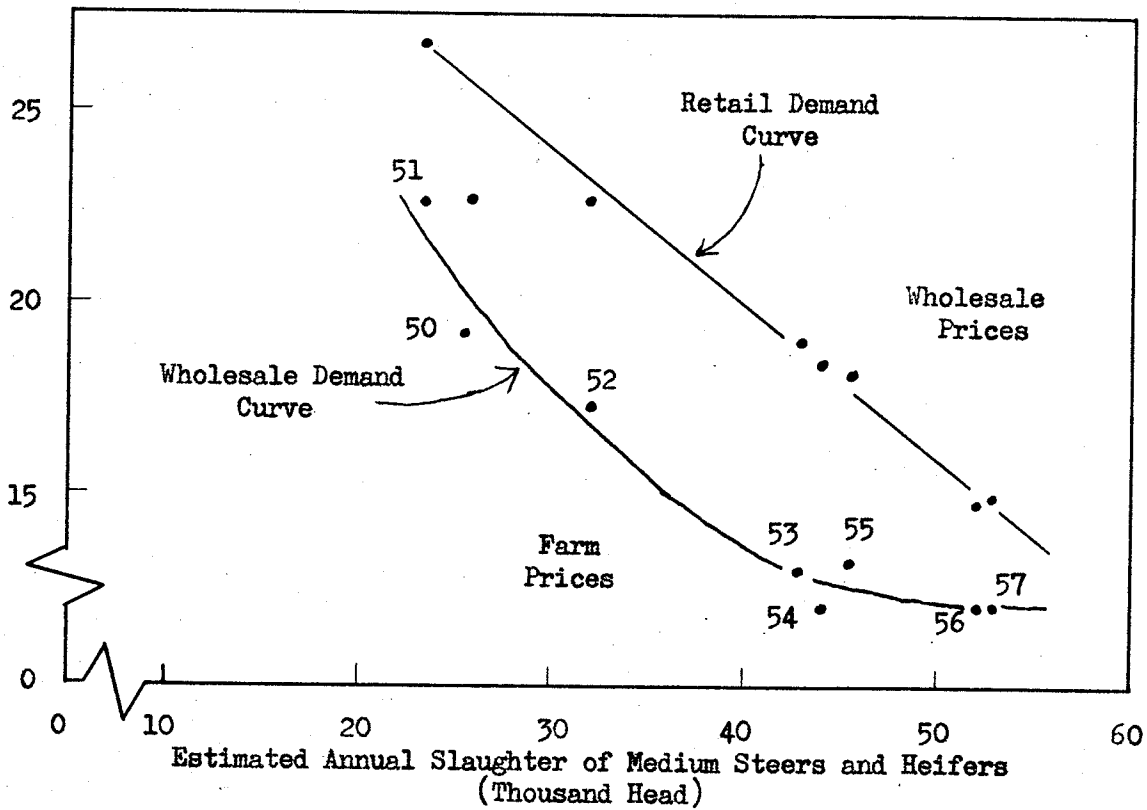
FIGURE 16b

* Source: See Appendix Table 1
** Deflated by General Wholesale Price Index, base 1935-39 = 100

curves were drawn on a "constant value" basis and although they appear to be very similar, they do not represent identical demand schedules at different levels of price. The demand curves in Figure 16b show an increase in demand over that existing in the prewar years. Comparing the prewar and postwar periods, the movement of the demand curves over time has been upward and to the right, indicating a larger quantity demanded at each price.

It can be seen from Figures 16a and 16b that there was no continuous increase in the margin, although as quantity slaughtered increased, there was a slight tendency for the margin to widen. Changes in the margin appear rather erratic in their occurrence. It is probable that over the years considered, the packers were attempting to take a constant absolute margin. There is no evidence that the wholesaler's margin was a percentage margin. Such a phenomenon would require the two estimated demand curves (the wholesaler's and the retailer's) to be vertically divergent to the left. In Figures 16a and 16b most divergency present appears to be directed towards the right. This signifies that when larger quantities were purchased at a necessarily lower price, the wholesaler's margin was greater than when fewer animals were purchased at a high price. Under these conditions, the greater the volume handled, the greater the wholesaler's gross profit per unit. If the marginal cost of processing is constant and therefore equal to average cost, not only will gross profit increase with increasing slaughter, but net per unit profit will also rise.

Widening the margin as quantity increases can be attained in one of three ways. Either the wholesaler expands his margin at the expense of the

farm price, or at the expense of the wholesale price or possibly both prices will be affected. It is rather unlikely that the wholesaler would be in a position to increase the wholesale price. Holding a large volume, the wholesaler may in fact have difficulty in disposing of it to the retailer who may even be able to depress the price. As wholesale stocks accumulate, the wholesaler will find himself in an increasingly poorer bargaining position with regard to the retailer. It therefore appears very likely that the increased margin results from a depressed farm price.

It is probable that when a large number of animals are on the market, competition between different packers with respect to the purchase of these animals is not as great as when the supply of animals is short. In other words, the packer tends to over-bid when the supply is weak and to under-bid when supply is strong. Each packer will have a roster of regular customers requiring regular supplies. Failure to fulfill these orders would result in some loss of custom. This to some extent explains the occurrence of over-bidding when supplies are short. Once all regular orders have been filled and sufficient stocks are built up, the packer will not have so great an incentive to buy and, therefore, with a large supply, both competition and prices will be weak.

The previous points are brought out in Figures 16a and 16b. As was to be expected, all the derived demand curves were negatively sloped - the smaller the quantity supplied, the greater the price paid. Although negatively sloped, the actual slope of the demand curves was not constant. With increasing supply, the demand curve at first fell rather sharply, then as supply increased still further it levelled off and tended to the

horizontal.

Turning first to the years 1935 to 1941 (Figure 16a), the derived
wholesale demand curve at the farm level was fairly regular with deviations
from the curve being small. After the estimated slaughter of medium steers
and heifers had reached approximately 25,000, the decline in the demand
curve was slight. Prices paid for animals in excess of 25,000 per year,
did not vary very greatly, but there was a rather critical area of supply
between 15,000 and 25,000, where only a slight change in supply brought
forth a much greater price response than did changes when supply was larger.
In this region, farm price was very sensitive to supply, and demand was
relatively elastic. The wholesale price was much more variable than the
farm price, yet it too fell sharply at first and then levelled off. This
variability of the wholesale price might possibly be indicative of the con-
stant bargaining between the retailer and the wholesaler with sometimes one
and sometimes the other gaining the advantage.

In Figure 16b are presented the estimated demand curves for the
years 1950 to 1957. The transitional period immediately following removal
of price controls, occurred in 1948 and 1949. Economic and other conditions
at that time were very different from those prevailing in later years. Be-
cause of this, both these years will be omitted from present discussion and
will receive separate treatment later in this chapter.

The wholesale derived demand curve (Figure 16b) is quite similar to
that of the prewar period. Wholesale buying prices again deviated little
about the average line of relation. In this later period, the estimated
wholesaler's demand curve did not level off and tend towards the horizontal

until after approximately 45,000 animals per year were purchased. Price

was most responsive to changes in supply in the region extending from a

low of about 25,000 animals slaughtered to a high of approximately 45,000.

When animals in excess of 45,000 per year were slaughtered, farm price

showed little change in spite of an appreciable further increase in quantity

purchased.

As is fairly obvious from Figure 16b, the retail demand curve is

not completely comparable with its counterpart of the prewar period. The

most striking feature of this curve is that, with the exception of 1950,

the price quantity observations lie closely about a straight rather than a

curved line. Unlike all other estimated demand curves so far discussed,

there is no evidence of any tendency for the demand curve to level off.

The possible reasons for this regular slope will be considered later.

Movement of the Estimated Derived Demand Curves

Movement of the demand curves upward and to the right, comparing

the postwar to prewar period, represents essentially an increase in demand.

As deflated prices were used, there is no evidence that this movement was

in any way caused by an inflationary trend. Vertical movement of the demand

curves indicates an increased price for all quantities and is probably due

to a rise in real price, accompanied by an equivalent rise in real income.

Movement of the demand curves to the right may be accounted for by an in-

crease in over-all consumption. As shown in Table 1, this increase in over-

all consumption was brought about by the combined effect of a rise in in-

dividual consumption together with population growth.

TABLE I

YEARLY ESTIMATED BEEF CONSUMPTION IN MANITOBA, AND PER CAPITA
EXPENDITURE ON GOODS AND SERVICES, 1935-1957*

Year	Per capita consumption of beef (lbs.)	Population of Manitoba (000's)	Consumption of beef in Manitoba (000' lbs.)	Per capita expenditure on consumer goods (1949 dollars)
	(1)	(2)	(1) x (2)	
1935	53.6	710	38	533
1936	55.1	711	39	551
1937	54.6	715	39	581
1938	57.2	720	41	568
1939	53.2	726	39	576
1940	54.5	728	40	618
1941	58.3	730	43	649
1942	60.1	724	44	660
1943	69.3	723	50	670
1944	62.4	727	45	707
1945	64.7	727	47	768
1946	67.4	727	49	840
1947	67.7	739	50	849
1948	59.7	746	44	815
1949	56.7	757	43	812
1950	50.8	768	39	849
1951	49.3	776	38	844
1952	54.4	798	43	874
1953	65.1	809	53	898
1954	70.2	828	58	893
1955	69.1	849	59	939
1956	72.0	860	62	965
1957	74.8	870	65	-

*Source: Yearly consumption and population data were obtained from
The Canada Year Book, Dominion Bureau of Statistics, Ottawa, Vols. 1936-1957.
Per capita expenditure data were obtained from National Accounts Income and
Expenditure 1926-1956, Dominion Bureau of Statistics, Ottawa.

