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WHAT IS AMERICA EATING?
IMPLICATIONS FOR RED MEAT

by

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Rueben C. Buse *

Introduction

The following material is a pictorial review of food consumption trends in the United States since 1960. It describes via figures and tables per capita food consumption with a special emphasis on animal products, particularly red meats. It discusses some of the factors, both economic and non-economic, affecting consumption, our current state of knowledge of how they affect per capita meat consumption (from the economists point of view), summarizes what we know and finally, lists a number of areas requiring further research.

* Professor of Agricultural Economics, University of Wisconsin, Madison Wisconsin. Presented to the National Research Council, Board on Agriculture's Special Committee on Technological Options to Improve the Nutritional Attributes of Animal Products, Washington D.C., Feb. 10-11, 1986.

OVERVIEW OF

WHAT IS AMERICA EATING? IMPLICATIONS FOR RED MEAT.

I. Historical Trends

Role of Meats in the Average Americans Diet

II. Factors Influencing The Trends

A. Traditional Demand and Supply Factors

1. Prices
2. Incomes
3. Production
4. Foreign Trade

B. Computational Problems

C. Non-Traditional Factors

1. Lifestyles
2. Demographics
3. Health Information

III. Summary

A. What do the numbers and trends mean?

B. What do we need to know?

WHAT IS AMERICA EATING? IMPLICATIONS FOR RED MEATS

Summary of Tables and Figures

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- FIGURE 2: There are shifts from one food to another with the meats and dairy products.
- FIGURE 3: Some food groups are gaining others are losing budget share.
- FIGURE 4: The overall result is that the average consumer uses more plant products and less animal products.

II. Factors Influencing the Trends.

A. Traditional Demand and Supply Factors

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- FIGURE 6: Meat imports and exports are insignificant factors in total meat demand and supply.
- FIGURE 7: Total food expenditures are becoming a smaller and smaller part of the consumers budget but food eaten away from home is growing rapidly.
- FIGURE 8: Red meat prices are increasing faster than those for poultry products.
- TABLE 1: Elasticities describe how a consumer responds to price and income changes.

B. Computational Problems

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C. Non-Traditional Factors

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FIGURE 9: We are eating out more and fast foods are capturing a large part of the away-from-home food dollar.

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2. The Dynamics of Meat Consumption

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TABLE 5: Meat consumers are becoming less responsive to income changes.

3. Changing Demographics

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FIGURE 12: The budget devoted to individual meat products is also influenced by households income level.

FIGURE 13: Multiple earner households are an important new factor in the demand for food.

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FIGURE 15: The age of the household influences the share of its income allocated to food.

FIGURE 16: The household has changed its budget allocation over time. More to food eaten away from home and less to food at home but the pattern is different for different aged households.

FIGURE 17: Older households have different food expenditure patterns than younger households.

III. Summary:

A. What Do the Numbers and Trends Mean?

1. Per capita consumption of foods is limited by the capacity of the human stomach and has changed little in the past 25 years. However the mix of foods has changed substantially, as has the amount of preparation and where we eat our food. Food consumption patterns are very dynamic and change with new information, lifestyles, relative prices, income, the composition of the household and its tastes and preferences. Our knowledge of these interrelationships is rudimentary.
2. Total food demand has increased mainly because of population and slightly because of income growth. Since population growth and income elasticities are declining, continued growth in total food demand will probably be small. If present trends continue, this also holds true for meat and meat products. For the average consumer, future income increases will not have much affect on meat demand. However, we do not know if the income effect is constant across all socio-economic groups.
3. Food expenditure patterns appear to be different among subgroups of households. This means that our changing population composition will produce changes in overall food consumption patterns that cannot be observed or understood by looking at simple averages. Given the increased number of elderly households, combined with changing lifestyles and the increased knowledge of how nutrition affects our health, we can expect further changes in household consumption patterns. Currently we do not have enough information to predict what they will be.
4. What we eat is changing and many demographic variables affect those patterns. At present we do not know enough about what those variables are and exactly how they operate. The available evidence does indicate that it is dangerous to assume that those who are now age 40 to 45 will have the same food preferences when they are 65 or 70 as consumers who are now at that age. Food habits are established over an individuals lifetime and there is evidence indicating that they persist. This means that if we want to know what meat consumption will be in the year 2000 it may be more accurate to look at the meat consumption of those who are 50 and younger rather than those who over 65.

SUMMARY (cont.)

5. The affect of trends in eating out on meat consumption is not very clear. It probably means a decrease in typical main course meal foods such as red meats and an increase in fast food entries such as ground beef, fish and poultry. On the other hand the increased consumption of pre-prepared foods consumed at home may be mitigating the decline in meat consumed at home in other forms.
6. It is clear that consumers are willing to pay for value added to their food. The value added is usually in the form of services which decrease preparation time. Such foods will probably add little to total food demand but they can shift demand from one product to another. In the case of meats it means that new products, particulary if they include services that cut preparation time have the potential to increase meat consumption. However we do not know much about the characteristics of those groups spending more on high service meats.
7. Consumers appear to be less sensitive to price changes. The decreasing sensitivity to prices means that increased prices resulting from adding new services may have small affects on final demand.

SUMMARY (cont.)

B. What Do We Need to Know?

Meat eating habits are changing because of:

- changing relative meat prices,
- changing population demographics,
- changing lifestyles that vary across the population,
- changes in meat products available to the consumer, and
- changes in health information and delivery system.

We know very little about the relative importance of each of the above on meat demand, i.e., which is the most influential and which can be safely ignored because they are only of minor importance. For example, is the increasing number of two-earner households who eat out more than 1-earner households a major or a minor factor in changing meat consumption? Which is more important, the increasing number of fast-food places featuring chicken or more nutritional information? What impact has eating more ground beef in fast-food outlets had on our production and marketing system?, on the kind of red meat we eat? How important are price changes and the increase in convenience packaging on red meat consumption? Has nutritional labeling and public information on nutrition and health had much impact on red meat consumption ceteris paribus? If there is an impact, does it differ across the socio-demographic groups in our economy?

We know something about all of the above but we really need to be able to disentangle the effects and assess their relative importance before new policies can be developed.

Some Research Areas

1. How does more convenience in meat affect meat consumption and who are the buyers of the high service products?
2. How important is price change in the observed changes in meat consumption?
3. What role has nutritional information played in observed changes in meat consumption and is its impact uniform across socio-economic groups?
4. What impact have changes in meat merchandising had on the production and marketing system? For example, has the increased consumption of ground beef changed the farm share? How has the increase in pre-prepared meals changed marketing procedures and farm prices?
5. Does foreign trade offer new opportunities for meat and meat products? What is happening to meat production and consumption in other countries of the world?

SUMMARY (Research Areas Cont.)

6. What is the impact of fast food outlets on the quantity and types of meat we eat?
7. Are the consumption patterns of different socio-economic groups really moving in diverse directions? If so, what does it mean for future meat demand?
8. Assuming various socio-economic groups have distinct consumption patterns and habits what does that mean for introducing new or different meat products?
9. What has been the experience in other countries such as Canada which has been producing and marketing leaner pork and beef for a number of years?

DISCUSSION OF FIGURES

FIGURE 1:

There has been a slight increase in the pounds of food consumed per capita since the mid-1970's. The change over the past 25 years has been small. The pounds of food consumed per capita are up slightly over the 24 year period from 1400 pounds in the early 1960's to a low of 1380 in the early 1970's. Since then it has increased slightly to about 1400 pounds in the 1980's (insert). Although we are not eating much more than in the 1960's there have been large shifts in the mix of foods in the average americans diet. Figure 1 shows that, on a per capita basis, we are consuming less dairy products, grains and cereals and consuming more meats, poultry and fish; fats and oils; fruits and vegetables; and sweets.

FIGURE 1
CHANGE IN AVERAGE U.S. PER CAPITA CONSUMPTION, SELECTED FOODS,
AVERAGES FOR SELECTED YEARS, 1960-1984.

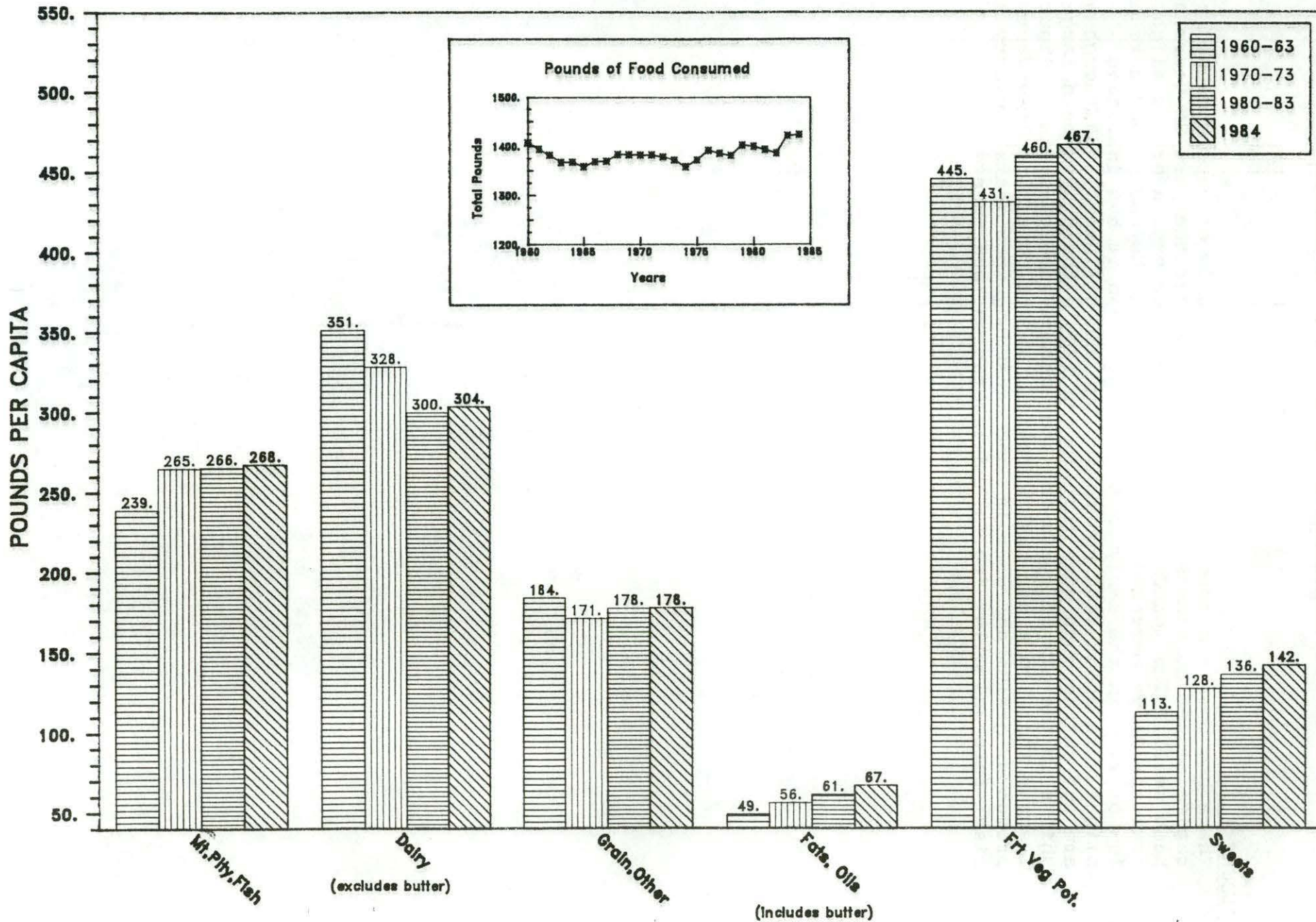


FIGURE 2:

Within the major food groups, there have been even large shifts from one product to another.

- a. Within dairy, cheese consumption has increased while, fluid milk and animal fats have decreased. The U.S. consumer has more than doubled his cheese consumption and nearly doubled poultry and vegetable fats.
- b. Red meats increased during the 60's, decreased during the 70's and now appear to be increasing slightly again. From the small insert it can be seen that most of the change in red meat consumption is due to changes in beef and veal. Pork seems to have decreased to about its early 1960 level. Lamb and mutton consumption has declined slowly but steadily across the period.

FIGURE 2
 CHANGE IN U.S. PER CAPITA CONSUMPTION OF SELECTED FOODS
 AVERAGE OF SELECTED YEARS, 1960-1984.

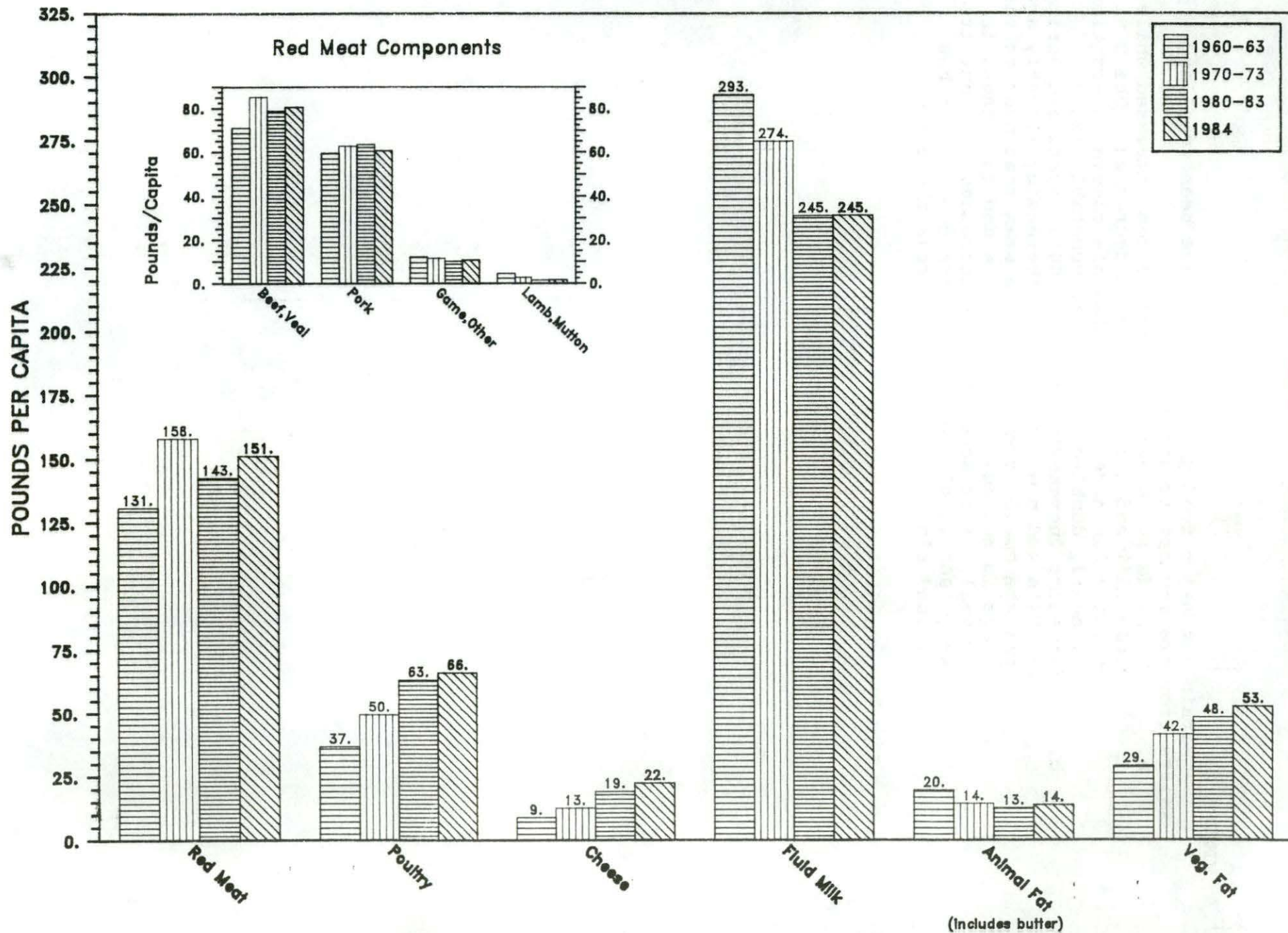


FIGURE 3:

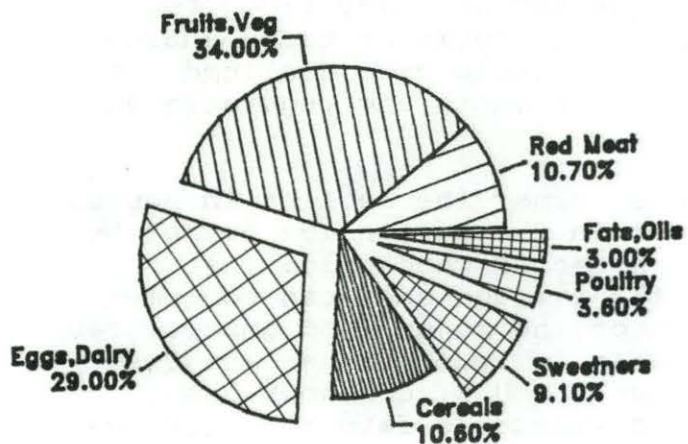
In summary, the "average" consumer has changed his consumption habits. Some food groups have gained and others have lost. Defining the gainers and losers depends upon how consumption is measured, in pounds of food or in value (dollars or budget share).

