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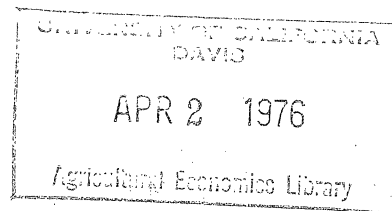
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DO WE NEED A NATIONAL FOOD POLICY?

by

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## DO WE NEED A NATIONAL FOOD POLICY?

by  
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The title of this paper was changed from the one that the organizers gave me not merely because of a dislike of <sup>prolixity</sup> ~~poli-~~city, but also for more substantive reasons. The original title was "Do Consumers or the Nation need a National Food Policy?" It reflected the division of labor between Gary Seevers and myself, with him speaking about food policy from the producer's point of view. I recognize, of course, that there is a producer's point of view, and I have no doubt he will give it adequate weight. Nevertheless, I feel that if we, that is the consumers, do not need a national food policy, then it is not likely that producers are justified in asking for one.

To say that national policies have to be oriented towards consumers rather than producers may betray a total lack of political sensitivity. We all know that policies for particular industries, be it energy, transportation, or steel, are generally initiated and supported by producer interests. However, this paper deals with policy rather than politics, and approaches the subject from an economist's point of view. That point of view, by and large, is a consumer's point of view.

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By way of further introduction, let me say something about the notion of a national policy without regard to its subject. Consider the industry which economists have studied most thoroughly, the widget industry. If someone calls for a National Widget Policy we can be sure that he wants the Government to do something. Doing nothing is not generally considered a policy, even though it may be the best approach the Government can take. Furthermore, to be worthy of the name a National Widget Policy would have to have some degree of internal consistency; a panoply of contradictory measures presumably could not be described as a national policy.

It follows that the desirability of a National Widget Policy should be judged against two alternatives, one being government abstention, and the other a set of contradictory measures. It is the latter alternative that people usually have in mind when they call for a national policy. The very nature of the political process makes it inevitable that government intervention in any industry is beset by contradictions. Many government measures were originally motivated by immediate problems, but even after these problems had disappeared (whether or not as a result of government action) the laws and regulations remained in force. An important reason for this persistence of obsolete programs is that each of them has usually acquired a constituency of its own. A major effort is therefore needed to get rid of government

programs that have outlived their usefulness. Nevertheless it can be done as the abolition of the sugar program in 1974 shows.

In the area of food policy there are also many contradictions. Although the price support programs for basic crops are no longer effective, certain other agricultural programs continue to raise food prices. This is especially true of federal and state marketing orders, and of import restrictions on dairy products and meat. Offsetting these producer-oriented programs there are others, such as food stamps and the school milk and school lunch programs, that tend to lower prices. These contradictions bring us back to the other alternative to a national food policy, namely abstention from government intervention.

#### The Justification of Government Intervention

Whether the government can abstain from intervening in food matters depends primarily on the effects of unfettered operation of the market mechanism, and more particularly on the effects on consumers. The question is whether the free market can produce adequate food supplies at reasonable prices. It need hardly be said that the terms "adequate" and "reasonable" are imprecise, but that is no reason for ignoring the question. The interpretation of these terms is essentially a matter of political judgment. In present circumstances food supplies will only be considered adequate if

all, or virtually all, consumers are able to maintain a diet that meets certain nutritional standards.

In other words, there should be no involuntary malnourishment among domestic consumers. Two adjectives in this sentence need emphasis: "involuntary" and "domestic." The first refers to the well-established fact that even in some high-income households diets are insufficient by these nutritional standards because of "dieting" or ignorance; this is clearly not an economic problem but rather (if it is a problem at all) an educational one. As regards the restriction to domestic consumers, while there are certainly people who are concerned about the adequacy of nutrition in other countries, it can hardly be said that there is a national consensus to this effect. In fact the maintenance of nutritional minima on a global scale would be a staggering task, and would raise serious questions of population policy.

At first sight government intervention in individuals' food purchases may appear to be in conflict with consumers' sovereignty, a notion dear to economists' hearts. Why not let households buy as much or as little food as they want at prices reflecting the social cost of production? If households cannot buy enough food because of poverty, the answer would be income supplements rather than subsidies linked to specific expenditures.

These are weighty, and generally valid, considerations.

Nevertheless there are good grounds for not relying entirely on the response of households to market forces. In particular there is reason to fear that in families with low food consumption the children are at a special disadvantage, not merely in their current intake but, more importantly, in that their physical and intellectual development may be stunted.

To the extent these children are in schools they can be reached by such programs as school lunches and school milk.