For the first period, 1935 to 1941, average per capita consumption of beef was 55.2 lbs and the average population of Manitoba was 720,000. In contrast, for the years 1950 to 1957, average consumption was 63.2 lbs per person, with the average population standing at 820,000. This, as mentioned previously, should to some extent explain the movement of the demand curve to the right. Upward movement over time of the derived demand curves, will to some degree, result from increase in real income per capita, which, using average figures stated in terms of constant dollars, rose from 582 for 1935 to 1941, to 894 for the years 1950 to 1957.

So far, the years 1942 to 1949 have not been discussed. For the major part of this period, in particular for the years 1943 to 1947 (see Figure 17), wartime price restrictions were in operation. As can be seen from Figure 17a, the estimated demand curves were fairly constant at all levels of supply. This horizontal demand resulted from the stifling of the usual economic forces in favour of a more stable wartime price policy. Regarding this latter point, it can be observed from Figure 17b that the margin between the wholesale buying and selling price was unusually uniform.

The years 1948 and 1949 cannot, for obvious reasons, be included in the "war years class". For want of a more suitable place, they were included along with the other postwar years. As far as prices were concerned, these years represented the transition period between the wartime economy with its associated restrictions and the more "economically normal" peace time economy. In both these years volume of cattle was very large. However, prices at both the farm and wholesale level were also fairly high in relation to volume. A comparison of 1948 and 1949 with 1953 and 1954 –

WHOLESALE AND FARM PRICES, 1942-47*
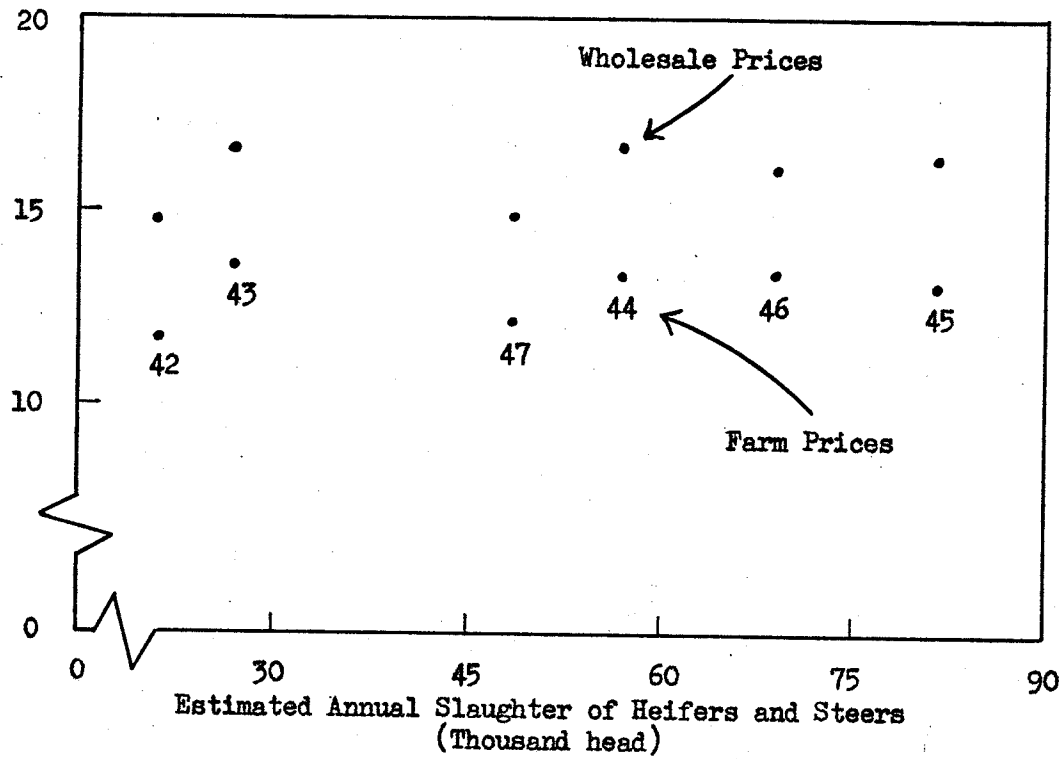
Deflated dollars **

FIGURE 17a

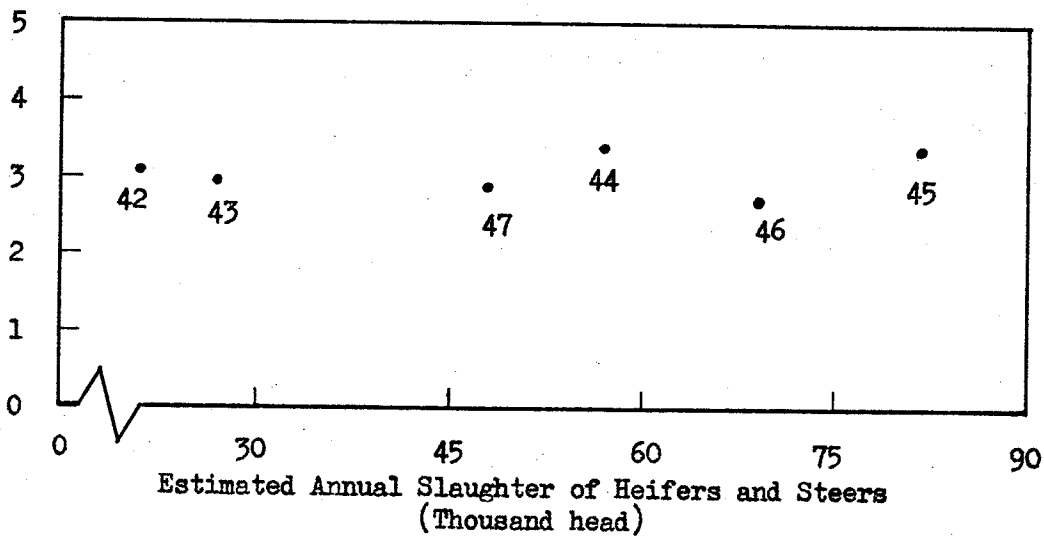Deflated dollars **   THE WHOLESALE MARGIN, 1942-47*

FIGURE 17b

*Source: See Appendix Table I
**Deflated by General Wholesale Price Index, base 1935-39 = 100

years when a similar volume was handled, reveals fairly large price differences, as shown in the following tabulation:

	Estimated Slaughter of Medium Heifers and Steers	Deflated Farm Price	Deflated Wholesale Price
1948	43,040	14.65	19.44
1949	42,485	16.10	20.01
1953	43,024	13.11	19.01
1954	43,916	12.48	18.80

Differences between prices in the two periods are not exceptionally large. However, as mentioned previously, it would normally be expected that an upward movement in the demand curve would to some extent result from an increase in real income. Comparing 1948 and 1949 with 1953 and 1954, the latter years experienced lower prices for similar volumes, compared with the earlier years - in other words a decrease in demand. At the same time, real income increased from 814 (using 1949 dollars) in 1948 to 1949, to 896 in 1953 to 1954. Even a small decline in the derived demand curve would not have been expected had conditions been "normal".

The Theoretical and the Actual Wholesale Margin

In the earlier theoretical discussion it was hypothesized that when volume of supply was low, processing costs per unit would be high and that the necessary margins would be wide. It was also suggested that when supply was large, the reverse situation would occur: costs per unit would fall and the margin would be relatively narrower. An examination of the deflated margin (Figure 18) tends to refute this hypothesis. In both the prewar and

THE WHOLESALE MARGIN AND SLAUGHTER
1935-41 (18a) AND 1950-57 (18b)*

Deflated Dollars **

Estimated Annual Slaughter of Medium Steers and Heifers
(Thousand Head)