- a. In Pounds Fats and oils; poultry and sweeteners have gained at the expense of eggs and of dairy products.
- b. In Dollars (Budget Share) In terms of budget shares, eggs, Dairy products, and cereals have declined. The shift has been to poultry products and vegetable fats and oils.

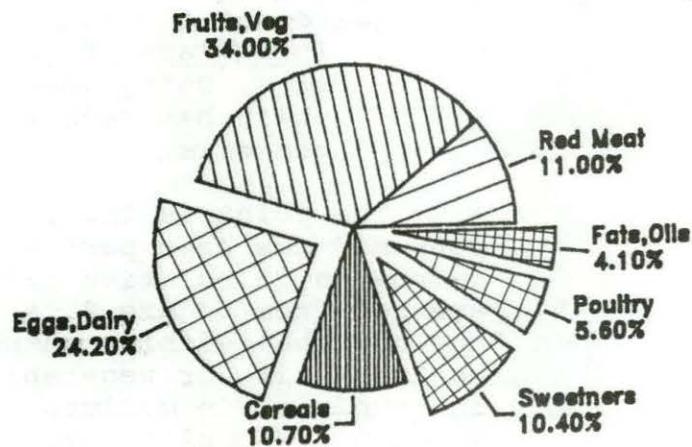
The point is that, in value terms, the decline in pounds consumed has been partial offset in the households budget by increases in relative prices. A second conclusion that emerges from figure 3 is that the average american consumer has not changed his consumption of the major food groups; red meats, fruits or vegetables. This is true whether measured in pounds or in dollars. The average U.S. consumer has substituted poultry products and vegetable fats and oils for eggs, dairy products and cereals.

FIGURE 3
CHANGES IN THE DISTRIBUTION OF FOODS CONSUMED BETWEEN
1960-63 AND 1980-83 IN POUNDS AND IN DOLLARS

PER POUND

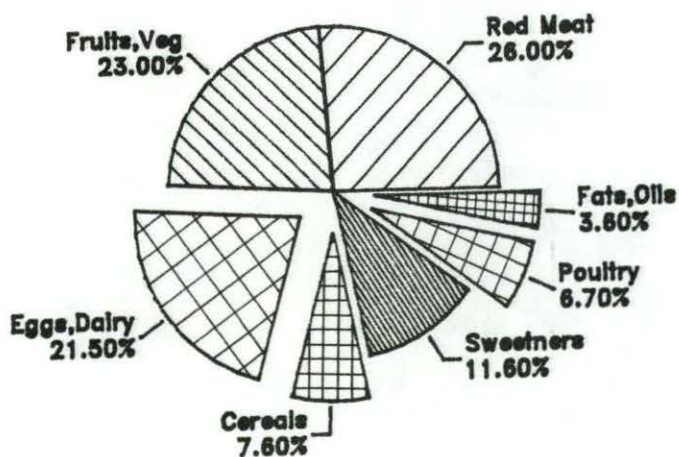


1960-63

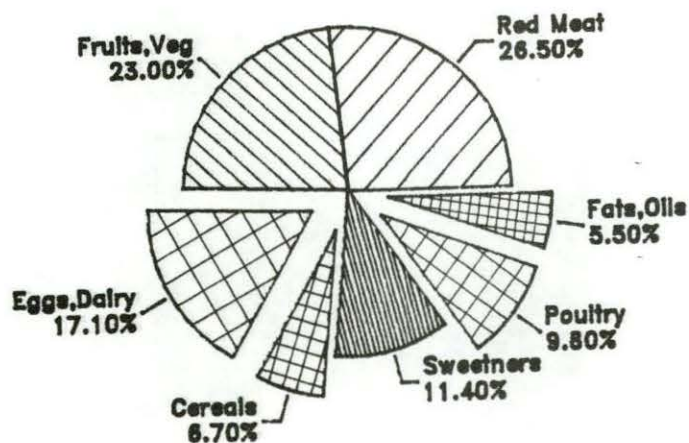


1980-83

PER DOLLAR



1960-63



1980-83

FIGURE 4:

This is a summary picture of the changing habits of the average american consumer over the past 24 years. There has been a shift away from those foods derived from animals towards plant products. If consumption is measured in value terms the shift is not as dramatic because animal product prices have increased faster than those for plant products.

FIGURE 4
U.S. PER CAPITA FOOD CONSUMPTION BY SOURCE OF
THE FOOD, 1960 TO 1984.

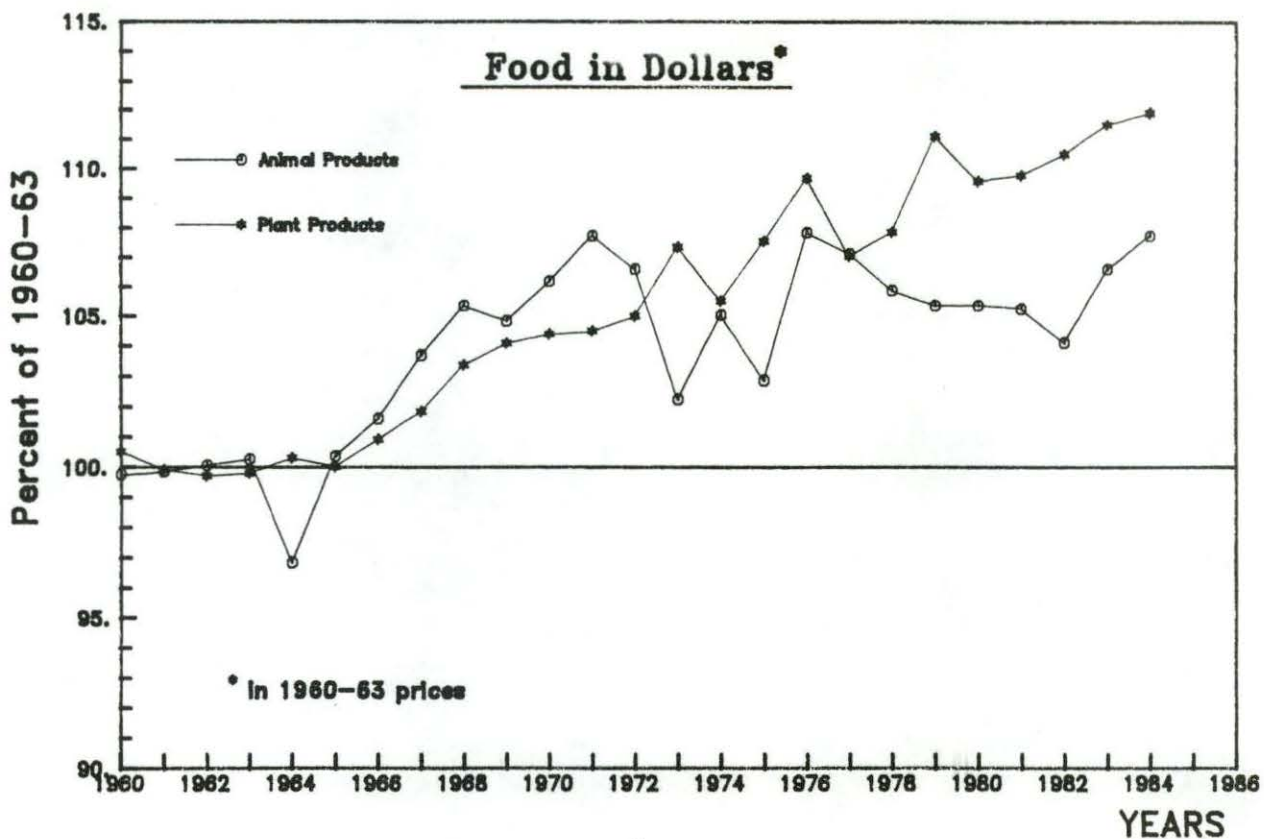
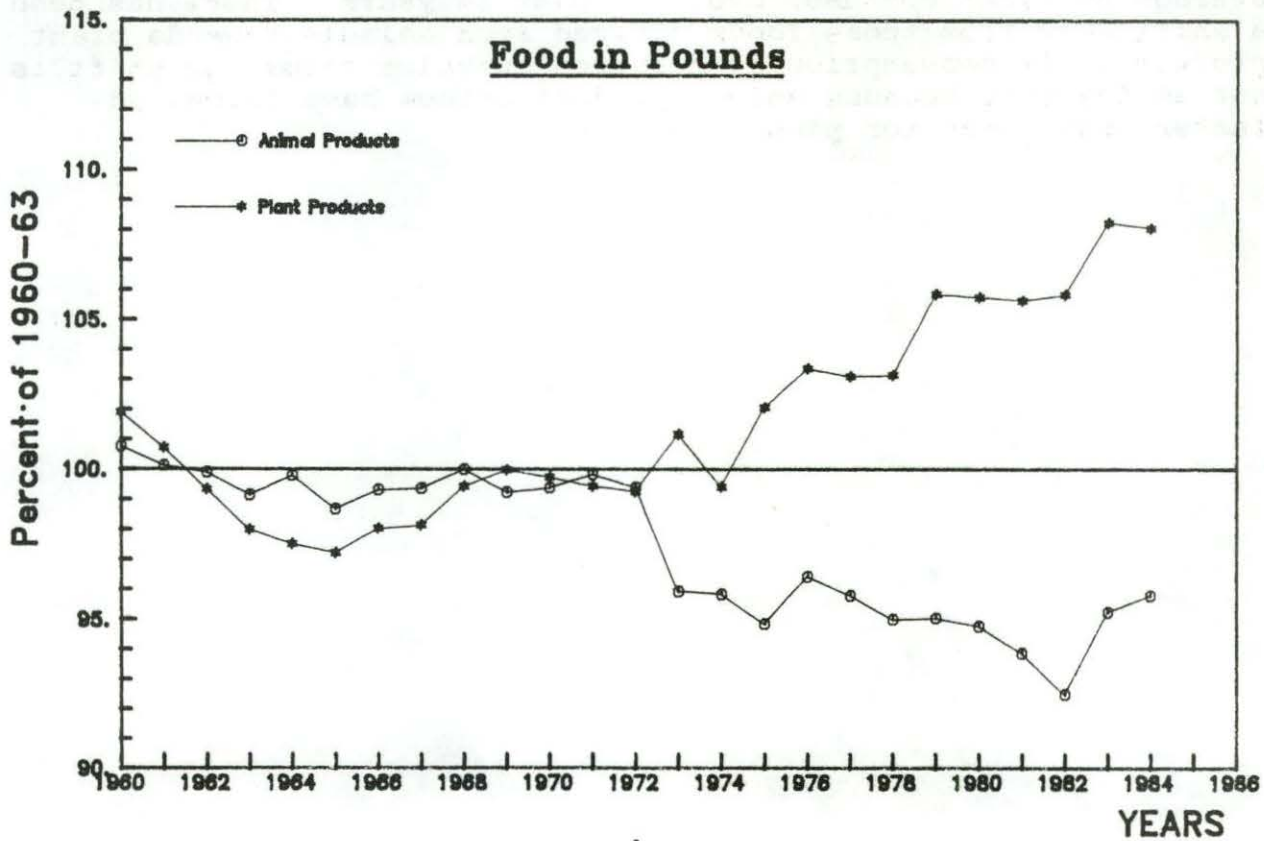


FIGURE 5:

The supply of meats and fish clearly reflects consumer preferences (through the interaction of supply and demand). We are still a nation of beef and pork consumers. Beef is clearly the most important meat and its supply per capita increased steadily from 1960 to 1976. It has declined since. Pork production shows a slow downward trend over the period. In contrast, poultry production per capita has increased steadily since 1960. As shown in a later figure, the increasing poultry production is reflected in a steadily declining price for poultry products.

The bottom part of Figure 5 shows that 60 to 70 percent of all the meat, both red and white, is beef and pork, but that the red meats share of total meat supply is declining. Most of the decline is due to pork. Pork is the second most important red meat. Its share has been falling steadily from 35 to less than 25 percent of total supplies per capita. The decline in pork has been replaced by more poultry. The three products, beef, pork and poultry, comprise more than 85 percent of total U.S. meat supply.

FIGURE 5
THE SUPPLY OF MEATS, POULTRY AND FISH
U.S., 1960 TO 1984.