FIGURE 18a

Deflated Dollars **

Estimated Annual Slaughter of Medium Steers and Heifers
(Thousand Head)
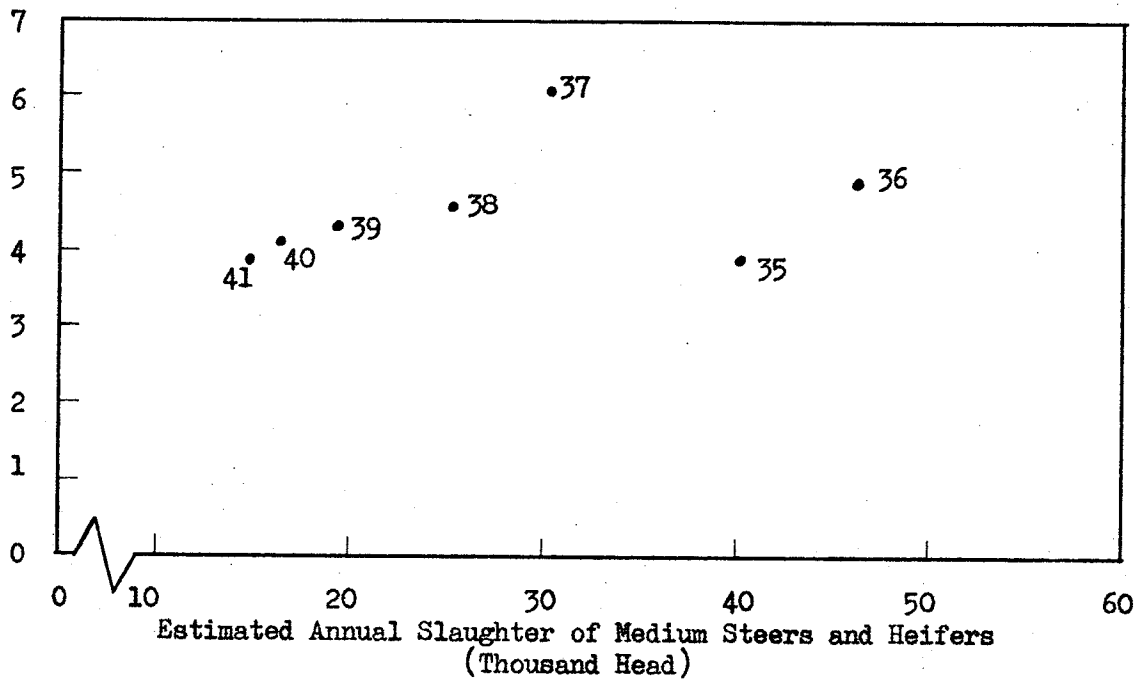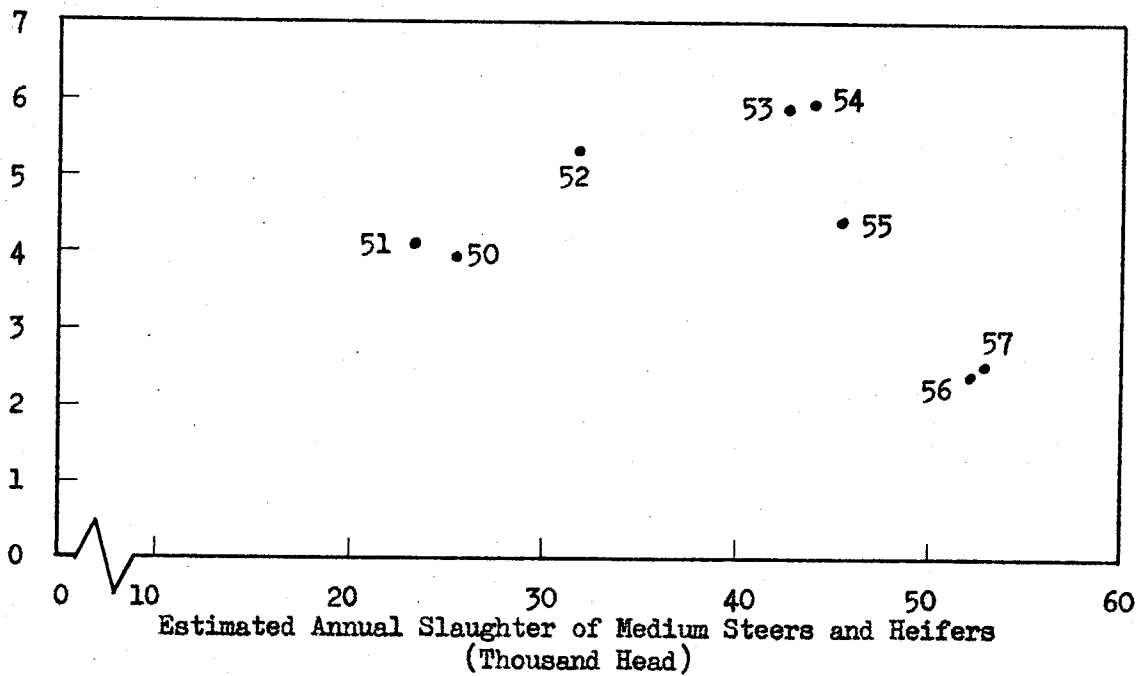
FIGURE 18b

* Source: See Appendix Table 1
** Deflated by General Wholesale Price Index, base 1935-39 = 100

postwar periods considered in Figures 18a and 18b, the margin initially rose as volume purchased increased. This is seen very clearly in Figure 18a where the margin steadily increased as the supply rose from 15,000 to 25,000. For further increases in volume, the trend of the margin is rather indeterminate.

If the estimated demand curves for cattle, presented in Figure 16a, are in fact a true reflection of demand, then points removed from the curves are displaced due to effects of other variables in the system. In this case the normal margin would be the difference between the two curves and not the difference between the actual prices.

In Figure 18a it should be noted that for all years except 1937, the margin calculated from actual prices would closely approximate the margin calculated from the estimated demand curves. However, in 1937, the actual wholesale price (Figure 16a) is considerably above the estimated demand curve. Assuming that this is, in fact, a distortion caused by the drought in that year and that a more "normal" wholesale price would be much lower, for that level of supply, then the wholesale margin in 1937 would be reduced. If this reduced 1937 margin was inserted into Figure 18a, it would be so positioned as to be a continuation of the 1938 to 1941 trend. This trend line could then be projected to 1936, leaving 1935 as the only year exhibiting any marked deviation.

Provided that the preceding assumption is valid, then it is evident that from 1935 to 1941, at least on an annual average basis, the wholesale margin was directly related to the volume of slaughter. As slaughter increased, the wholesaler was able to obtain a wider margin. The preceding

evidence in no way supports the hypothesis that the packers charge a percentage or constant margin, or a decreasing margin tied to decreasing per unit costs.

In Figure 18b the margin shows an initial increase with rising slaughter volume and levels off at a relatively wide margin. So far, this is in conflict with the previously expressed theory. However, the wide margin did not continue indefinitely as the number of animals purchased increased. When more than 45,000 animals were marketed, the margin rapidly declined and eventually fell below the low margin associated with a particularly low volume. Returning to Figure 16b, it can be observed that the reduced margin was not the result of an increased farm price, but rather was due to a declining wholesale price. This point is brought out in the following tabulation:

	Deflated Farm Price	Deflated Wholesale Price
1954	12.48	18.40
1955	13.36	17.72
1956	12.67	14.98
1957	12.51	15.09

It can also be seen that this decline in the margin occurred over successive years, implying that over that period some factors were to an increasing degree depressing the wholesale price. It is quite possible that one factor was the increasingly stronger bargaining position of the retailers. As more retail chain stores were built and a greater proportion of meat sold to the consumer passed through these outlets, each individual

chain would serve a greater share of the market. The chain store's share of the market would presumably expand at the expense of the small corner grocery. The major part of meat retailing would, therefore, be handled by progressively fewer firms resulting in these firms being in a much stronger bargaining position as far as purchasing meat from the wholesaler was concerned.

CHAPTER VII

THE WHOLESALE MARGIN II

The Wholesale Margin and Cattle Slaughter

In the previous chapter, when the wholesale margin and the number
of cattle slaughtered were compared on an annual basis, there was found to
be a definite relationship between the two variables. Examination of this
relationship revealed that the wholesale margin varied directly with the
volume of cattle slaughtered, though in later years the relationship
appeared to be affected by other factors such as the strength of the retail
buyers.

A low volume of slaughter was accompanied by a high farm price.
The farm price, apparently inflated by highly competitive inter-packer
bidding for scarce supplies, resulted in a narrow wholesale margin. When
there was an increase in volume, inter-packer competition was evidently
not so keen, the farm price was lower, and the wholesale margin was wider.
At still larger volumes, retail buyers were able to drive harder price bar-
gains and both the farm and wholesale prices were low and the wholesale
margin tended to be relatively narrower. These tendencies were observed in
an examination of annual prices only. In this section the relationship be-
tween the supply of animals and the wholesale margin will be examined on a
monthly basis.

For the analysis of monthly data, the overall slaughter of cattle
in Manitoba was used as a measure of supply. In this analysis, the measure

of supply is expressed either as a moving average or as an index.

When the seasonal movement in the wholesale margin and in cattle slaughter were compared for the prewar period (Figure 19) there was found to be a direct relationship between the two variables; when slaughter was high the margin tended to be wide and vice versa. However, as can be seen from Figure 19, changes in the wholesale margin tended to lead or precede changes in slaughter by one or two months. No very satisfactory explanation was found for this phenomenon although it is possible that the series from which the wholesale margin was calculated were computed in such a way as to inadvertently lag the margin. This is extremely unlikely. It is also possible that the lag in the margin was due to packers anticipating changes in the volume slaughtered. This explanation is plausible as far as a rising margin is concerned, but it is difficult to reconcile this idea with a falling margin.