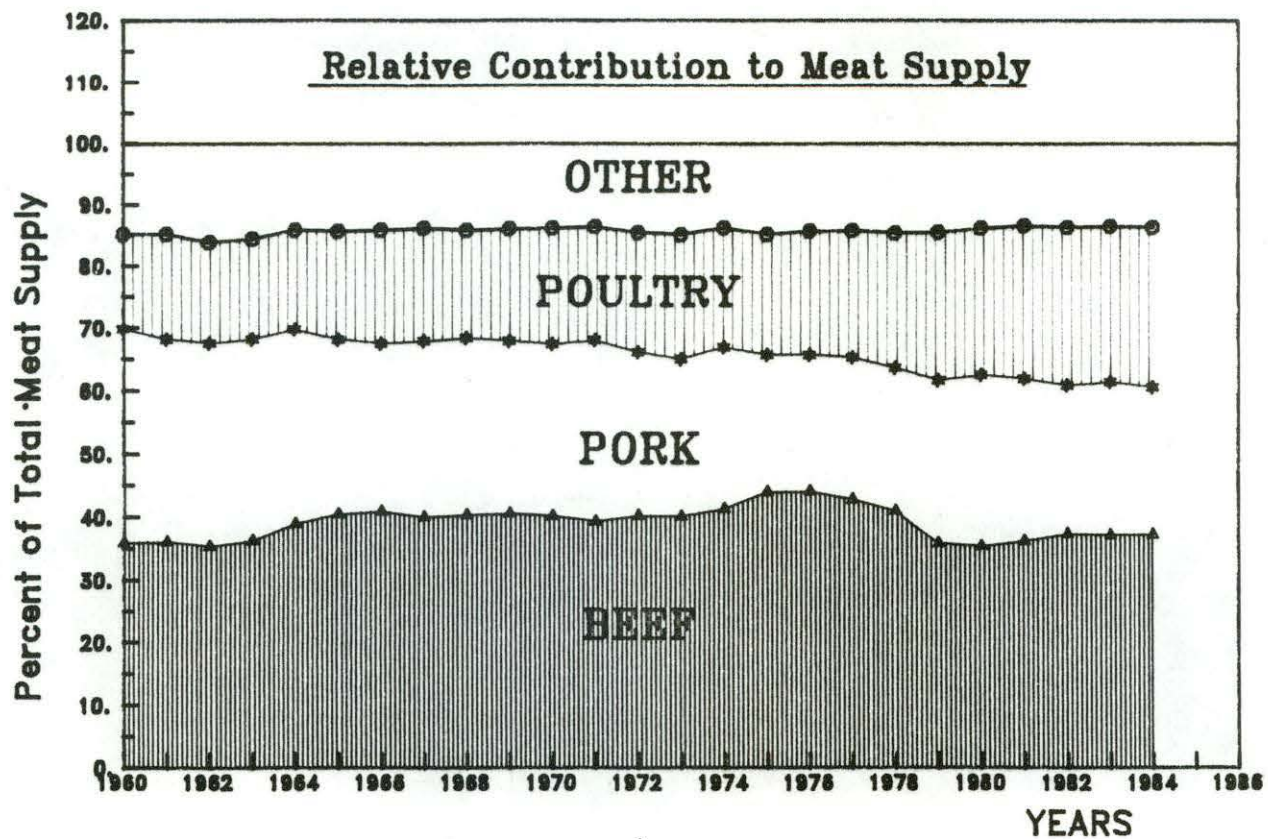
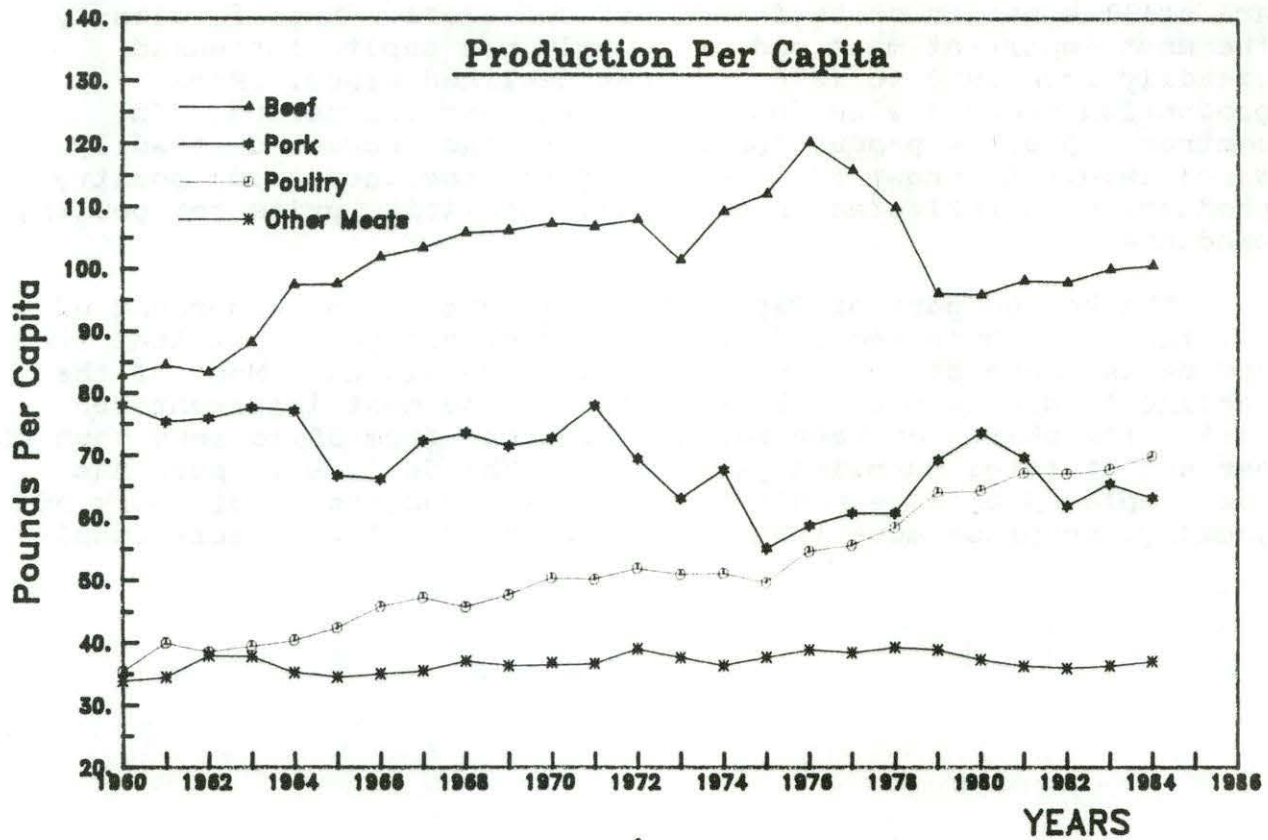


FIGURE 6:

With the exception of fish, neither imports nor exports are very important variables affecting meat supplies or their utilization. On the supply side, beef and pork imports are less than 10 percent of supply. There does appear to be an upward trend in the imports of pork, although it is still less than 10 percent of pork supplies. Poultry imports are practically zero.

On the demand side, less than 5 percent of pork, beef or poultry utilization is due to exports. Although fish imports and exports are much larger, it is probably partially a reflection of how the data is assembled and reported.

FIGURE 6
IMPORTANCE OF IMPORTS AND EXPORTS IN U.S. MEAT SUPPLY
AND UTILIZATION, 1960 TO 1984.

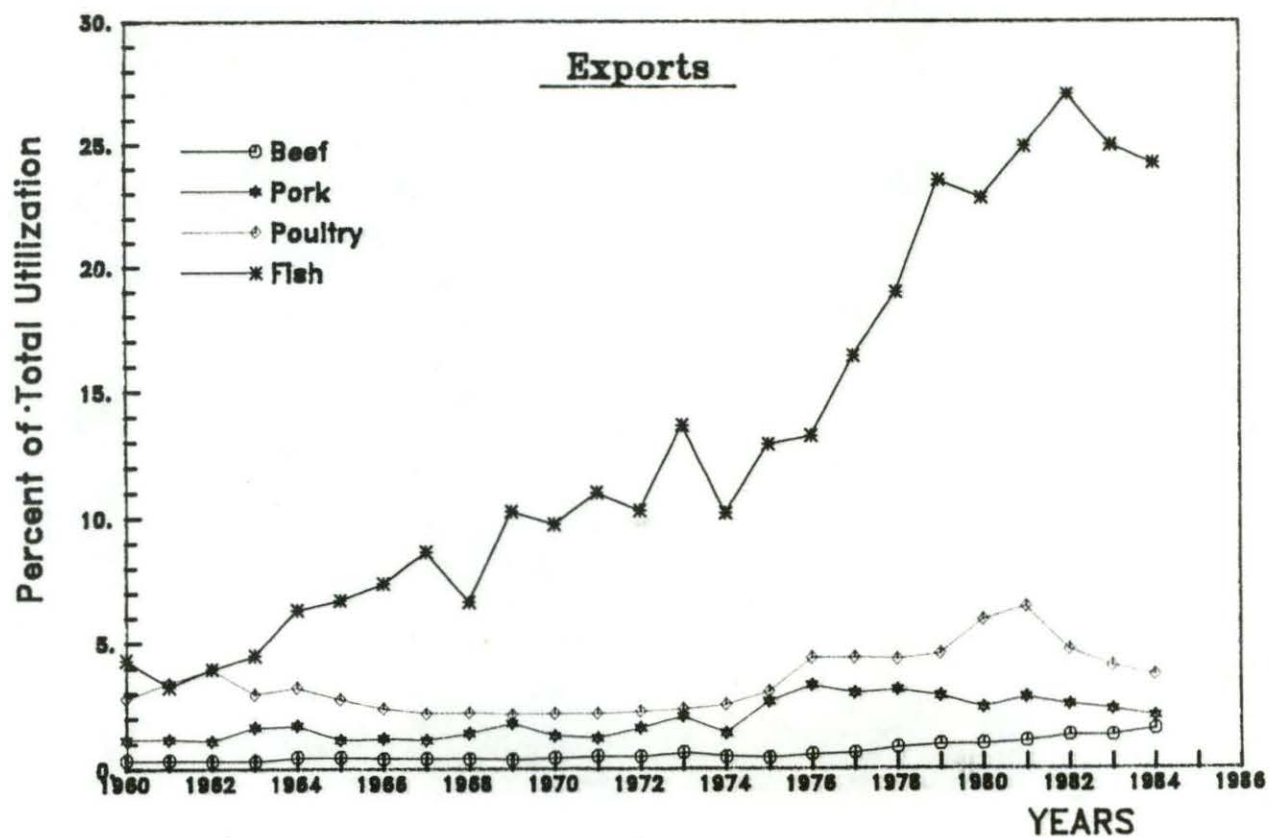
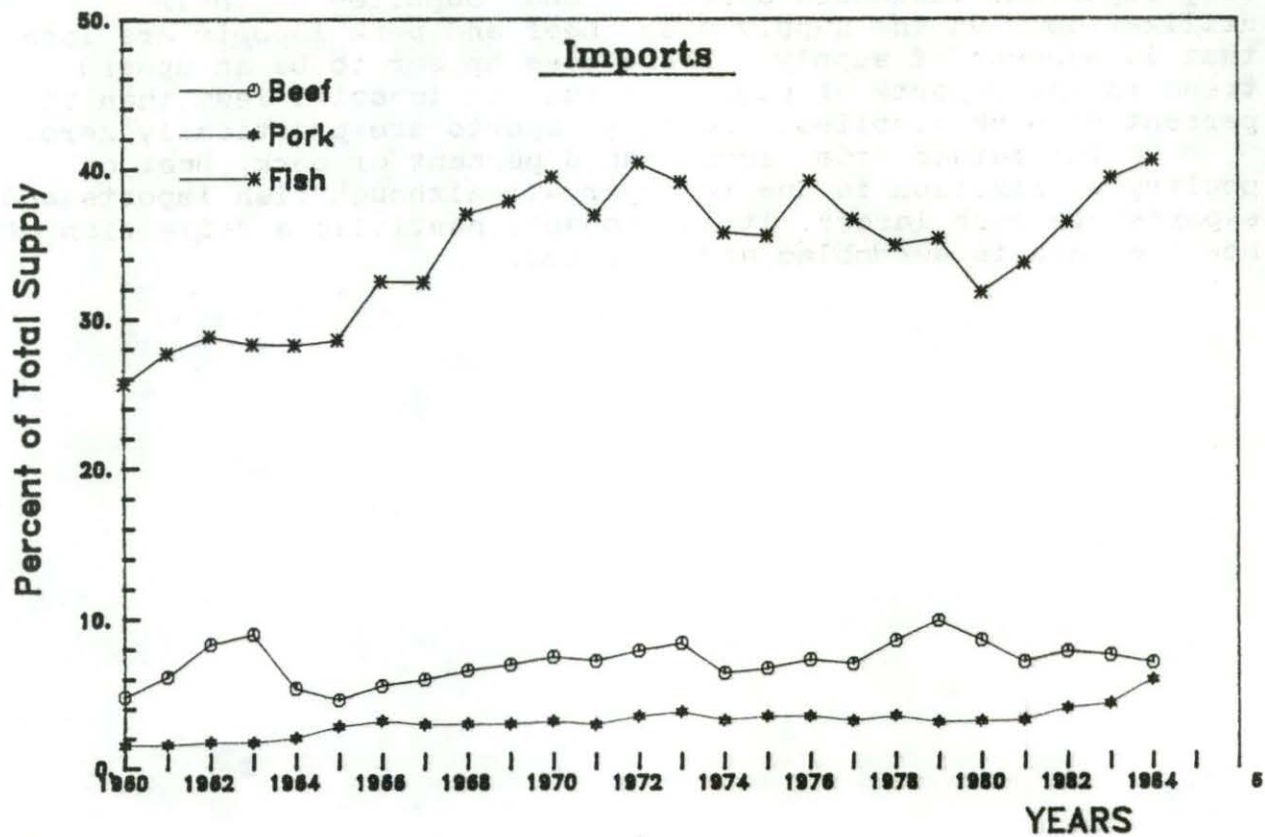


FIGURE 7:

Over the past 1/4 century the percent of income devoted to food has continually declined. The top part of figure 7 shows that the growth in real per capita income has substantially outpaced the average consumers expenditures for food. As a consequence, the percent of personal disposable income devoted to food has declined from 20 percent in 1960 to 15 percent in 1984 (Lower part of figure 7). When food expenditures are disaggregated to expenditures for food eaten at home and food eaten away from home, food at home expenditures have declined steadily while food away from home expenditures have remained constant at about 4 to 5 percent of personal disposable income. This means that consumers are spending less of their total food budget for food eaten at home and more on food away. This is clearly illustrated in the insert. Consumer expenditures for purchases of meals and snacks away from home has risen dramatically over the past 20 years. Snacks and purchased meals accounted for 22 percent of total food expenditures in 1960 and over 38 percent in 1984.

In summary, figure 7 shows that the average consumer has changed his eating patterns from eating at home to eating out. It is a reflection of new lifestyles and our changing demographics.

FIGURE 7
COMPARISON OF GROWTH IN U.S. REAL PER CAPITA INCOME,
FOOD EXPENDITURES AND THE COMPOSITION OF
FOOD EXPENDITURES, 1960 to 1984.