The postwar years, illustrated in Figure 20, show a similar relationship between the wholesale margin and slaughter to that present during the prewar period. Again, changes in the wholesale margin preceded changes in slaughter. There appeared to be an abnormal relationship between the two variables in November. Normally, with margin and slaughter movements directly related, a month of peak slaughter would also be a month of wide margins. This narrowing of the margin in November might be partially explained by the fact that farm prices increased rather than fell with peak volume of slaughter. In November, the farm price was higher than in October, but in December, a month experiencing a wide wholesale margin, the farm price was higher than in either of the two previous months. It

INDEX OF SEASONAL VARIATION OF THE WHOLESALE MARGIN
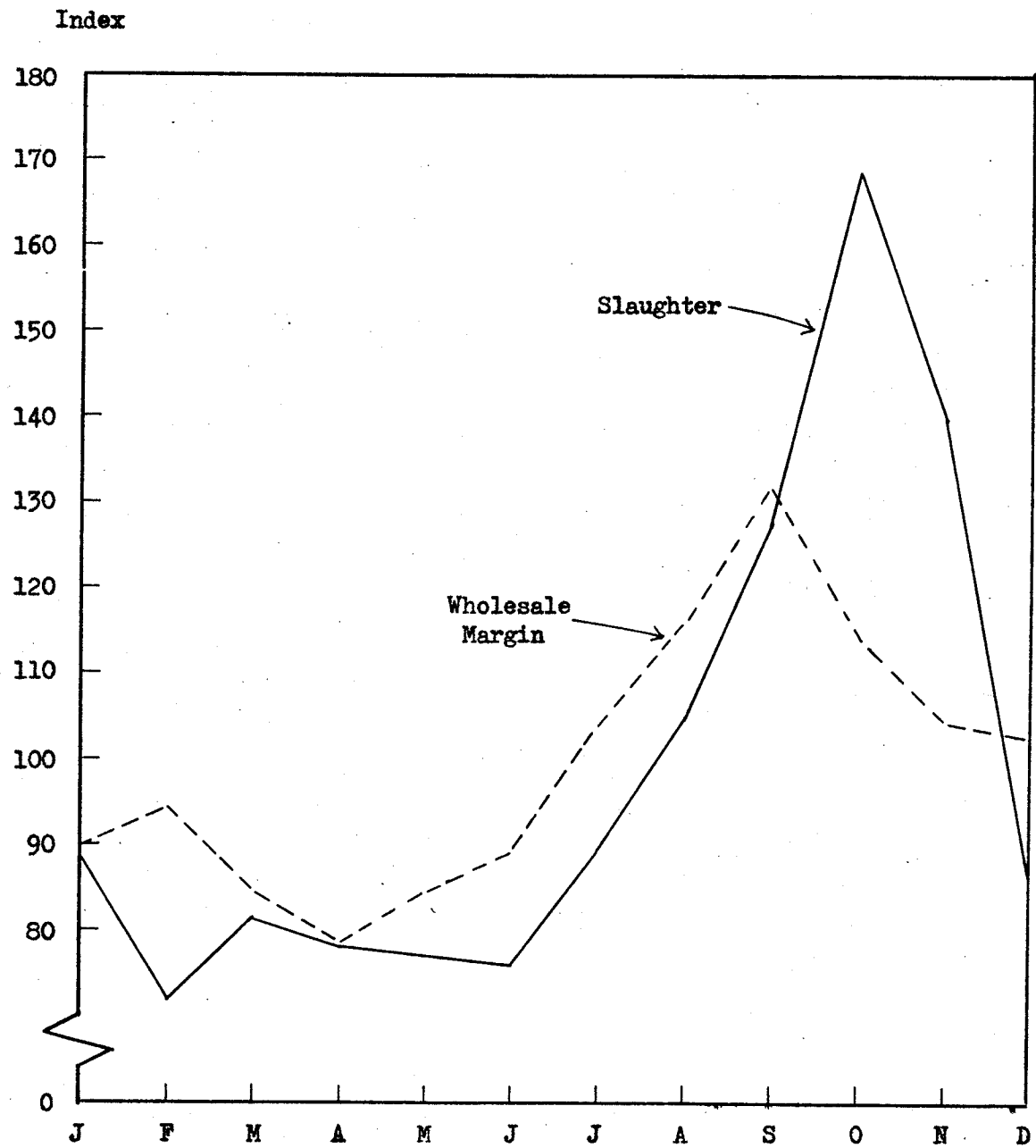AND OF SLAUGHTER, 1935-41*

FIGURE 19

*Calculated by taking actual monthly slaughter and actual monthly
wholesale margins (See Appendix Table I) as a percentage of the 12 month
moving average of slaughter and of the wholesale margin.

INDEX OF SEASONAL VARIATION OF THE WHOLESALE MARGIN
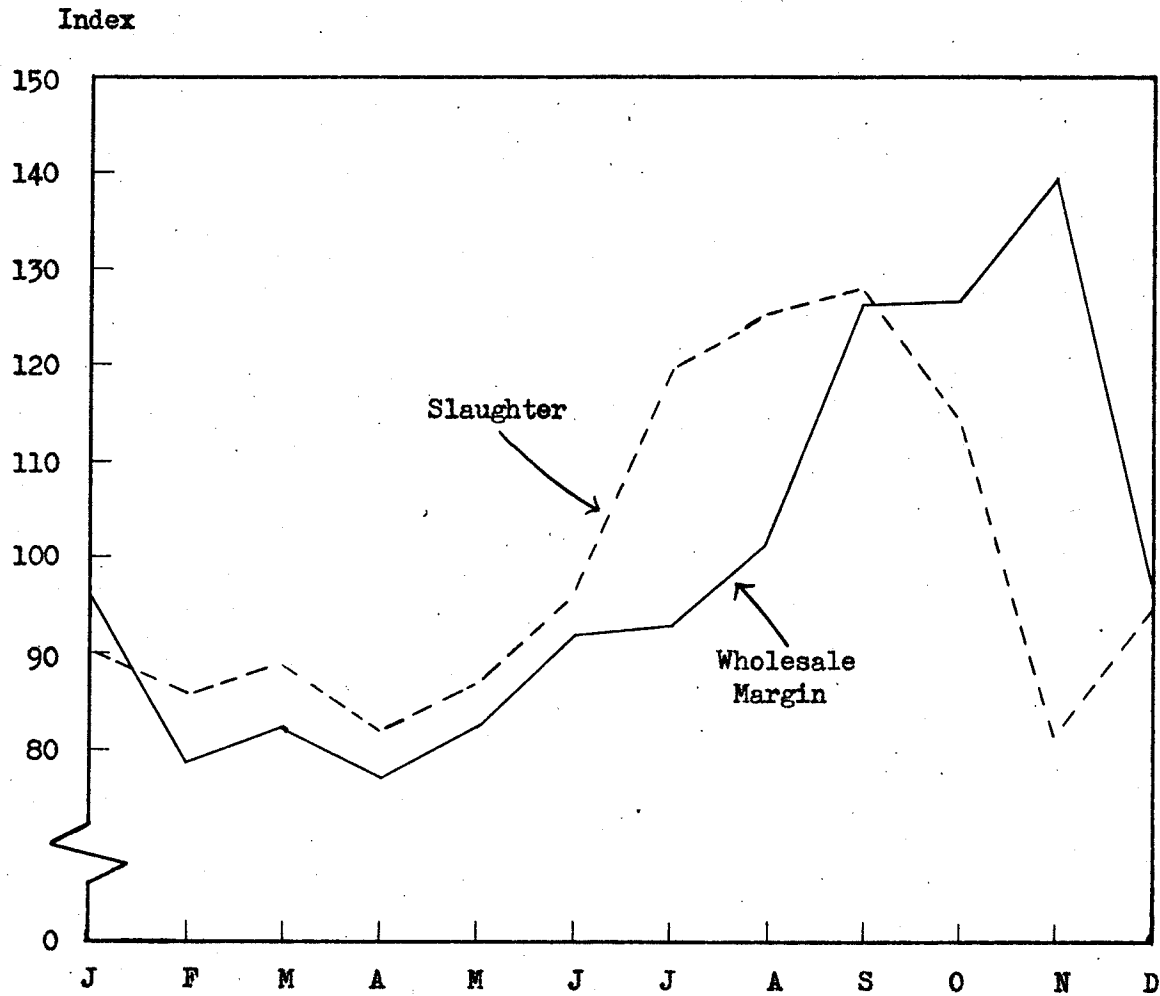AND OF SLAUGHTER, 1948-57*

Index

FIGURE 20

*Source: See Figure 19

appears then, that both in the prewar and postwar years, the direct relationship between the width of the margin and the number of animals slaughtered was not precise and that other factors were probably involved.

In an attempt to more fully explain the reasons for changes in the wholesale margin preceding changes in slaughter, monthly farm and wholesale prices were studied.

Examination of the average monthly wholesale and farm prices for the periods concerned reveals that one of the most important factors affecting the width of the wholesale margin was variation in wholesale price. In the 1935 to 1941 period, for the months of July, August and September, wholesale price was steadily rising while farm price was falling. This led to the occurrence of the widest margin in September. Following September, farm price continued to fall whereas wholesale price, instead of continuing its upward trend, declined very sharply thus giving a narrower margin.

When prices for the postwar period were considered, it was found that, on the average, both farm and wholesale prices were declining over July, August and September, with the wholesale price falling most slowly. However, in October wholesale price again experienced a considerable decrease. This appears to indicate that slaughter affects the wholesale margin only indirectly and, therefore, only in a general way, and that it is mainly the movement of the wholesale price which determines the margin's turning point.

The Wholesale Margin and Farm Price

The farm price was discussed in some detail in the section under

that heading. It is pertinent at this point to restate salient features
which appeared in the previous analysis of the price.

The farm price rose steadily from 1935 to 1943; thereafter, until
1947, the price was relatively stable. Following 1947 there was an in-
creasing farm price which reached a peak in 1951 and then declined until
1953. From 1953 to 1957, there was a further period of stable farm prices.

Farm prices were generally highest in the first six months of the
year, while the lowest prices occurred in October and November.

Over time, the amplitude of the seasonal price cycle diminished.
The peak in the farm prices decreased while the trough became shallower.
Practically all of the decline in the range between high and low prices
occurred between the periods 1935 to 1939 and 1940 to 1947. After 1940,
there was no significant change in the magnitude of the peak and the trough.

Wholesale margins and farm prices were discussed on an annual basis
in a previous section. No close relation was detected between the level
of the farm price and the width of the margin. Although there were changes
in the margin, these changes were not very great and appeared to be associ-
ated more with the level of supply of cattle and with wholesale price than
with the farm price level.