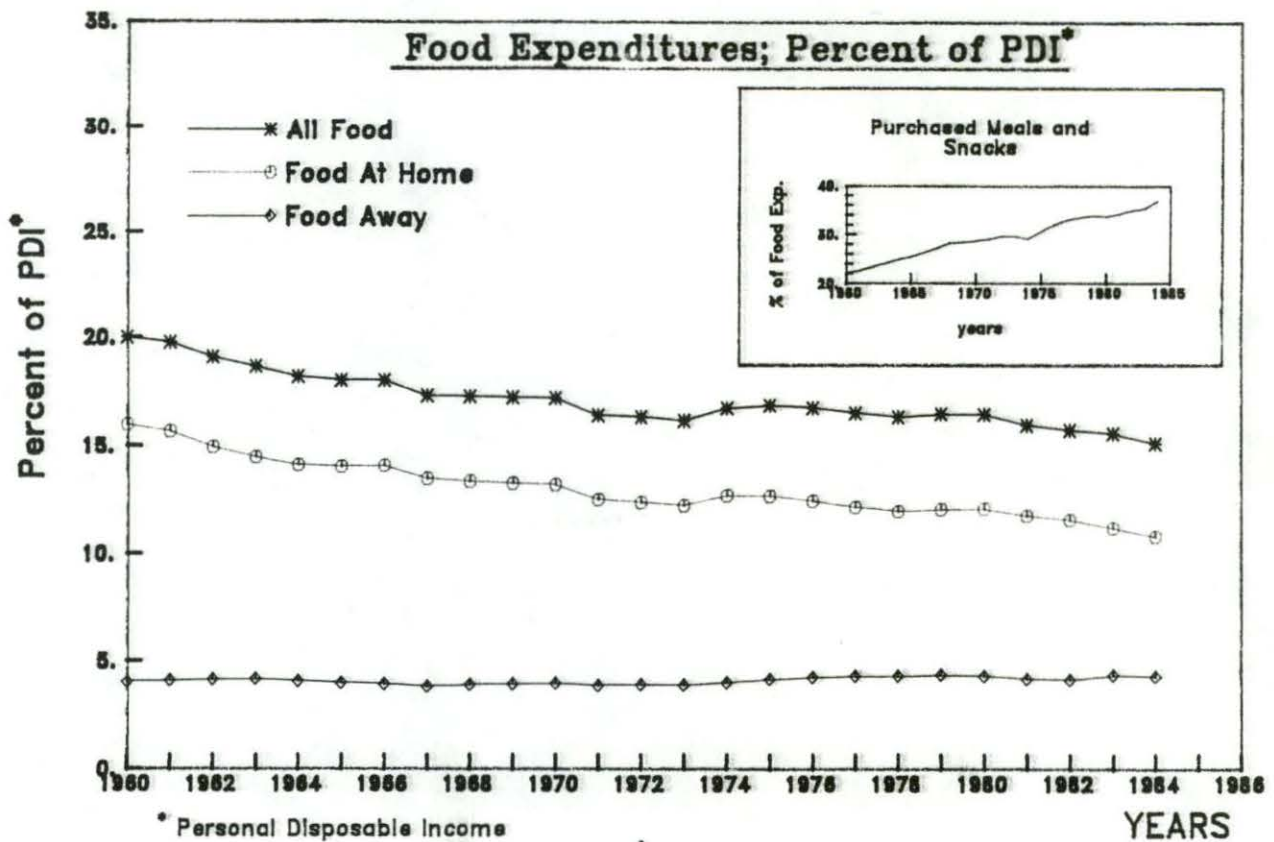
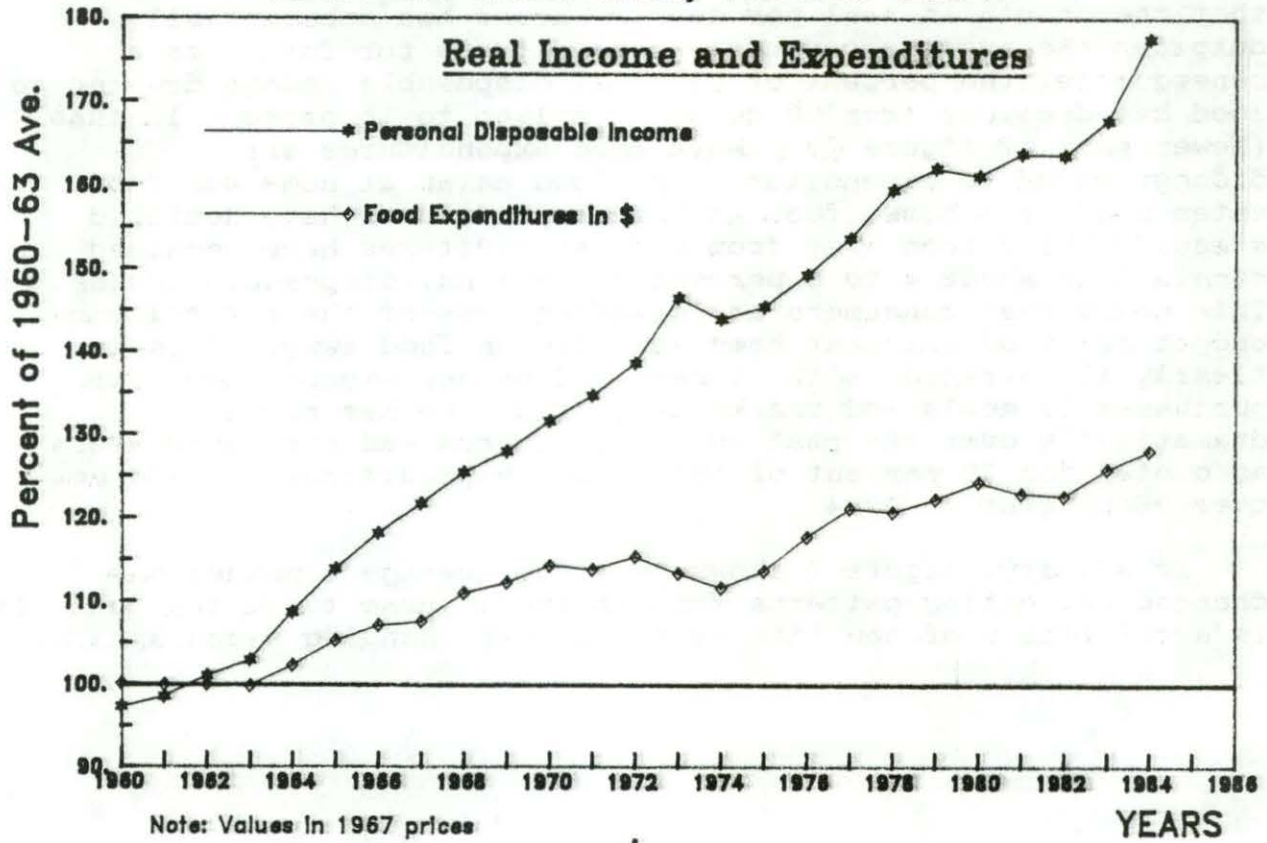


FIGURE 8

Since the "oil crises" in the early 1970's all prices have been rising quite steadily with some increasing more than others. The price of Sweets has been rising more rapidly than other prices. This probably reflects the rising cost of energy, and the labor costs of more "convenience" that is built into this food category. From 1980 to the present, meat, fish and poultry; and dairy products have been rising at a slower pace than the average of other items.

The lower part of this figure shows that fish prices have been increasing much more rapidly than other meats. The larger increases in beef, veal and pork relative to poultry and eggs may partly explain the shift in consumption to poultry products. It is a cheaper meat. Because pork and beef prices have been rising at about the same rate, relative price changes do not explain the shift away from pork. Furthermore, both fish price and consumption have increased. The figure is evidence that price relationships do not explain all of the observed changes in consumption. There are other factors, not clearly understood that must be important in explaining the change in consumer tastes and preference away from pork and towards fish and poultry.

FIGURE 8
COMPARISON OF PRICES OF NON-FOODS, FOOD, SELECTED
FOOD GROUPS AND INDIVIDUAL MEATS, POULTRY,
FISH AND EGGS, U.S., 1960 TO 1984.

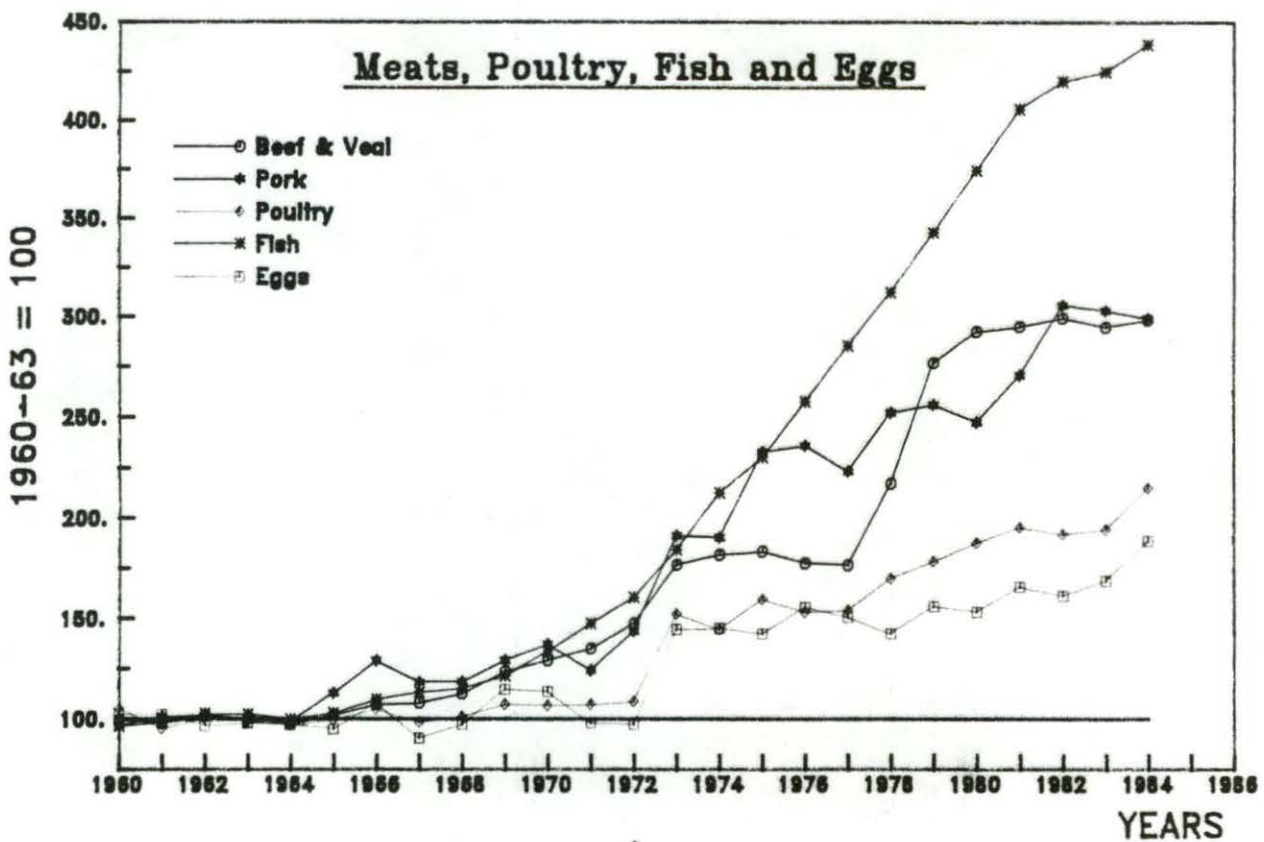
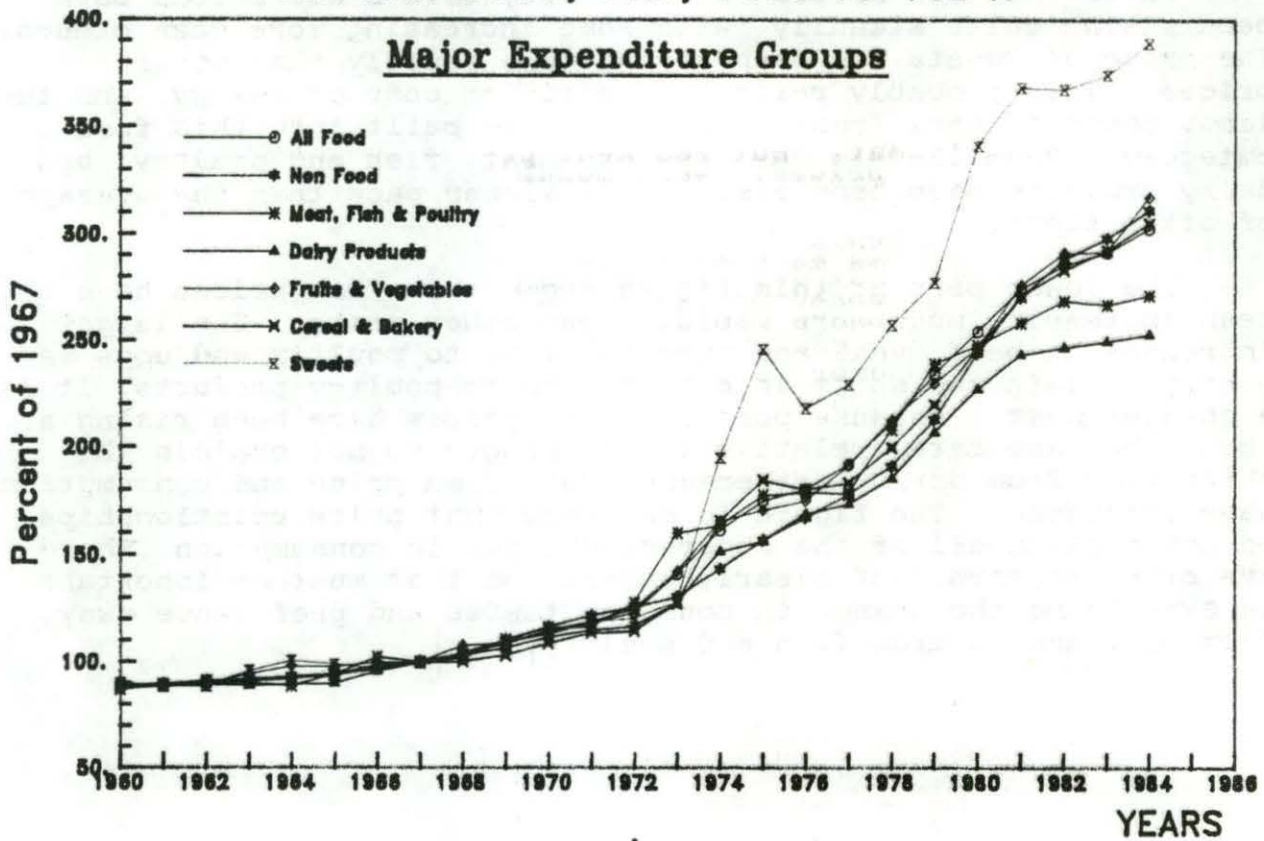


TABLE 1:

From previous graphs, red meat consumption per capita fell from 1970-73 to 1980. Beef consumption decreased as did pork consumption. Poultry consumption increased while fish consumption decreased slightly. Over the same period fish prices increased over 80 percent, beef prices increased 68 percent, pork prices 21 percent and poultry prices 21 percent. Between 1973 and 1980 consumer real incomes increased by 10 percent. One would expect that, with incomes rising, the average household will spend more on food including meat. But red meat prices are also going up faster than poultry prices. This means a falling demand for meats.

Examining and explaining those trends in combination is difficult and requires methods which can disentangle the various effects. The economist uses price and income elasticities to measure the average consumers response to these economic forces. An elasticity describes how consumers alter their consumption of meat in response to a change in prices or incomes. It describes how the typical consumer responds to a percentage change in a causative variable such as price or income holding all other variables constant. Specifically, elasticity is defined as measuring the percentage change in quantity demanded of a good for a small percentage change in some price or income. For example, a price elasticity for beef of $-.60$ means that a 1 percent price increase will result in the average consumer decreasing his beef purchases by .6 percent. Demand responses to prices of other products (cross-price elasticity) or income (income elasticity) are calculated and interpreted in a similar manner.

Values greater than 1.0 are said to be elastic, i.e. the quantity changes more than the price or income variable. Values between 1.0 and 0 are described as inelastic. In summary an elasticity greater than 1.0 means that the consumers response to a 1 percent change in price or income is greater than 1 percent. If it is inelastic then the consumers response to a 1 percent change in price or income is less than 1 percent.

The demand elasticities in Table 1 were obtained by USDA in a statistical analysis of historical data from 1950 to 1977. ¹ It shows how consumers respond to a change in the price of meats, nonfoods and to income. The numbers along the main diagonal are the price elasticities and the off-diagonal values the cross price elasticities, i.e., the response to other prices. The final column of the table shows the estimated income elasticities.

The first entry in the table ($-.677$) is the price elasticity for red meats. It indicates that the average U.S. consumer decreased red meat consumption by almost 0.7 percent in response to a 1 percent increase in the price of red meat. The other

¹ Craven, J., Huang, K. and Haidacher, R. "U.S. Demand for Meat." National Food Review, Vol. 20, Feb. 1983, USDA, Washington D.C.

entries along the diagonal are interpreted in the same way. They indicate that the average consumer is most responsive to poultry price and that fish prices have very little effect on fish consumption (-.053). The price elasticities also indicate that the consumer is more responsive to non food prices than to meat fish and poultry price changes. In nonfoods consumers responses are price elastic, they change their consumption by 1.026 percent for a 1-percent price change.

The off-diagonal elements in the first 4 columns of table 1 are called cross-price elasticities, describing the consumers response to a change in the price of some other item. For example, the second number in the first row (0.098) is the cross-price elasticity of red meat with respect to the price of poultry. It shows that consumer increased their consumption of red meat about .1 percent when poultry prices increased 1 percent--not very responsive. Fish prices also have very little effect on the demand for red meat or poultry (column 3). In contrast, consumer demand for poultry is quite responsive to a change in red meat price (.565) but not to fish price (.052). Fish demand and the demand for nonfood items are not very sensitive to either poultry or red meat prices.

The last column of Table 1 shows that the income elasticities for all meats are less than 1.0. The conclusion is that future increases in per capita incomes will have little effect on the demand for meat (.651) poultry (.747) or fish (.549). The income elasticity of 1.206 for nonfoods means a larger proportion of an additional dollar of income will be spent on nonfood items than on red meat, poultry or fish.

In summary, Table 1 indicates that red meat demand is not very strongly influenced by the price of either poultry or fish but that red meat consumption does respond to changes in their prices. Finally, as incomes increase consumers will be spending a smaller proportion of their budgets on the meats and more on non-food.

TABLE 1
PRICE AND INCOME ELASTICITY ESTIMATES FOR RED MEAT,
POULTRY AND FISH, U.S. 1950-1977.

Percent Change in Quantity Demanded of:	1-Percent Change In:				
	Price Of:				Per Capita Income
	Red Meat	Poultry	Fish	Nonfoods	
Red Meat	-0.677	0.098	0.012	0.103	0.651
Poultry	.565	-.886	.052	-.356	.747
Fish	.159	.120	-.053	.083	.549
Nonfoods	-.024	-.009	-.002	-1.026	1.206

Source: Craven, Huang and Haldacher

TABLE 2

The table shows that per capita consumption (average) is calculated from production data adjusted for imports, exports, stocks, and non-civilian uses. There may be a number of problems inherent in the method used to calculate per capita consumption. The numerator contains a number of implicit assumptions. For example, new processing methods may be changing the percentage of the total weight of meat that is actually consumed. More or less waste could substantially alter the proportion that is consumed. As another example, the proportion of meals consumed away from home is increasing and there is more waste associated with food eaten away from home. We are also consuming more expensive cuts that are more closely trimmed, etc. There is also more waste in prepackaged meals and meat cuts. The denominator does not take into account the changing demographics of the U.S. population. For example, the average age of the population has increased 10 percent over the past decade. The older part of our population may have different eating patterns from its younger counterparts.

In summary, comparing the averages across time may conceal implied assumptions in the data series that are actually changing across time. The numerator may not take account of institutional and infrastructural changes while the denominator hides changes in our demographics.

TABLE 2
CALCULATION OF THE 1983 PER CAPITA
CONSUMPTION OF BEEF.

SUPPLY

Production	23,243	Mil. Pounds
+ Imports	1,931	" "
+ Beginning Stocks	294	" "
Total Supply	25,468	" "
- Ending Stocks	325	" "
Total Beef Used	25,143	" "

UTILIZATION

Total Use	25,143	Mil. Pounds
- Exports	312	" "
- Military Use	121	" "
Civilian Disapperance	24,710	" "
Civilian population July 1	232.2	Million

$$\frac{\text{CIVILIAN DISAPPERANCE}}{\text{CIVILIAN POPULATION}} = \text{PER CAPITA CONSUMPTION}$$

$$\frac{24,710}{232.2} = 106.4 \text{ Pounds/capita}$$

TABLE 3

This table shows some of the differences that can be observed in our meat consumption estimates by comparing data from the USDA Nationwide Food Consumption Surveys (USDA/NFCS) with USDA estimates from supply and utilization tables (USDA-TABLES). The USDA/NFCS estimates are obtained by converting the weekly per capita consumption figures in the 1977-78 USDA/NFCS to an annual average by multiplying by 52 weeks. Although crude, it illustrates some of the differences between survey estimates and the supply and utilization approach. Differences that need to be resolved.

The estimates from the survey data are only for meat consumed at home yet they generally exceed the per capita estimates from annual data which include all meat consumption. More disturbing is the difference in percentage changes in the two data sets. The USDA/NFCS estimates show much smaller increases than the TABLE estimates and sometimes the direction of change is opposite (red meats).

The point is that we need to reconcile the two data sources to make sure we are correctly interpreting both types of data.

TABLE 3
COMPARISON OF ANNUAL PER CAPITA CONSUMPTION OF MEATS,
POULTRY AND FISH BASED ON NATIONAL SURVEYS¹
AND USDA ESTIMATES².

	Estimated Per Capita Consumption		
	1965	1977	Percent Change
<u>Red Meats</u>			
USDA/NFCS	169.0	164.8	-2.5
USDA-Tables	145.8	162.7	11.6
 Poultry			
USDA/NFCS	42.6	44.2	3.8
USDA-Tables	41.1	53.7	30.7
 Fish & Shellfish			
USDA/NFCS	18.7	19.2	2.9
USDA-Tables	10.8	12.7	17.6

¹ USDA Nationwide Food Consumption Survey, Source is Haidacher, Craven, Huang, Smallwood and Blaylock, Table 30 adjusted to annual basis.

² USDA Estimates of Per Capita Consumption from Supply and Utilization Tables.

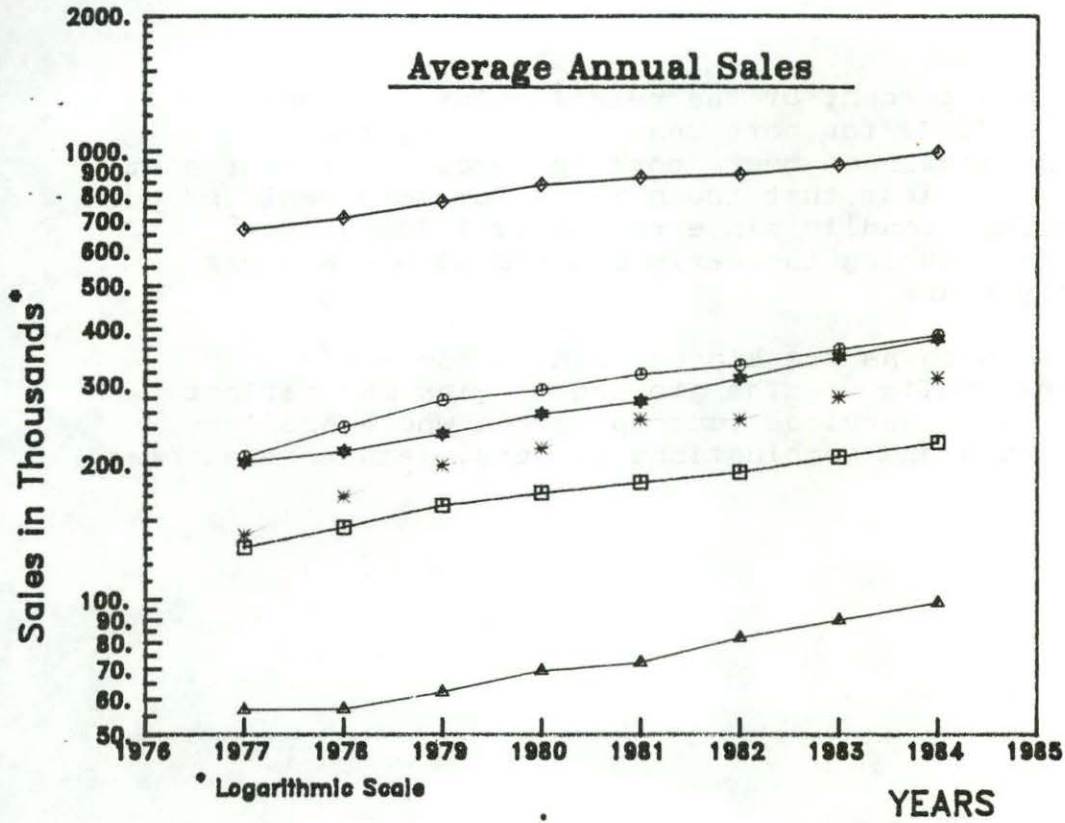
FIGURE 9

With the exception of Fast-food places the number of establishments serving food has been quit constant since 1977. Fast food establishments have been increasing at the rate of 3 percent per year. However, all have been increasing their average annual sales. Recreational and entertainment outlets have increased their sales the fastest. What is most interesting is that the average sales per fast food establishment is 3 times larger than the next largest group (restaurants). However, as the bottom part of figure 9 indicates, the growth in sales per capita has not been very fast. Restaurants, lunchrooms and food service associated with lodges, motels and fast food establishments showing the largest percentage increases.

In summary people are eating out more and a large part of it is in fast food places--many of which are specializing in ground beef, chicken and fish products.

FIGURE 9

AVERAGE ANNUAL AND REAL PER CAPITA SALES OF FOOD SERVICE ESTABLISHMENTS BY TYPE, U.S., 1977 TO 1984.



- = Rest. & Lunchrms
- ★ = Fast Foods
- * = Lodging Place
- △ = Rec'n & Entert.
- ◇ = Vending Mach.
- = All Types

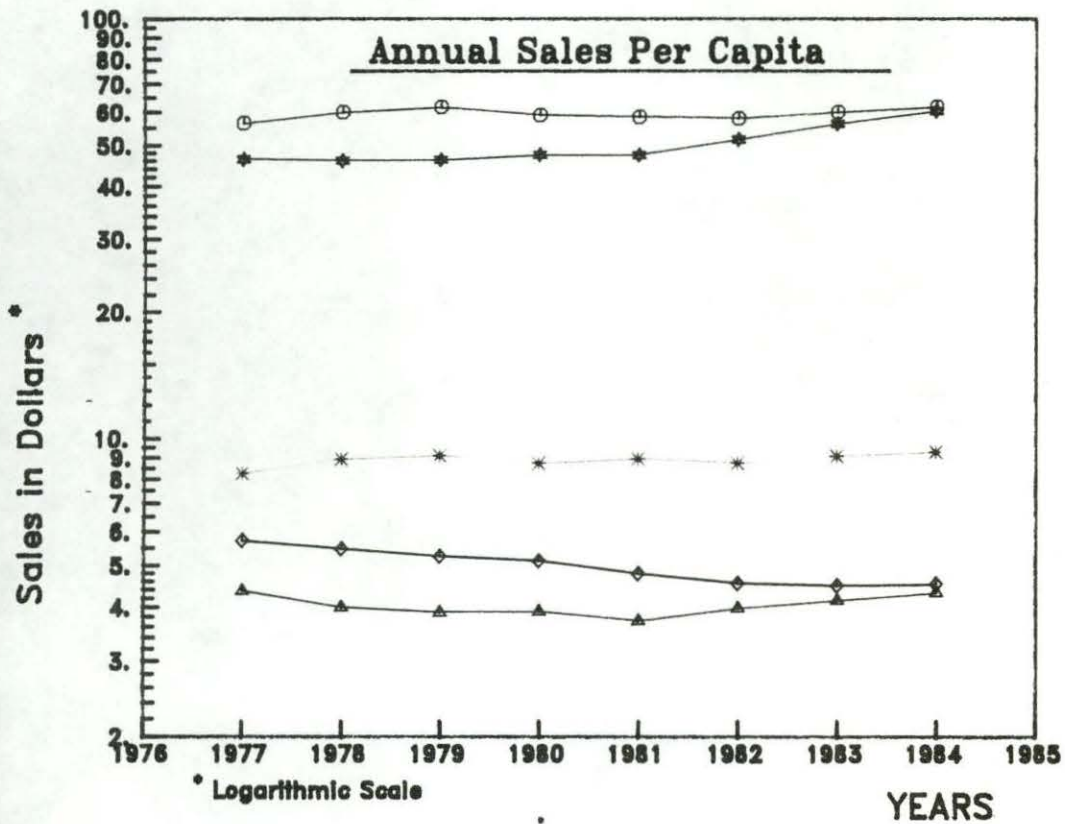


FIGURE 10

The margin as a percent of the retail value has been increasing since 1973-74 for both meat and poultry products. Looking more specifically at beef, pork and broilers (lower part of the figure) it is clear that the margins for both beef and pork have been increasing steadily since the early 1970's. For broilers it declined during the early and mid 1970's and has increased slightly since.

The red meats margins are higher than in the early 70's. They are lower for broilers. The growing margins may reflect increasing costs, more services (cut-up versus whole broilers, prepackaged meat cuts and combinations of cuts, lean trimmed beef, etc), or both.

FIGURE 10
MARKETING CHARGES AS A PERCENT OF TOTAL RETAIL VALUE
FOR MEAT & POULTRY AND CHANGE SINCE 1960-63 FOR
SELECTED MEATS, 1960 TO 1984.