It was previously hypothesized that per unit processing costs
would affect the size of the margin. On an annual basis, this was par-
tially refuted. It might be expected that the relationships would be
similar over a shorter time period of, say, twelve months. A short supply
might result in keen competition which in turn would result in high farm
prices and generally a lower margin. However, the effect on prices in the

short run of inter-packer competition would be modified by the existence

of stocks of beef. Even in a period of short supply, if the wholesaler

had previously built up adequate stocks of meat in storage, then the effect

of a short supply of animals on the farm price would necessarily be reduced.

Seasonality of farm prices was such that prices were always high

early in the year and low towards the end of the year. As can be seen

from Figures 21a, 21b and 21c, the margin showed a very different seasonal

pattern. The margin was widest in the fall or later part of the year and

generally narrowest in the earlier months. In this respect the margin did

show an inverse relationship to the farm price. However, as can be seen

from Figures 21a, 21b and 21c, there was no apparent trend or significant

change in the amplitude of the seasonal pattern of the wholesale margins

over time. Although the range of seasonal variation in the farm price

diminished considerably over time, only a minor change took place in the

margin. There was only a slight decrease in the range of the margin for

the years 1948 to 1957 (Figure 21c) compared to the previous periods.

It appears that, at least during the postwar years, the width of

the margin was determined more by variability of wholesale price than by

the relatively stable farm price. In the years 1948 to 1957 the relation

between farm price and the wholesale margin became somewhat tenuous. Al-

though the seasonal patterns of the two variables were generally similar

to patterns in earlier time periods, the seasonal price movement was so

slight that the inverse relationship was less clearly apparent. In fact

the month to month changes in the two variables were as often direct as

inverse.

INDEX OF SEASONAL VARIATION OF THE WHOLESALE MARGIN AND OF FARM PRICE,
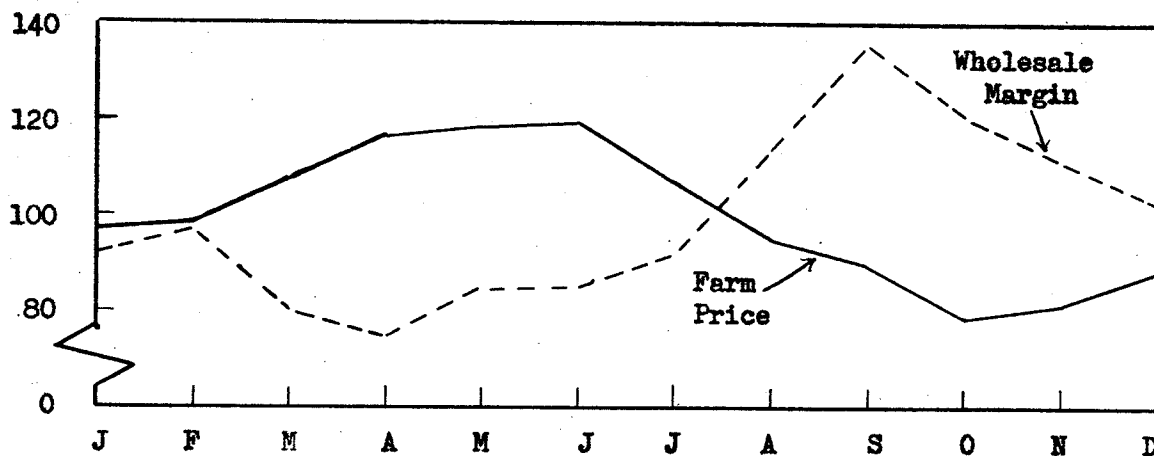1935-39 (Figure 21a), 1940-47 (Figure 21b) AND 1948-57 (Figure 21c)*
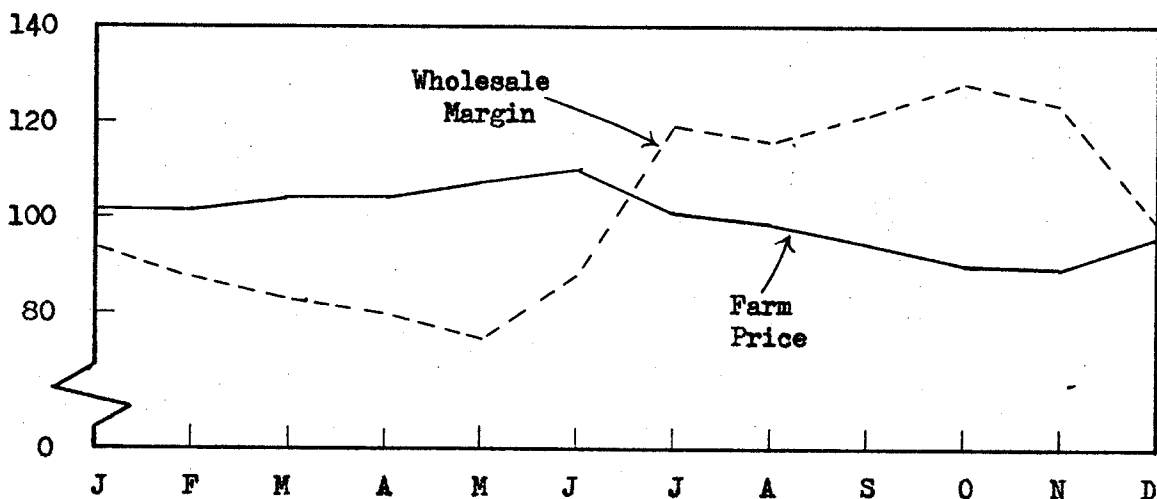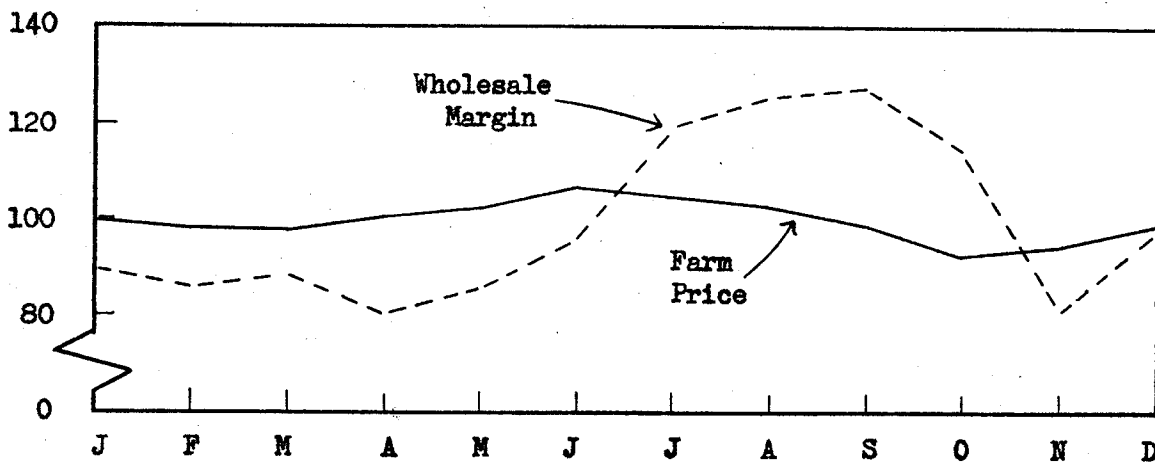

FIGURE 21a

FIGURE 21b

FIGURE 21c

*Calculated by taking actual monthly wholesale margins and actual monthly farm prices (See Appendix Table I) as a percentage of the 12 month moving average of wholesale margin and of farm price.

In comparison, there was a very definite inverse relationship between the farm price and the wholesale margin for the period 1935 to 1947. This inverse relationship is graphically illustrated in Figures 21a and 21b. A further, more precise, measure is obtained when the relationship between the farm price and the wholesale margin is expressed in terms of correlation coefficients:

Years	Coefficient of Correlation (r)
1935 - 1939	-0.83
1940 - 1947	-0.82
1948 - 1957	0.05

The correlation coefficients illustrate the marked change which occurred in the relationship between the farm price and the wholesale margin in the first two periods considered compared to the most recent period. From 1935 to 1947 approximately 68% of the time, a change in the margin in one direction was associated with a change of the farm price in the opposite direction. In other words, 68% of the variation in the margin was associated with variation in the farm price.

For the years 1948 to 1957 there was no clear association between variations in the farm price and changes in the wholesale margin.

At least for the earlier years, 1935 to 1947, the evidence does not support the hypothesis that high costs per unit lead to wider margins when farm prices are seasonally high. However, since 1948 a high farm price, at least on a monthly basis, has not necessarily been associated with a narrow margin. During this period, movements in the width of the margin appear to have been more independent of the farm price.

Summing up the last two chapters with reference to the original hypothesis, it can be stated that from 1935 to 1941, both on an annual and on a monthly basis, the empirical evidence does not support the hypothesis that the wholesale margin varies inversely with supply. In the postwar period, after 1949 and until 1957, annual data also contradict the hypothesis, and during these years monthly data revealed that there was no definite relationship between the monthly wholesale margin and farm price or supply within the year.

CHAPTER VIII

THE RETAIL MARGIN

The initial hypothesis was concerned with the relationship between volume handled and the wholesale and retail margins. In the previous two chapters, many such aspects of the wholesale margin were considered. In this chapter it is planned to deal in a similar manner with the retail margin, but before such treatment it is first necessary to examine the operation and problems of the retail industry.