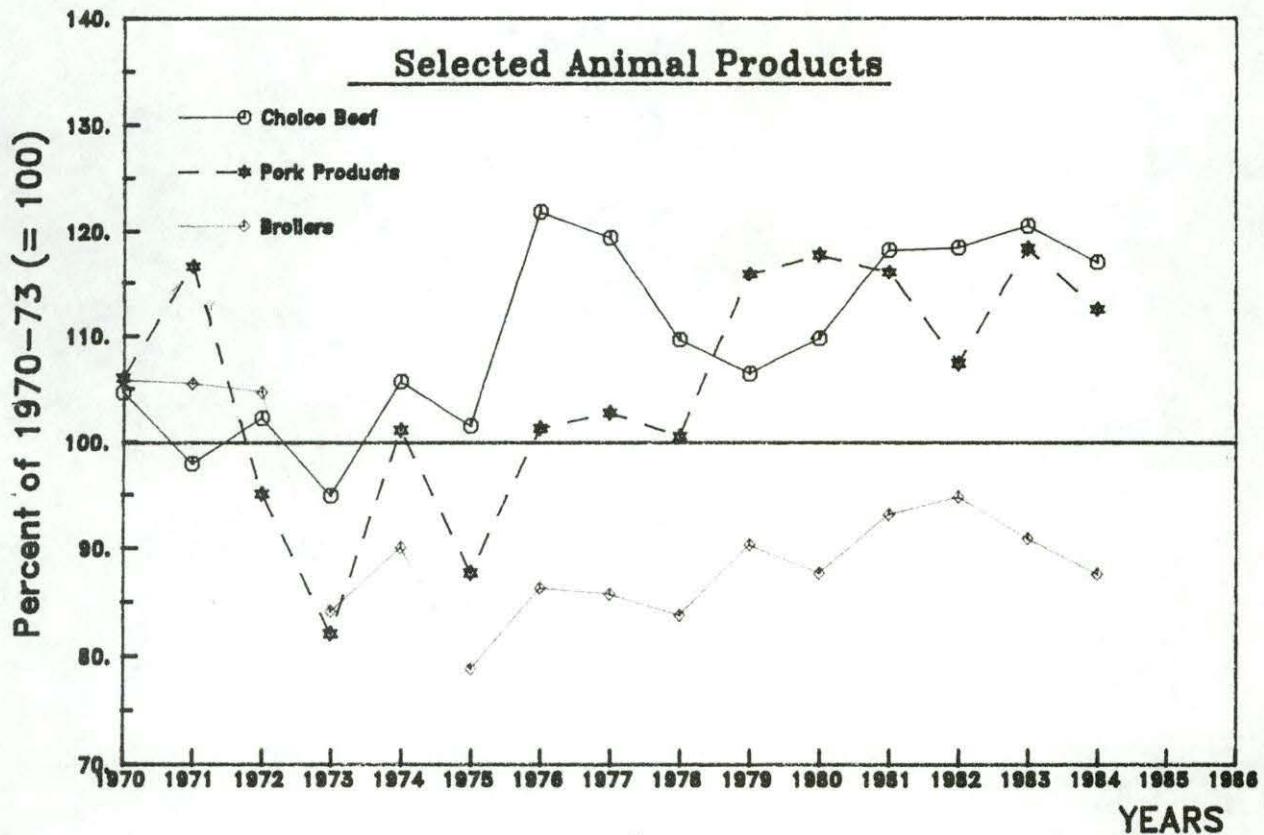
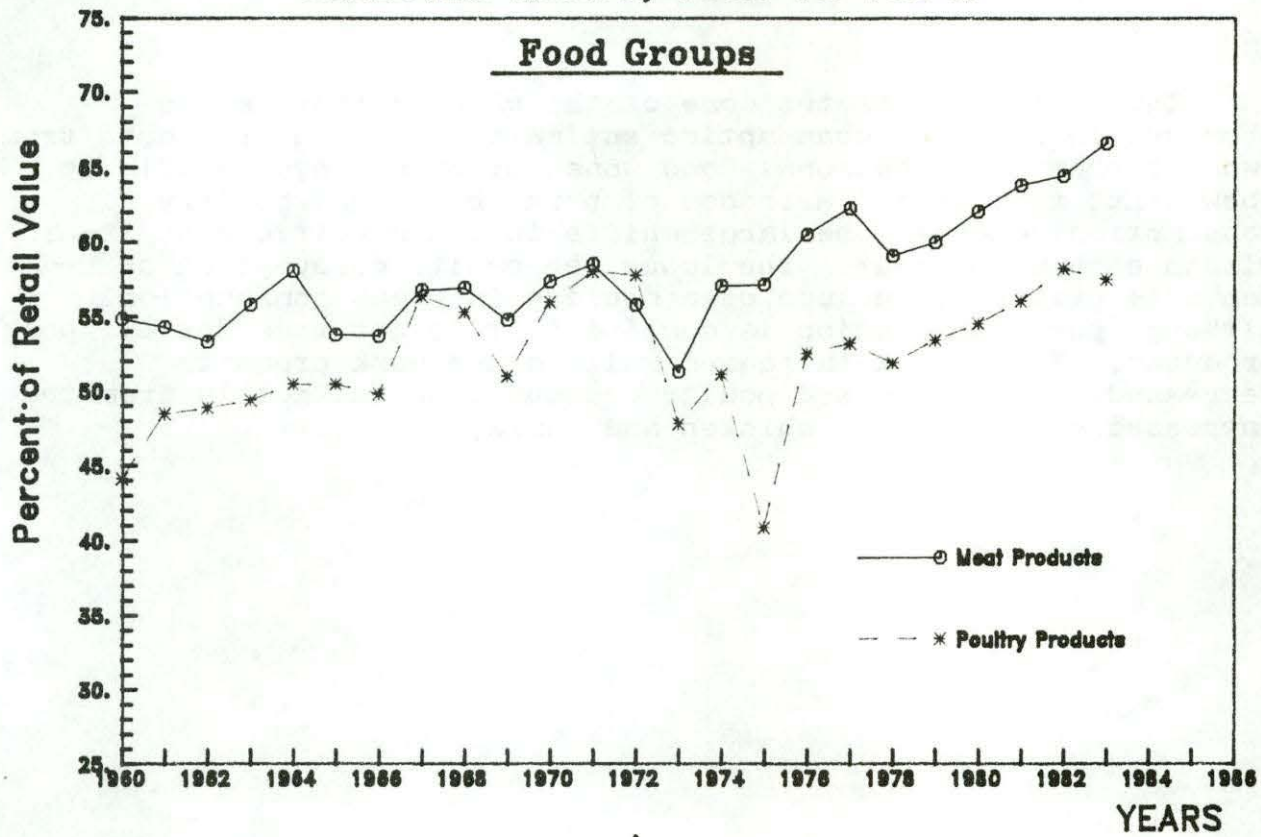


TABLE 4

The table illustrates some of the changes that can be observed in our meat consumption estimates. It compares data from two different USDA National Food Consumption surveys (NFCS). It shows that the overall averages of pork, beef, and poultry consumption conceal some large shifts in the specific meat items within each major meat. The lower per capita consumption of red meats is primarily because of a decline in steak consumption. Although pork consumption is declining it is not true for all pork products. Fresh pork increased while other pork products decreased. The increased poultry consumption has mostly from the increased use of cut-up chicken and turkey.

TABLE 4
COMPARISON OF WEEKLY AT-HOME MEAT CONSUMPTION,
SPRING 1965 AND 1977.

Item	Spring 1965	Spring 1977	Percent Change
	-pounds per capita-		
Total Meat	4.42	4.39	-.7
Red Meats	2.74	2.70	-1.5
Loin & Rib Steak	.29	.31	6.9
Round & Chuck Steak	.34	.28	-17.6
Ground beef	.41	.62	51.2
Fresh Pork	.34	.35	2.9
Bacon & Sausage	.37	.29	-21.6
Franks	.16	.15	-6.3
Variety Meats	.10	.08	-20.0
Poultry	.82	.85	3.7
Whole Chicken	.63	.52	-17.5
Chicken Parts	.12	.21	75.0
Turkey Parts	.01	.04	300.0
Fish & Shellfish	.36	.37	2.8

Source: Haldacher, Craven, Huang, Smallwood and Blaylock, Table 30.

TABLE 5

There is research evidence that price and income elasticities are declining. This means that the average consumer is becoming less and less responsive to both price changes and income increases.

USDA compared elasticities for a wide range of meat items in 1965 with the same items in 1977. Some of their results are shown in Table 5. Although the researchers methodology was not sensitive enough to be able to conclude that all the elasticities have declined they do point in that direction. For virtually every meat item the consumers response was smaller in absolute value in 1977 than in 1965. ² They conclude:

"...there may be a tendency toward decreasing preference in demand for meat and meat items consumed at home, especially with respect to lower priced items. Loin and rib steaks, chicken parts, other poultry and shellfish were among the few items for which expenditure elasticities increased between the two surveys." (p. 75)

There is other research evidence supporting the USDA study. Buse, Cox and Glaze, comparing 1972-73 data with 1977-78 find that the income and price elasticities for meat are declining. ³

² Haidacher, Richard C., Craven, John A., Huang, Kuo S., Smallwood, David M. and Blaylock, James R. Consumer Demand for Red Meats, Poultry, and Fish. ERS Staff Report AGES 820818, USDA/ERS/NED, Washington D.C. Sept. 1982.

³ Buse, Rueben C., Cox, Thomas, and Glaze, John A., "The Nature of Demand for Food". In Consumer Demand and Welfare: Implications for Food and Agricultural Policy. U. of Minnesota Press, St. Paul, Minnesota, 1986.

TABLE 5
COMPARISON OF INCOME ELASTICITIES FOR SELECTED MEATS,
POULTRY AND FISH, U.S. SPRING 1965 AND 1977.

Item	Spring 1965	Spring 1977
All Meat	.09	.03
Red Meats	.13	.06
Beef	.19	.13
loin & Rib Steaks	.55	.52
Loin & Rib Roasts	.49	.25
Round & Chuck Roasts	.18	.25
Pork	.01	-.09
Fresh	-.01	-.16
Poultry	.07	.08
Chicken	.05	.09
Parts	.24	.38
Turkey	.59	.06
Fish	.03	.02
Shellfish	.73	.60

Source: Haldacher, Craven, Huang, Smallwood and Blaylock, Table 43.

FIGURE 11

Households at different levels on the income scale allocate their meat budget quite differently. As income increases the percent of income devoted to food, both in total and to food eaten at home decreases. The same is not true for particular meats. For beef, expenditures increase while pork remains constant and poultry increases slightly. Fish and seafood expenditures remain constant across all but the very highest income levels (\$20,000 or more of before tax income).

The pattern in 1980-81 is very similar to 1972-73 with the exception it is at a slightly higher level. The difference reflects higher prices in 1980-81. The point is that different income groups allocate their income to meat in different ways and that patterns seems to be stable across time.

FIGURE 11
COMPARISON OF WEEKLY EXPENDITURES PER PERSON FOR SELECTED
FOODS, 1972-73 AND 1980-81 BLS SURVEYS.

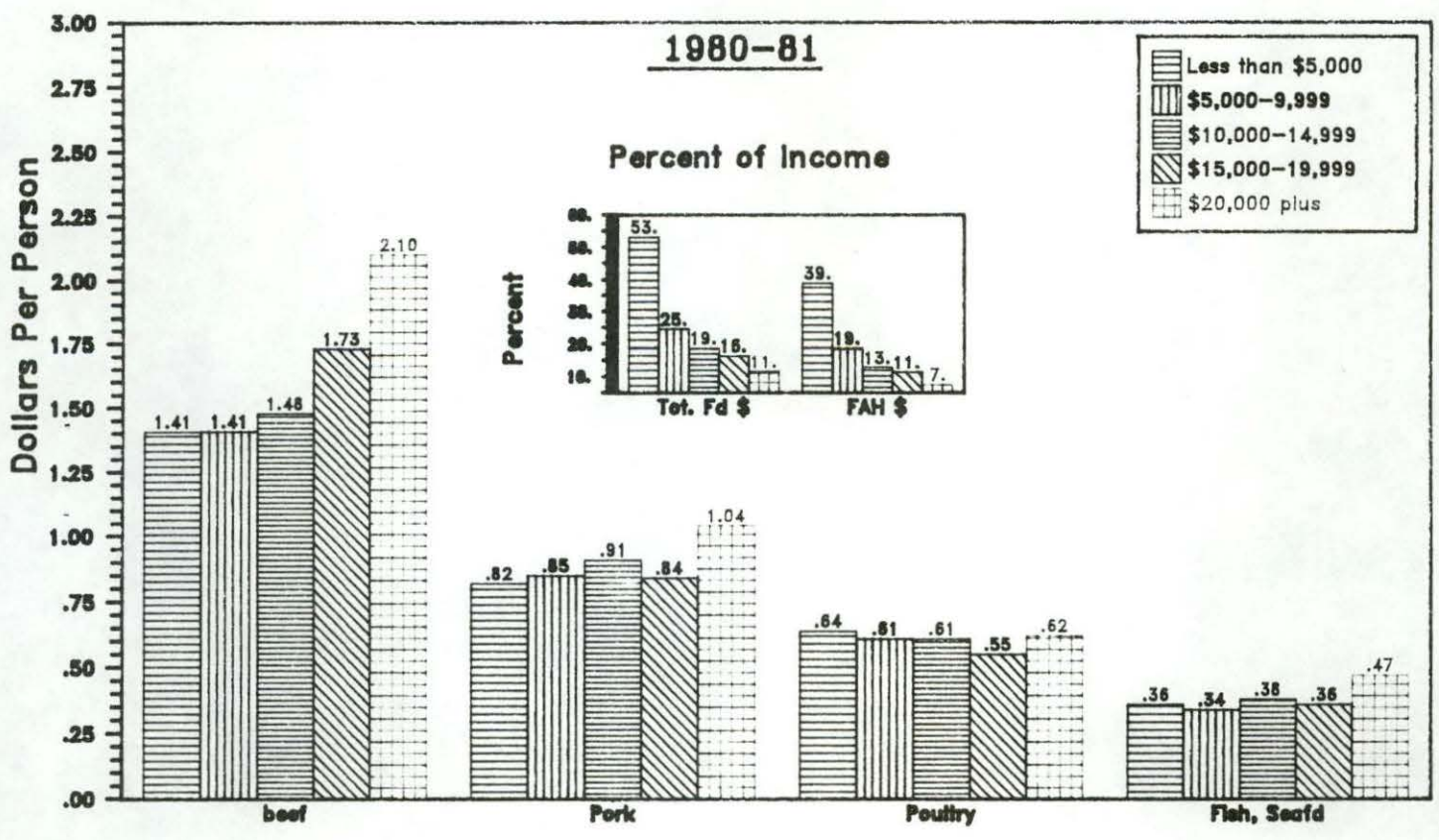
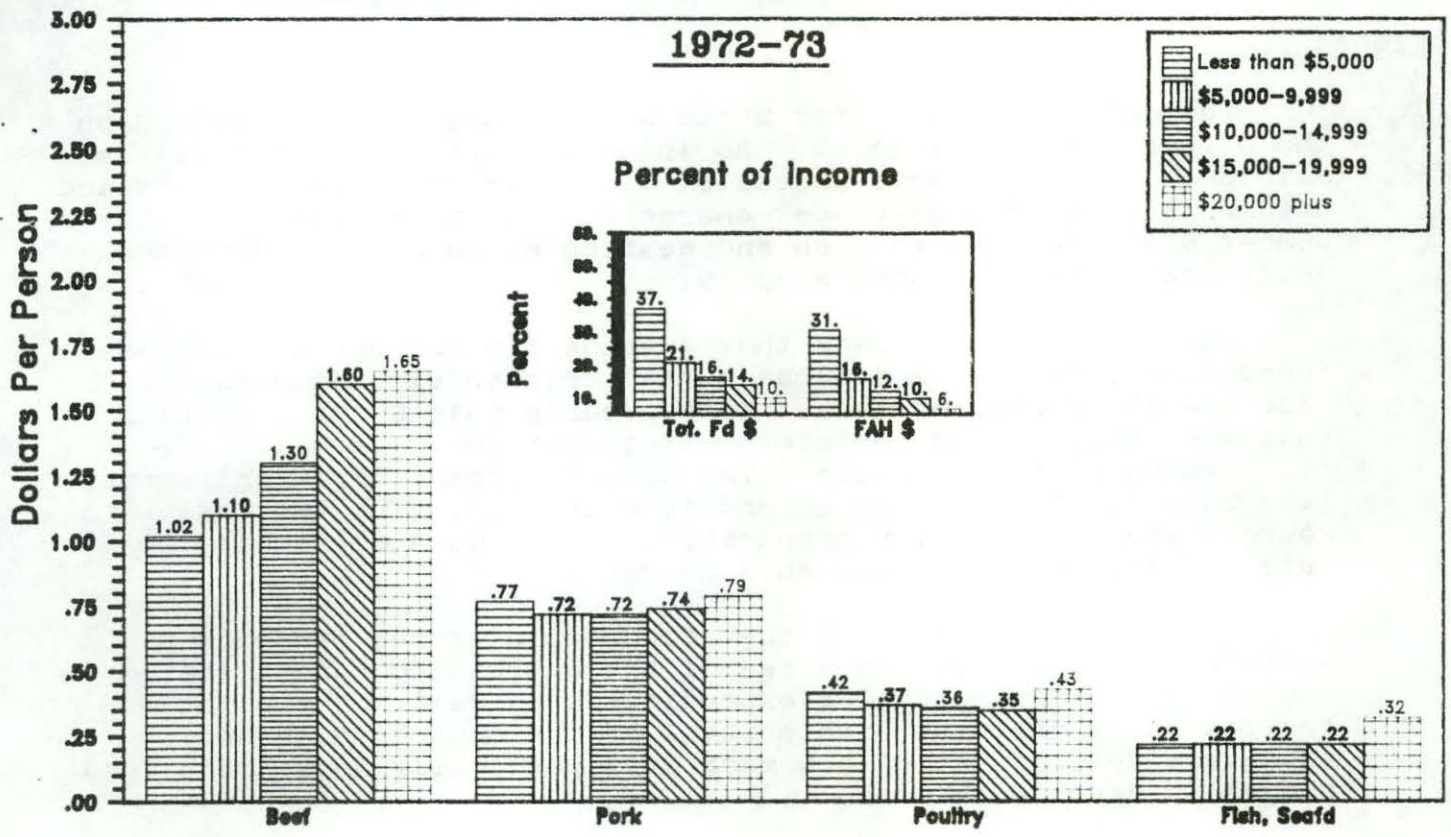


FIGURE 12

The demand for specific meats also is highly dependent upon the households income level. As incomes increase, budget shares devoted to beef products increase. In contrast, pork products and chicken show declining budget shares across income classes. The budget share devoted to fish and seafood shows a small decrease until the highest income category.

Earlier figures showed that average poultry consumption was increasing. Figure 12 indicates that chicken expenditures decrease as income increase. This clearly points out a problem that the analysts has in interpreting averages. It also illustrates another problem. The data is from a different survey (the 1972-73 BLS Consumer expenditure survey). The two data sources are not directly comparable. This add a difficulty to interpreting the data from such surveys.

The small insert shows that food expenditures per person increase with income. As a result the increasing budget shares may imply increasing dollar expenditures as well. The point of the figure is that the income level of the household is an important determinant of how much of a particular households food budget is devoted to meat.

FIGURE 12
RELATIONSHIP OF EXPENDITURES ON MEAT TO INCOME LEVELS OF THE
HOUSEHOLD, 1972-73 BLS SURVEY.

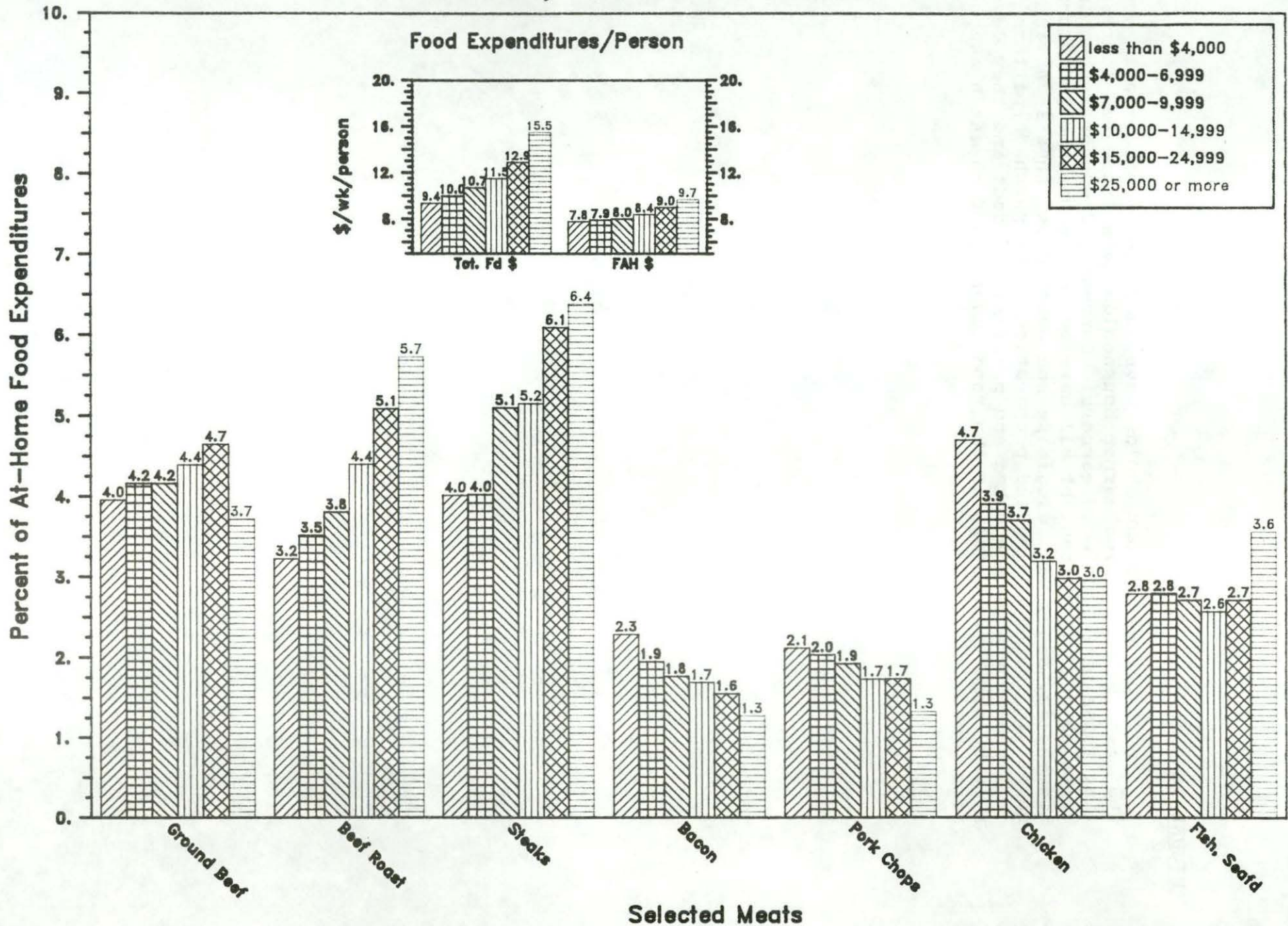


FIGURE 13

Multiple earner households have increased substantially over the past 22 years. Two earner households have increased faster than those with 3 or more earners. Currently 2 earner households comprise over 45 percent of all married couple households. Such households, along with single person households, have less time to devote to food shopping and preparation. The purchase pattern includes many more precooked and prepackaged foods and they devote a much larger percentage of the food budget to food eaten away from home.

FIGURE 13
 GROWTH IN U.S. HOUSEHOLDS WITH 2 OR MORE
 EARNERS, 1958 TO 1981.

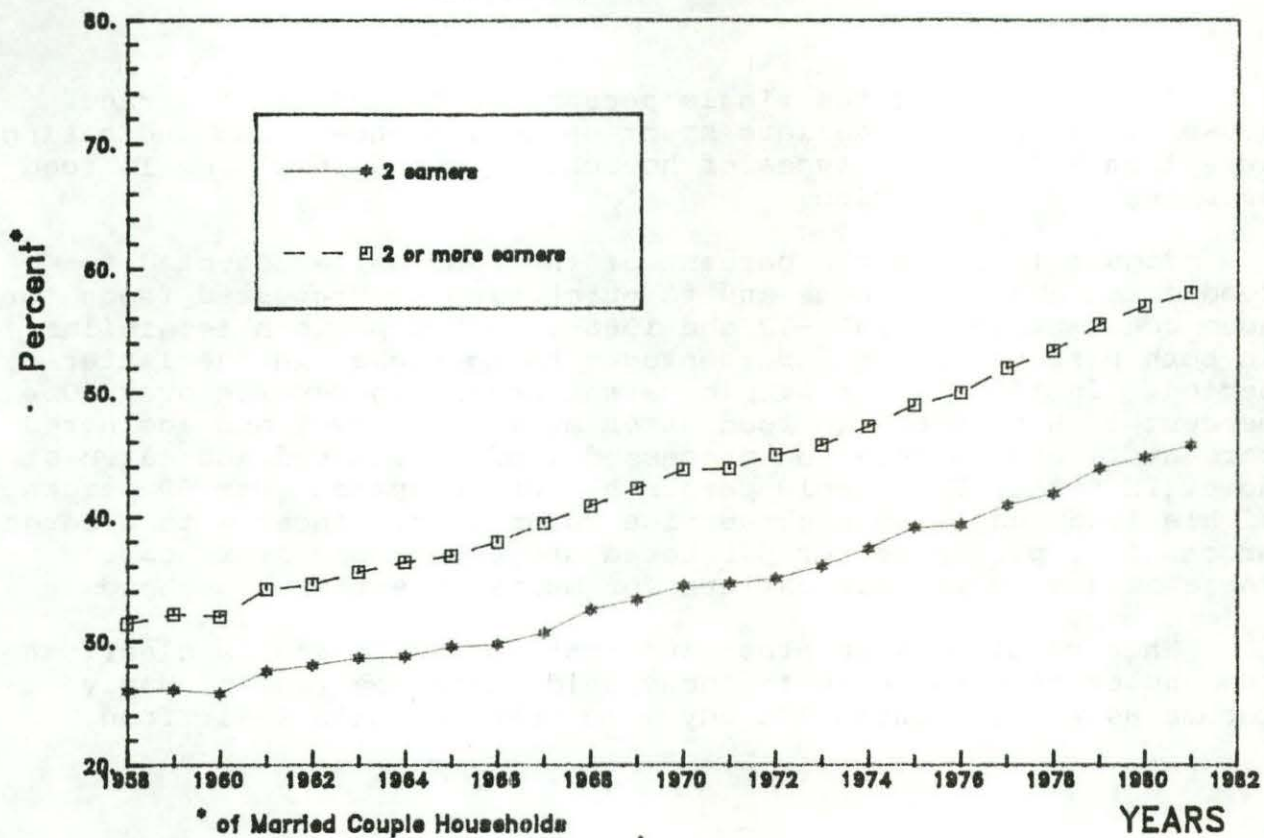


FIGURE 14

The increase in the single person and the multiple earner household means more dollars spent on convenience foods and eating away from home. Both types of households spend less time in food shopping and preparation.

Figure 14 shows the percent of the food dollar devoted to food eaten away from home and to purchasing of processed foods for home consumption in 1972-73 and 1980-81. The pattern is similar in both periods with the percentages being higher in the latter period. In 1980-81 the single person household devoted over 50 percent of his income to food eaten away from home, and another 8 percent to convenience and processed foods purchased and eaten at home. In total, The single person household spends over 60 percent of his food budget on high service foods, i.e., those with a large processing, packaging, or purchased and eaten away from home. There is a very similar pattern for multiple earner households.

When combined with other information, the trend is clear. As the number of earners in the household increases (and probably income as well), households buy more services with their food.

FIGURE 14
NUMBER OF HOUSEHOLD EARNERS AND EXPENDITURES ON
HIGH SERVICE FOODS, 1972-73 AND 1980-81

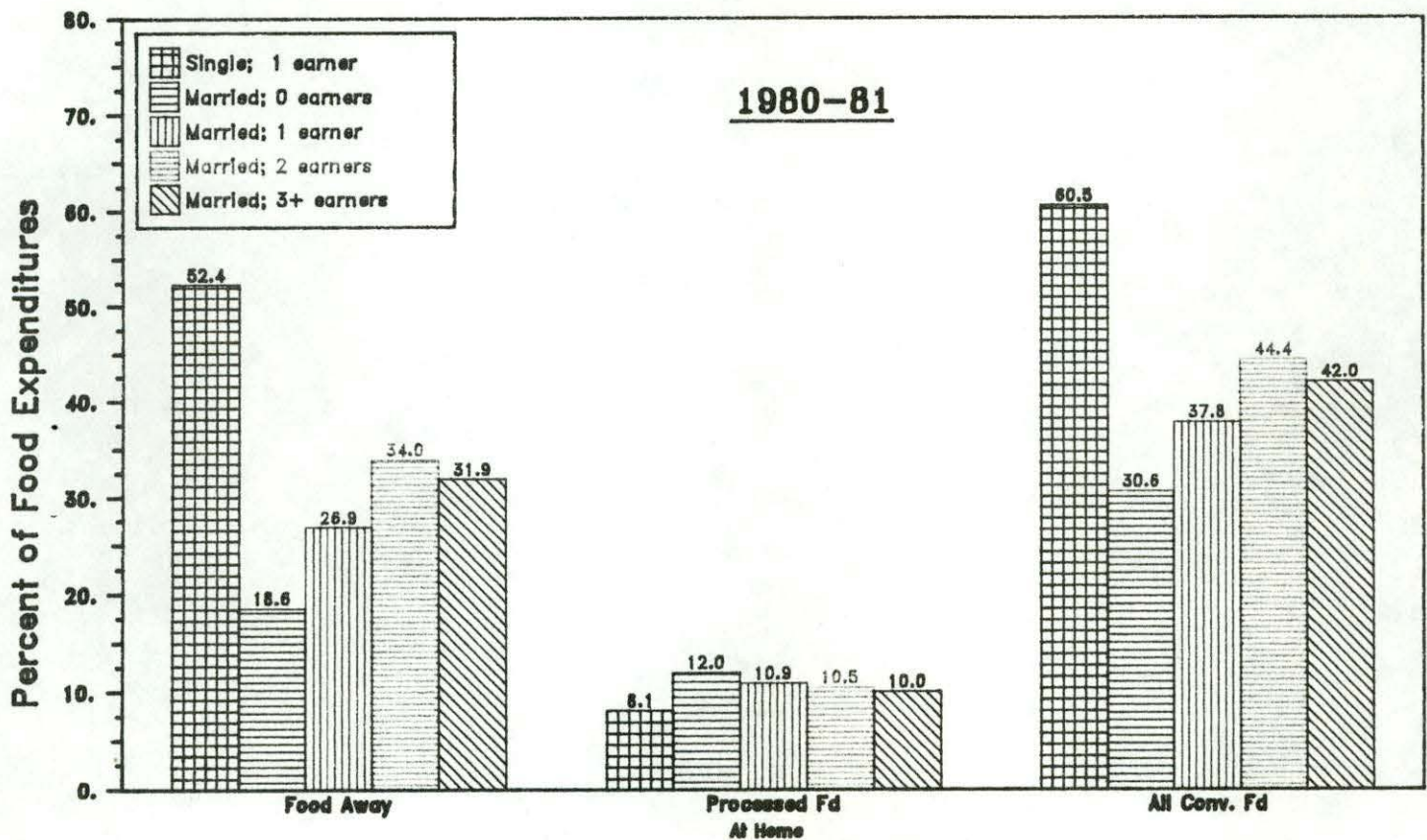
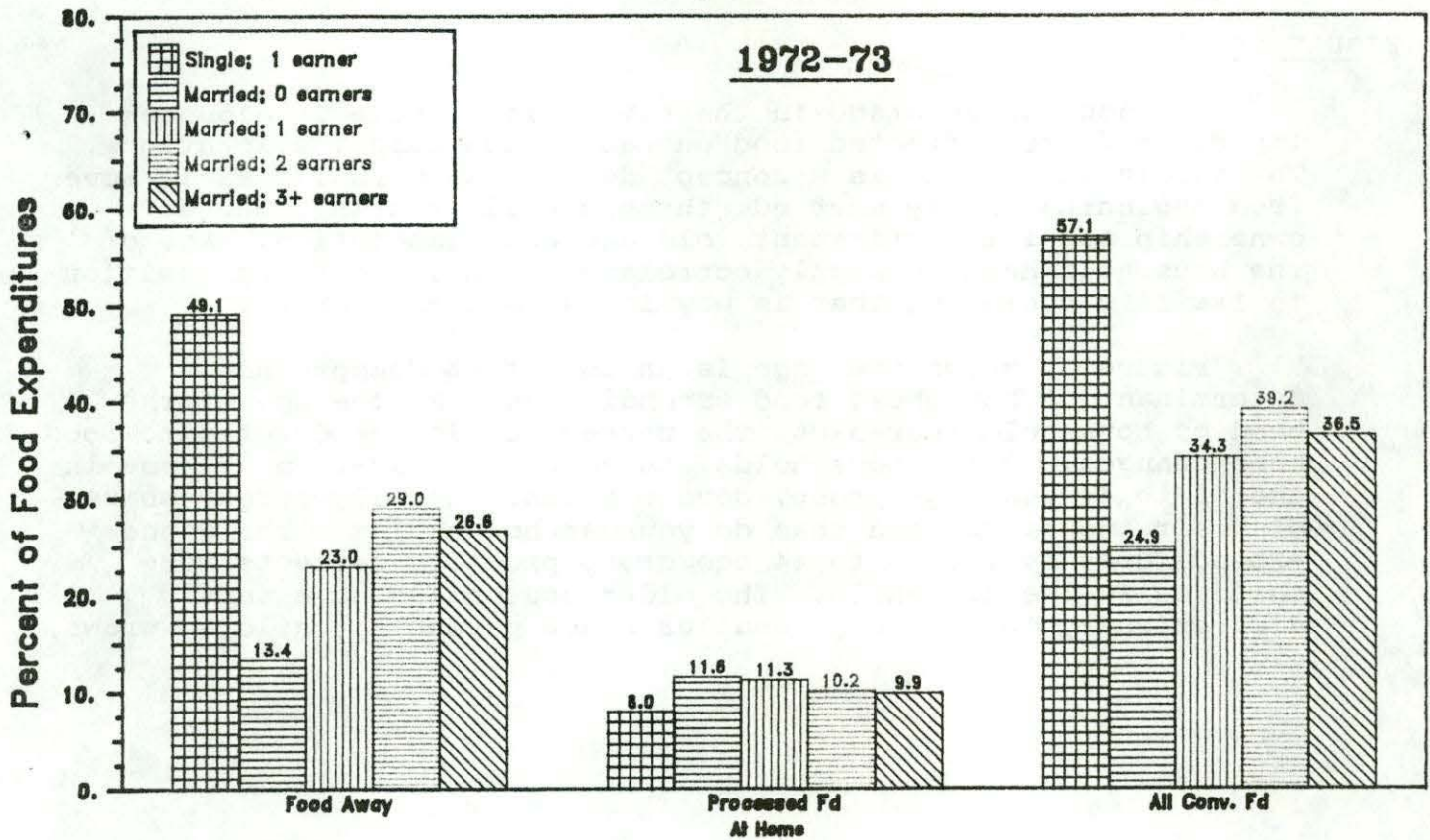