The Operations of the Retailer

Retailing is the largest single cost item included in the marketing charges for meat and meat products. Paradoxically, it is the function on which little research has been conducted and for which the least information is available.

The retailer's supply of meat at a given time is relatively fixed and perishable. His alternatives to immediate sale are limited. Prices for the various cuts are based upon consumer preference which is related to the relative amount of lean meat and upon the quality or "choiceness" of the meat. The average asking price for all cuts from a carcass is estimated so that all costs will be covered. Adjustments may later be made in accordance with consumer response to those prices. If the price for a given cut is higher than people are willing to pay, supplies will move slowly. Such a price will most probably be reduced to move the stocks on hand into consumption. At the same time, cuts experiencing a ready sale

may be increased in price to compensate for those slow-moving cuts receiving price reductions.

While over the last ten to twenty years the operations of the packer have remained substantially unchanged, the operations carried out by the retailer have, especially in recent years, undergone considerable revision. The independently owned, small volume, meat-retailing business has been replaced in many instances by the retail chain store. Not only has the type of retail outlet changed, but the actual product sold has had many extra services incorporated into its make-up. A large proportion of meat retailed has, in recent years, been sold by a few large companies that own many stores and sell the product in an increasingly refined form. In many cases, the one-product meat outlet of prewar years has been replaced by stores which offer for sale a vast number of different commodities among which the volume of meat sold is of relatively minor importance.

When meat is sold along with many other food products, the price at which it is sold does not necessarily bear a consistent relation to the wholesale price, the retailer's cost of handling or the equilibrium price at which it could be sold. Profit on a single item sold by the store is of minor importance. It is the overall profit earned by the store that is of concern to the management.

In this light it is possible that at times, meat may be a highly advertised commodity used to attract customers to the particular store. This would almost inevitably require that the price be below the equilibrium price prevailing in other stores. It is possible that at this lower price little or no profit would accrue from sale of meat, but the increased sale

of this one commodity would almost certainly lead to an increased volume of sale of many other commodities. Such a low price for meat would distort the retail margin. However, such a distortion would be extremely difficult, if not impossible, to identify and separate from distortions caused by other factors.

Fortunately, the use of meat as a "loss leader" is only intermittent. Even when used, it is generally only a particular cut which receives attention and the price reduction is usually applied for a limited length of time only.

The width of the retailer's margin will essentially depend upon the price the consumer is willing to pay and on the price paid by the retailer to the wholesaler. Of the two, the wholesaler's price is the least complex, and estimations of it are more reliable.

The retailer has to stock a certain amount of each kind of meat, and the determination of the proportions and actual amounts of each cut to be carried is one of his major problems. On the other hand, the consumer is in no way compelled to purchase any particular kind of meat or for that matter any meat at all. When one kind of meat is expensive, the store will still have to stock it or else face the prospect that potential consumers will do business elsewhere. The consumer has no obligation to buy that meat. It is this complete freedom of choice together with unpredictable behaviour on the part of the consumer, and the presence of very close substitutes for each particular kind of meat that adds to the complexity of the forces determining retail price.

Consumer's and Retailer's Demand

It was concluded when the wholesale margin was examined, that when cattle were in short supply, competitive bidding by packers tended to push up the price and reduce the processing margin below the expected level. What happens at the retail level when supplies of cattle are short? There will almost certainly be an increase in price with the decrease in quantity supplied. However, with an increased price, many previous consumer buyers of a particular cut of beef may purchase cheaper cuts, rather than buy less of the more expensive cut. However, cheaper cuts will now experience greater demand probably resulting in relatively higher prices. On this basis, depending on the increase in price on the cheaper cut, the over-all retail price of that kind of meat, say beef, may rise only moderately above the level prevailing prior to the decrease in supply. Should the increase in price of beef result in buyers changing their consumption patterns and buying pork instead, then the initial increase in the price of beef may shortly be followed by a downward adjustment. As consumption patterns do not radically change over the short time period and as the initial price increase is not likely to be either very great or very sudden, then the move from beef to other kinds of meat is not likely to be very significant. A decrease in the supply then will, since consumers can turn to other kinds of meat, result in an increase in the retail price somewhat less than would otherwise be the case.

When considering the wholesale margin, it was noted that with a small supply the margin decreased - probably due to inter-packer competition

for volume. If retailers had similarly competed strongly for the wholesaler's meat, then this would have had the effect of widening the wholesaler's margin by raising the wholesale price. There is, therefore, no reason to believe that the retail margin should necessarily be narrower due to a higher than "normal" wholesale price. However, as suggested previously, if, at high prices, there is a substantial move out of beef consumption to other meats, then consumer demand will be so reduced as to result in a fall in the retail relative to the wholesale price. In this instance, the retail margin would be narrower with a small supply and the elasticity of consumer demand would have decreased relative to that of derived wholesale demand.

The retail price, relative to supply and compared with the wholesale price is illustrated in Figures 22, 23 and 24. The data were divided into the particular time periods expressed in the figures in order to follow the same procedure as in the analysis of the wholesale margin. In the figures just mentioned, average annual retail price of beef from medium cattle was plotted against estimated slaughter of medium cattle. As illustrated, the consumer's demand curve was derived from annual price and quantity data. These demand curves sloped downwards to the right indicating that higher prices were paid when the supply was small.

Unlike the retailer's derived demand curves, consumer demand curves in both prewar and postwar periods appeared to have continuously varying slopes. In the period 1935 to 1941, after the equivalent of from 30,000 to 35,000 animals had been purchased, the demand curves appeared to become extremely elastic. In the 1950 to 1957 period, the consumer demand curve

ESTIMATED RETAILER AND CONSUMER DEMAND CURVES 1950–57*

Deflated Dollars **

Estimated Annual Slaughter of Medium Steers and Heifers
(Thousand Head)
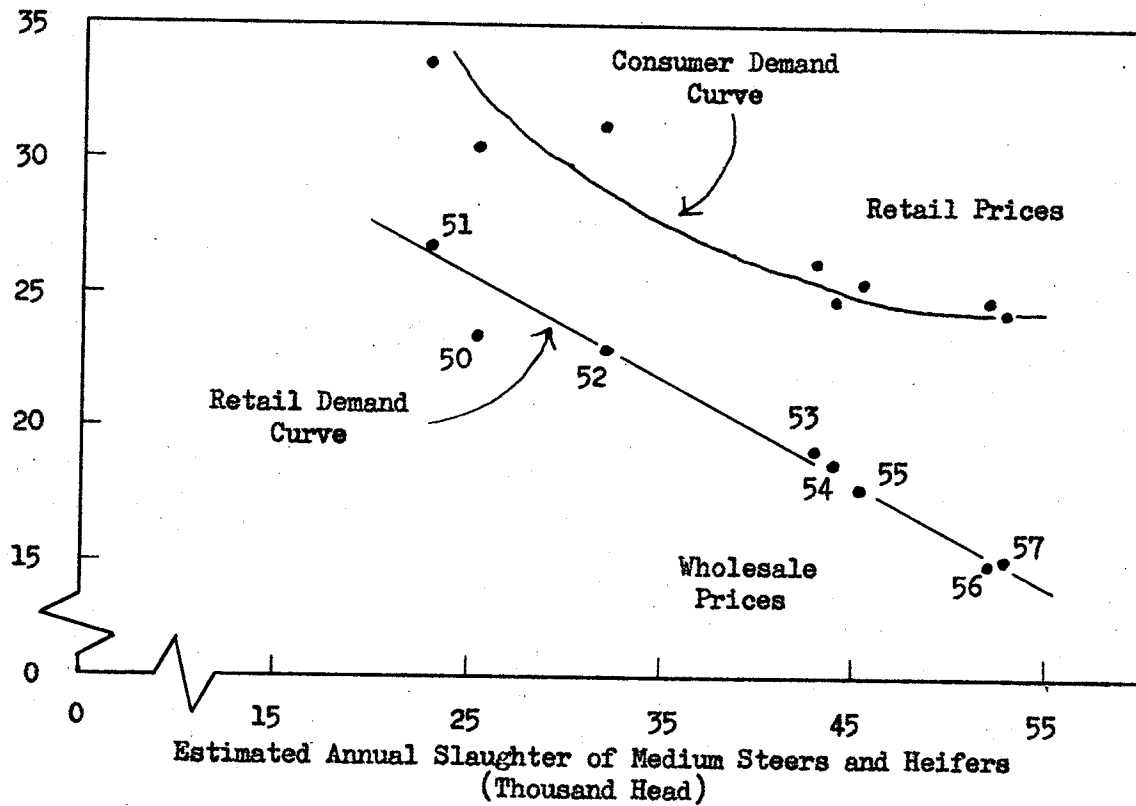
FIGURE 24a

THE RETAIL MARGIN 1950–57*

Deflated Dollars **

Estimated Annual Slaughter of Medium Steers and Heifers
(Thousand Head)
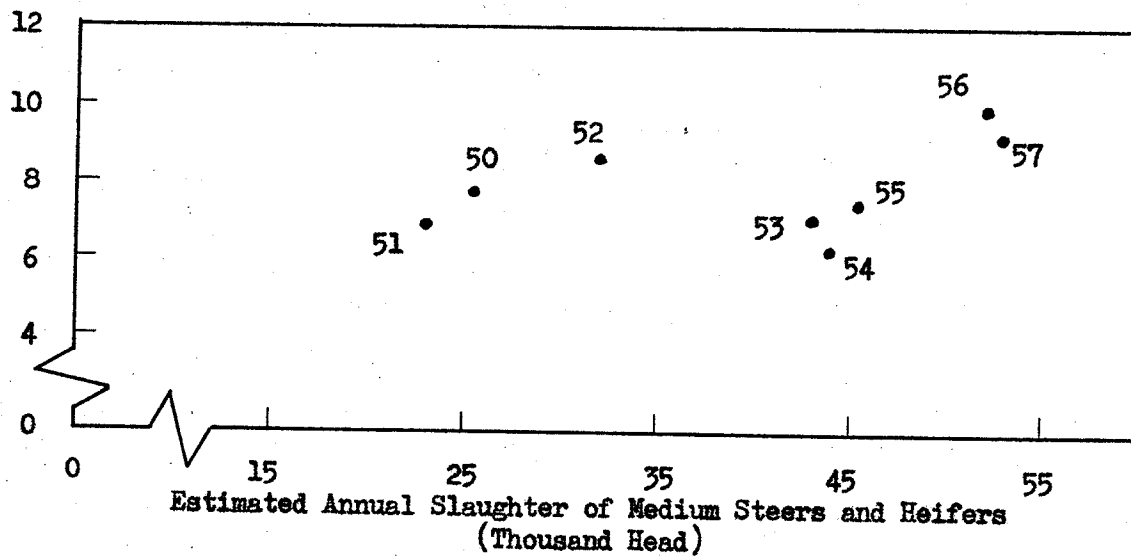
FIGURE 24b

* Source: See Appendix Table 1
** Deflated by General Wholesale Price Index, base 1935–39 = 100

did not become similarly elastic until about 45,000 were bought, but the retailer's derived demand appeared to have a constant slope. The consumer demand curve was approximately parallel to the derived demand curves of the retailer and the packer for the period 1935 to 1941. This indicates that, at least to some extent, the margin was constant and was not arrived at on a percentage basis.

Variations and Distortions in the Retail Margin

In the period 1950 to 1957, the wholesale price did not parallel the retail price at higher quantities. There was no levelling off of the wholesale price at higher levels of supply and this, in the absence of a similar downward trend in the retail demand curve, resulted in abnormally large retail margins in 1956 and 1957. The large retail margin in those two years shows that the retailer was able to obtain an increasing margin even when supply was increasing. It also illustrates the point that a fall in the wholesale price may occur without an accompanying decline in the retail price. In 1956 and 1957, the reduced wholesale price was not paralleled by any lowering of the price facing the consumer. The retail price declined only very slightly from 1953 to 1954 and from 1955 to 1956 and 1957 in spite of an increase in quantity supplied of over 20 percent.

Interpretations of the actual average annual margin, Figures 22, 23 and 24, can be extremely misleading in that variations in the width of the margin may result from distortions of wholesale and retail prices. As can be seen from Figure 22, both retail and wholesale prices are distributed about their respective demand curves. Assuming that these curves

are, in fact, a true reflection of demand at various levels of supply, then deviations from the line are due to other variables having different effects at different times and at different levels of slaughter. An examination of the deviation of price quantity points from the demand curves reveals considerable variation in position.

The Prewar Period

The years 1935 and 1936 appear to have a normal margin and normal prices, but in 1937 the retail price was depressed while the wholesale price rose. This was followed by the opposite set of circumstances in 1938, when the retail price rose and the wholesale price fell. In 1939, the wholesale price appears to be normal while the retail price was above the expected. The year 1940 was one in which both the retail and wholesale price fell below the normal. This haphazard occurrence of distortions or deviations indicates the possible presence of several other variables which affected the wholesale and retail prices and which acted intermittently and to varying degrees. Any examination of the actual margins would necessarily become involved in the complexities of these other variables.

The margin illustrated in Figure 22b is the margin affected by these other variables. There is no reason to believe that they had more effect at one particular level of slaughter as compared to a different level. In other words, it is not very likely that their reactions necessarily were associated with certain levels of slaughter. To return to the illustration Figure 22b, the year 1939 had a higher margin than either

of the years 1940 or 1941, but an examination of Figure 22a reveals that this increase is due to a higher than "expected" retail price. If the distortion was removed, then the margin in 1939 would be much closer vertically to the level of 1940 and 1941 in Figure 22a. Similarly in 1938, correction of the deviations would considerably lower the margin. In 1937, both the wholesale and the retail price appear to have been distorted, resulting in a lower than normal margin. As mentioned previously, this does not lead to the conclusion that a low margin is necessarily associated with a medium level of slaughter.

Removal of all distortions or comparison of the demand curves indicates a margin with a slight tendency to decrease as slaughter increased. This reveals that any other variables that affected the margin were associated in their effect with the level of slaughter.

The appearance in Figure 22b of an initially rising margin may well be misleading. It may be due to distortions in the margin in 1938 and 1939 and not to any variables necessarily associated with a particular level of supply. A possible explanation of the tendency for the margin to decline as quantity increases is that retailers may have wished to maintain their net profit. Assuming a constant cost per unit over-all levels of supply, this would have required the margin to increase as the amount sold diminished. More realistically, it is possible that the retailer was faced with a situation whereby per unit service costs decreased with volume handled. If this was the case, and if the retailer wanted to make the same profit per unit immaterial of the amount handled, then he would have striven for a larger margin as the volume he sold declined.

The Postwar Period

As far as wholesale and retail prices are concerned, the postwar period illustrated in Figure 24a was much more complex than the period just discussed. Unlike the prewar period, the distortions of the wholesale and retail prices in the years 1950 to 1957 were so great, that the location of the demand curve is much less reliably determined. Especially in the case of the consumer demand curve, the positioning of any such curve would be rather arbitrary. Furthermore, although a straight line retailer's demand curve appears to be indicated, it is difficult to reconcile this projection with the continuously curved retail demand curve of the prewar period.

The actual retail margin is shown in Figure 24b. As mentioned previously, deviations of this margin from the normal or expected margin are rather difficult to determine. It is not possible to say much about the direction of distortion of the 1950, 1951 and 1952 margins, except to note that the 1952 margin was almost certainly abnormally wide. Reduction of this latter margin in Figure 24b would tend to destroy the illusion of a rising margin being associated at the lower levels of supply, with an increasing supply. The margins for the years 1953, 1954 and 1955 would differ little whether calculated on the basis of actual deflated prices or on the basis of demand curves drawn with reference to those prices.

It, therefore, appears that the margins in these years were fairly normal. By similar reasoning it is also suggested that the 1956 and 1957 margins were "normal". Admittedly, some variable had the effect of

widening them considerably compared with the previous three years, assuming of course that the curves are stationary demand curves, but this variable was acting continuously. From 1956 to 1957, for almost identical levels of supply, the respective wholesale and the retail prices differed only very slightly from each other - Figure 24b. The resulting margins can, therefore, be considered as normal.

Analysis of the prewar period indicated that the margin was inversely associated with supply and so it might have been expected that this would have resulted in small margins at the retail level in 1956 and 1957. As illustrated in Figure 24b, the retail margin earned during those years was greater than in any other years since the war. As already stated, the increase did not appear to be due to chance distortion. It is quite possible that the wider retail margin was due to the strength of the retailer's bargaining position at high levels of supply and may, in fact, mean that in 1956 and 1957 the retailer's demand curve moved downwards and to the left.

The "war years", 1942 to 1947 are shown in Figures 23a and 23b. No demand curves can be drawn for those years as the imposition of controls prevented the demand forces from affecting price. As only to be expected, with stable, controlled retail and wholesale prices, the retail margin was virtually constant - Figure 23b.

Empirical annual data describing the retail margin does, in the prewar period, support the hypothesis that the retail margin varies inversely with supply. Little can be said about the postwar years. Between 1948 and 1952, there is some evidence that the retail margin declined as

supply increased, but following 1952 the margin definitely appears to be

directly related to supply.

CHAPTER IX

SUMMARY AND CONCLUSIONS

Any study of a marketing industry requires a knowledge of the prices prevailing in that industry. In this study, following an examination of the agencies involved in marketing beef, the next section was devoted to a description of the price and supply series used and to modifications made in order to make the prices comparable. At certain points in this section it was noted that weaknesses in some series were unavoidable, but every attempt was made to use comparable series that would best reflect average prices prevailing in the market. .

After the statistics were considered, attention was turned to the supply side of the industry. Over the period considered (1935 to 1957) supply of cattle fluctuated greatly. Both cyclical and secular trends were present, but by means of a moving average these major variations were removed leaving a very distinct seasonal pattern. This pattern, prevalent throughout the years considered, consisted of high marketings and slaughter in the fall with fewer animals sold during the remainder of the year. However, over time the difference between peak slaughter and the number slaughtered at other times lessened and the seasonal pattern became less extreme. This is possibly due to farmers becoming better informed as to relatively high spring prices and possibly also to increasingly better transportation facilities. It was also determined that the peak in overall supply in the fall, especially September, October and November, was to a large extent due to uneven marketings of heifers and cows. Steers were

marketed fairly evenly throughout the year, while heifers and cows were predominately marketed from June to December which resulted in peak slaughter occurring at that time.

It was also found that when slaughter and supply were declining, cows and heifers were of greater relative importance than at other times. Therefore, in a period of falling slaughter, the peak was greater and the trough lower than for a period of rising slaughter.

Net farm prices were calculated by deducting transportation and primary marketing charges from the stockyard price. In order to get a measure of real price changes, annual prices for the years 1935 to 1957 were deflated by the general wholesale price index, base 1935 to 1939 equals 100. This deflation brought out the point that the real average annual farm price for the years 1952 to 1957 was little different from the wartime depressed price.