FIGURE 15

The households stage in the family life cycle is also an important factor affected food purchases and budget allocations. The family life cycle is a concept describing a family as it moves from beginning, newly married, through child rearing, house ownership and into retirement, old age and dissolution. Age of the household head is highly correlated with its current position in its life cycle and that is why it is used as a proxy.

Figure 15 shows that age is an important demographic determinant of household food expenditures. As the age of the head of household increases, the percent of income devoted to food also changes. Older households, those 65 and older, and those in the 35 to 44 year age group, devote a substantially larger share of their income to food than do younger households. The higher expenditures by the 35 to 44 age group probably reflects more children in the household. The older households have more discretionary income, e.g. smaller house payments, children grown, etc.

FIGURE 15
PERCENT OF WEEKLY INCOME DEVOTED TO FOOD
BY AGE OF HOUSEHOLD HEAD,
1972-73 and 1980-81.

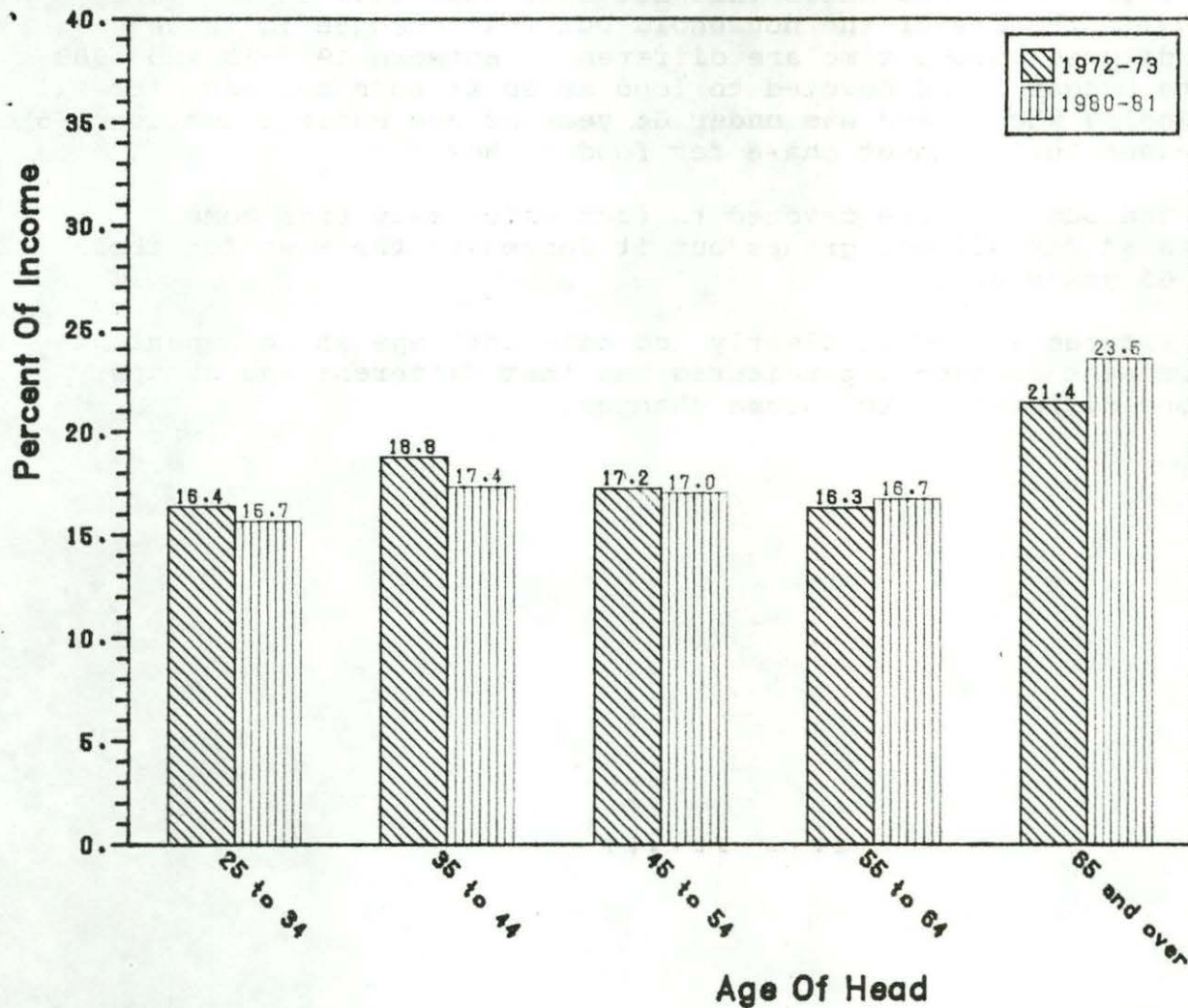


FIGURE 16

This figure indicates that not only does food expenditure vary with the age of the household but that changes in those expenditures across time are different. Between 1972-73 and 1980-81 the budget share devoted to food eaten at home declined for all households whose head was under 64 year of age while those over 65 increased their budget share for food at home.

The budget share devoted to food eaten away from home increased for all age groups but it increased the most for those over 65 years of age.

Figures 15 and 16 clearly indicate that age is an important determinant of food expenditures and that different age groups respond differently to income changes.

FIGURE 16
CHANGE IN PERCENT OF WEEKLY INCOME DEVOTED TO
FOOD AT HOME AND AWAY FROM HOME BY
AGE OF HEAD, 1972-73 AND 1980-81.

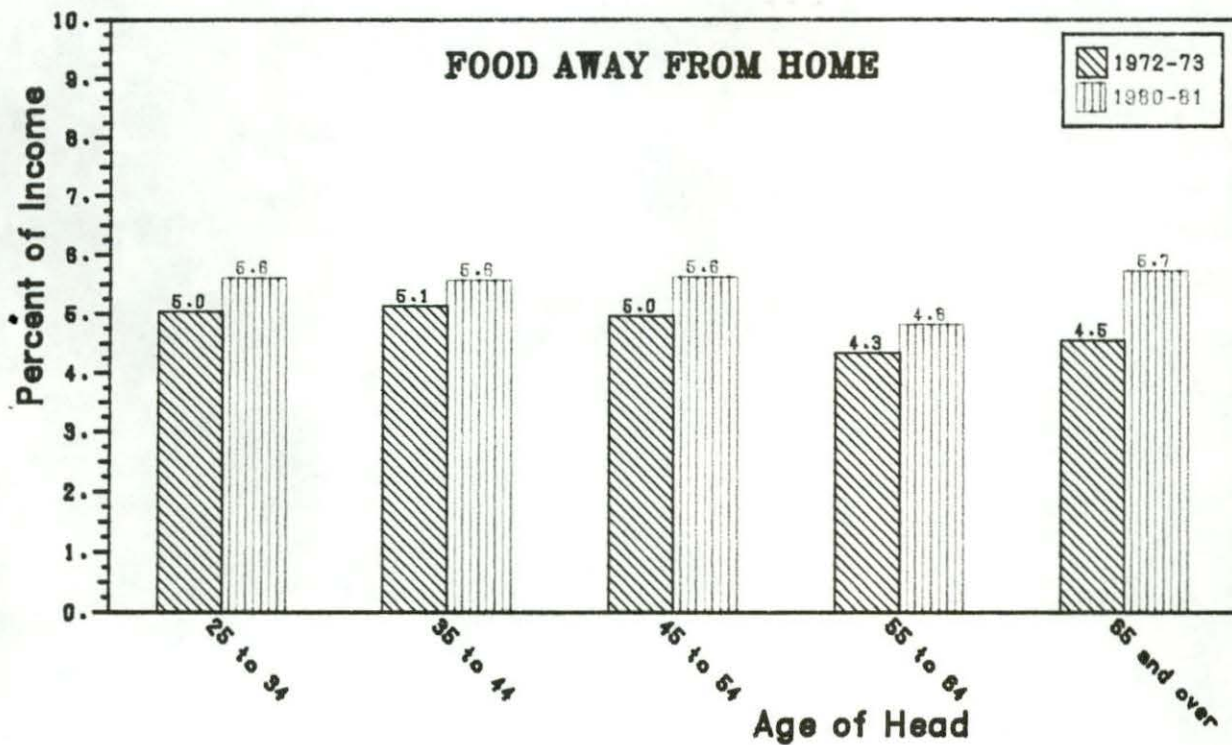
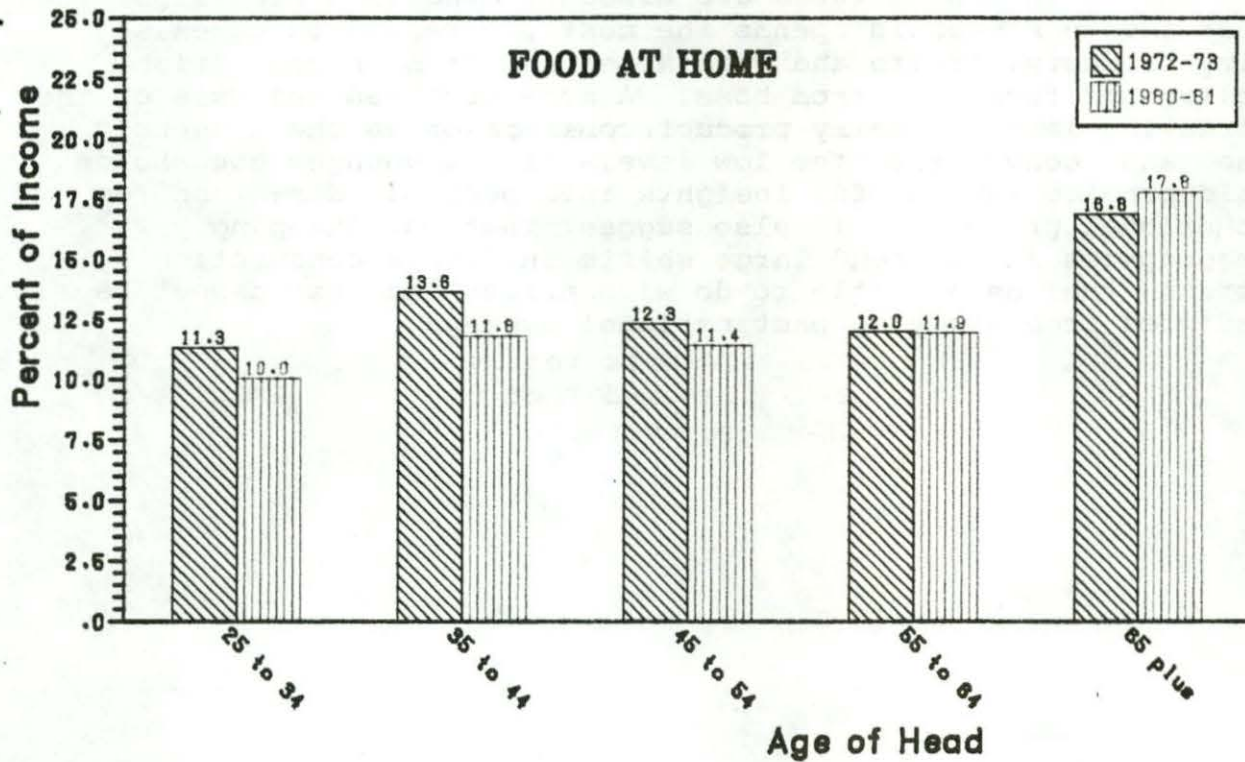


FIGURE 17

When food expenditures are disaggregated into subgroups, the older income household spends the most per capita on cereals, dairy products, fruits and vegetables and less on meat, fish, poultry and food away from home. A more detailed analysis of the increasing level of dairy product consumption as the household ages and, conversely, the low levels of the younger households could provide some useful insights into possible direction for promotional programs. It also suggest that our changing demographics may portend large shifts in future consumption patterns that have little to do with prices and that cannot be predicted from studying past national averages.

FIGURE 17
1980-81 PER CAPITA FOOD CONSUMPTION OF HOUSEHOLDS BY
AGE OF HEAD COMPARED TO HOUSEHOLDS WHOSE HEAD
WAS 25 TO 34 YEARS OLD.