As expected, farm prices were inversely related to the supply of cattle, with high prices prevailing in the early part of the year. When the seasonal pattern was examined for changes over time, it was discovered that over the period considered the peak in farm prices, occurring in the first half of the year, markedly decreased while the trough became much shallower. This is almost certainly connected with the more even distribution of slaughter in later years. There was also a tendency for the period of high prices to move later in the year. In spite of the introduction of price controls during the "war years" (1943 to 1947) the farm price maintained its typical seasonal pattern.

When the wholesale margin was initially discussed, it was

hypothesized that the packer would attempt to charge either a constant or
a percentage margin. It was, however, recognized that the ability of the
packer to follow such a policy would depend on many factors outside his
immediate control.

The actual margin was considered for two periods of time (1935 to
1941 and 1948 to 1957). Estimated demand curves were constructed from
appropriate price and supply data. These demand curves were almost cer-
tainly composite curves, but it was suggested that in the periods con-
sidered they would approximate the actual demand curves. It was noted that
in the postwar period, the demand curves had moved upwards and to the right,
indicating a larger quantity demanded at each price. Changes in the margin
from one year to the next were rather erratic.

There was some evidence to support the belief that when supplies
were small, inter-packer competition resulted in overbidding and, there-
fore, smaller than average packer margins. No evidence was present to
support the hypothesis that packers might be charging a percentage margin.

The movement of the demand curves upward and to the right, compar-
ing the postwar to the prewar period was essentially due to increased de-
mand. This increased demand was mainly thought to be attributable to a
greater number of consumers, a higher real expenditure on goods and services
and an increased per capita consumption of beef.

Little could be said about the "war years" of 1943 to 1947. The
horizontal estimated "demand curves" which were present resulted from the
stifling of the usual economic forces in favour of a more stable wartime
price policy. It was also noted, not unexpectedly, that the margin between

the wholesale buying and selling price was unusually uniform at this time.

The years of 1948 and 1949 were included along with the other postwar years. As far as prices were concerned, these years represented the transition period between the wartime economy with its associated restrictions and the more "economically normal" peace-time economy. For these years, demand was found to be exceptionally high in contrast to what would have been expected under more normal conditions.

Once the estimated demand curves had been established, the next step was a further consideration of the relationship between supply and the width of the margin. At this point it was decided that the more normal margin would be the distance between the two demand curves rather than the difference between the actual prices. Using this basis for the determination of the margin, it was found that from 1935 to 1941, at least for annual average data, the wholesale margin was directly related to slaughter. This, to some extent, contradicts the original hypothesis.

The postwar years of 1948 to 1957 were next considered. Again the normal margin was postulated as the difference between the estimated demand curves. In the earlier years, as slaughter increased, the margin also increased, but after 1954 the width of the margin declined very rapidly. It appeared that over the last four years of the postwar period, some factor was to an increasing degree depressing the wholesale price. Mention should be made that, at this point, the farm price did not have any noticeable effect on this narrowing of the margin. It was suggested, mainly from logical as opposed to empirical evidence, that the factor responsible for the depressed wholesale price was the increasingly strong bargaining

position of the retailers. This point was again examined in a later section dealing with retail margins.

Examination of the wholesale margin and cattle slaughter was continued on a monthly basis. Changes in the wholesale margin were found to lead or precede changes in slaughter by one or two months. In an attempt to explain this lag, farm and wholesale prices were studied. Even though it was found that movements of the wholesale price, to a certain degree, determined the margins' turning point, the relationship was insufficiently precise to allow anything to be said with regard to the time lag. In fact, no very satisfactory explanation was found for its occurrence.

When the wholesale margin and farm price were considered on a monthly basis for the prewar period, there was found to be an inverse relationship between the two. Over time, there was no apparent trend or significant change in the amplitude of the seasonal pattern of the wholesale margins. In the years 1948 to 1957, the relation between the farm price and the wholesale margin became somewhat tenuous. Although the seasonal patterns of the two variables were generally similar to the patterns in earlier time periods, the seasonal price movements were considerably smaller and the inverse relationship was not clearly apparent. Since 1948, a high farm price, at least on a monthly basis, has not necessarily been associated with a narrow margin.

Following a discussion of the wholesale margin, the retail margin was next examined. The estimated consumer's demand curve was drawn and again the normal margin was considered to be the distance between the retail and consumer demand curves rather than the difference of the actual

prices.

Consumer's estimated demand curves for beef had continuously vary-
ing slopes in both prewar and postwar periods. For the years 1935 to 1941,
the consumer's demand curve was approximately parallel to the retailer's
derived demand curve. For the period 1948 to 1957, the consumer's demand
curve tended to the horizontal as supply increased, whereas the retailer's
curve appeared to possess a constant slope.

Compared to the earlier period when the retail margin showed a
tendency to decrease as slaughter increased, in the postwar period the
margin first declined and then increased. It was tentatively suggested,
as mentioned earlier, that this increase was due to the increasing strength
of the retailer's bargaining position.

In view of the evidence presented in this study, it does not seem
that the original hypothesis; that the retail and wholesale margins vary
inversely with the level of supply, can be supported.

At no time during the period under study did either annual or
monthly wholesale margin data show conclusive evidence of a wholesale mar-
gin declining as volume increased. In fact at times, the opposite re-
lationship was fairly clearly observed. On the other hand, the retail mar-
gin in the prewar period, did vary inversely with supply. Between 1948 and
1952, there is some evidence that the retail margin declined as supply in-
creased, but following 1952, the margin appeared to be directly related to
supply.

As mentioned in the introduction along with consideration of the
major hypothesis, this study was also conceived as a description of the

Manitoba beef marketing industry. As such, it was not expected that any definite conclusions would be reached.

However, it does appear that seasonality of marketings is slowly disappearing from the supply picture, though a regular supply over the year is not foreseen in the near future.

Perhaps the most interesting revelation is the evidence of intense competition between the wholesalers and retailers. It seems that in the last two years of the study, the retailers were finally able, at the expense of the wholesalers, to obtain a considerably larger share of the consumer's dollar. Whether this situation will continue for other levels of supply or whether it is a condition unique to a high level of supply, cannot be determined until later years are studied.

Before any definite conclusions can be arrived at as regards the retail margin, more precise statistics of the retail price will have to be compiled. It may be that work on family budget data would provide some extremely useful information in this direction. Work in this particular field has so far received little attention in Canada. It is only when reliable price data are available that more exhaustive studies of marketing margins can be carried out.

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APPENDIX

TABLE I

MEDIUM HEIFER AND STEER PRICES AND MARGINS, 1935-57*

| Year | Non-deflated series | | | | | Deflated series** | | | | |
	Farm price	Wholesale price	Retail price	Wholesale margin	Retail margin	Farm price	Wholesale price	Retail price	Wholesale margin	Retail margin
1935	5.32	8.98	14.38	2.74	5.40	5.64	9.51	15.23	2.90	5.72
1936	4.94	9.64	14.70	3.79	5.06	5.11	9.97	15.20	3.92	5.23
1937	6.47	13.03	17.37	5.60	4.34	6.00	12.09	16.11	5.19	4.03
1938	6.49	11.18	18.64	3.69	7.46	6.37	10.97	18.29	3.62	7.32
1939	8.22	12.44	19.52	3.20	7.08	8.28	12.53	19.66	3.22	7.13
1940	9.57	13.99	20.77	3.37	6.78	8.84	12.93	19.20	3.11	6.27
1941	11.75	16.28	23.72	3.46	7.44	10.08	13.96	20.34	2.97	6.38
1942	14.52	18.31	25.95	2.70	7.64	11.79	14.86	21.06	2.19	6.20
1943	17.51	21.32	29.52	2.71	8.20	13.65	16.62	23.01	2.11	6.39
1944	17.39	21.87	30.06	3.33	8.19	13.28	16.71	23.00	2.54	6.26
1945	17.31	21.76	30.45	3.35	8.69	13.07	16.44	23.00	2.53	6.56
1946	18.61	22.39	31.41	2.68	9.02	13.37	16.08	22.56	1.92	6.48
1947	19.61	24.30	34.39	3.59	10.09	11.99	14.85	21.02	2.19	6.17
1948	28.40	37.68	45.15	8.08	7.47	14.65	19.44	23.30	4.17	3.85
1949	32.01	39.78	50.83	6.45	11.05	16.10	20.01	25.57	3.24	5.56
1950	40.69	48.84	65.02	6.69	16.18	19.17	23.00	30.63	3.15	7.62
1951	54.02	63.91	80.52	8.23	16.61	22.49	26.61	33.52	3.43	6.92
1952	39.25	51.18	70.69	10.16	19.51	17.37	22.65	31.28	4.50	8.63
1953	28.93	41.95	57.57	11.20	15.62	13.11	19.01	26.08	5.07	7.08
1954	27.08	39.92	53.53	11.07	13.61	12.48	18.40	24.67	5.10	6.27
1955	29.24	38.79	55.20	7.76	16.41	13.36	17.72	25.22	3.54	7.50
1956	28.59	33.80	55.90	3.43	22.10	12.67	14.98	24.78	1.52	9.80
1957	28.43	34.29	55.06	4.05	20.77	12.51	15.09	24.22	1.78	9.14

*Prices were obtained from Marketing Margins for Beef in Manitoba 1935 to 1957, A. W. Wood, Research Report No. 2, Department of Agricultural Economics and Farm Management, University of Manitoba, January, 1959.
**Deflated by the General Wholesale Price Index, base 1935-39 = 100.