The problem of pre-school children, however, is inherently more difficult; indeed it is the most compelling, not to say the only valid, justification for government intervention.

The situation here is similar to that in education, where parents also cannot always be counted upon to make socially optimal investments in the human capital of their children.

The principal drawback of government programs to improve nutrition by food subsidies is that they may be made available to many people who could perfectly well take care of their own nutrition. This danger is all the more real because food programs, while ostensibly directed at consumers, often derive some of their political support from producers anxious to expand their markets. Despite this danger, the microeconomic justification of these programs is not open to serious question.

Another argument for government intervention in the food markets is based on the relative volatility of food prices, which are strongly affected by the weather and by variations in demand (especially from abroad). There is little doubt that this volatility makes life difficult for producers, who are often unable to protect themselves (by hedging or forward contracts) against sudden falls in output prices or rises in input prices. Greater price stability can therefore promote efficiency in food production which also benefits consumers provided there is active competition. It is not equally clear that price stability provides any other advantages to consumers. Nevertheless rises in food prices--especially in highly visible meat prices--are very unpopular, while price falls are barely noticed. From a political point of view stabilization of food prices therefore is generally desirable.

#### The Demand for Food in the U.S.

Although there is justification for some degree of government intervention in food consumption, the extent of this intervention should depend on the general performance of the food markets. To correct particular problems, such as occasional malnutrition or excessive price instability, is one thing, but to view these markets as unable to function without official direction is quite another thing. Market performance is closely related to the responsiveness of supply and demand to price changes. In a well-functioning market prices have to



adjust frequently in order to even out fluctuations in supply and demand caused by exogenous determinants whereas in a malfunctioning market prices tend to be rigid while supply and/or demand fluctuate sharply.

A detailed evaluation of the performance of the food markets which would require an examination of the supply side, is beyond the scope of this paper. Let us just recall that numerous studies have found the price elasticity of food supply to be significantly positive, at least after sufficient time for adjustment.<sup>1/</sup>

On the demand side the evidence is not as clear-cut, especially where food as a whole is concerned. In Houthakker and Taylor (1970), for instance, a number of demand equations for food are reported, but prices were not significant in several of them. These equations were based on aggregate time series for the period 1929-64 (or sometimes 1947-64), and one reason for the insignificance of prices may have been that until the 1970's the relative price of food as a whole did not vary much because of price support programs. A variable with a small variance is not likely to be picked up by regression analysis.

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<sup>1/</sup> See, for instance, Nerlove (1958) and Heady (1961). It should be noted, however, that these studies typically deal with the supply of particular foodstuffs rather than with food as a whole.

With the gradual termination of these programs food prices became more volatile, a development reinforced by the gradual disappearance of surplus stocks. For most of the 1950's and 1960's the Commodity Credit Corporation held large inventories, but they were reduced by such events as the failure of the Indian monsoon in 1966, the corn blight of 1970, and finally the Russian grain deal of 1972. In the last few years inventories in the U.S. (and hence, for most practical purposes, in the world) have been uncomfortably small, a matter further discussed below.

It is an ill wind that blows nobody any good, and the inflation of 1972-74 together with the recession of 1974-75 produced a great deal of potential information concerning the effects of price and income changes. Moreover there are now quarterly national accounts data on consumers' expenditures on food and beverages at current and constant for the period 1953-1975. These show a rise of more than 12% in relative price of food starting in late 1971 and continuing

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<sup>2/</sup> From now on the term "food" will tacitly include beverages. The absolute price of food was calculated by dividing the constant-dollar expenditure into the corresponding current-dollar figure; the same was done for consumers' expenditure on all items. The relative price of food is the ratio of these two implicit deflators.

through early 1974. Per capita food consumption, which of course is also affected by income, fluctuated irregularly during the first half of the 1970's, with a marked decline in 1973 when the relative price was rising most steeply.

Various linear and double-logarithmic equations have been fitted to quarterly data from 1953 through the second quarter of 1975. There is not much to choose between these equations; the following appears to be the most useful.

$$(1) \quad \ln q_t = -.554 + .457 \ln q_{t-1} + .181 \ln y_t - .139 \ln p_t$$

(-6.4)      (5.4)                      (6.5)                      (4.5)

$$\bar{R}^2 = .982; \text{DW} = 1.72$$

where  $\ln$  is the natural logarithm,  $q_t$  is per capita food consumption at 1958 prices in period  $t$ ;  $y_t$  is per capita personal disposable income, deflated, and  $p_t$  is the relative price of foods as defined in footnote 2. The  $t$ -ratios are given in brackets; they are satisfactorily large.

This equation implies an income elasticity of .18 in the short run and of .33 in the long run. The price elasticity is -.14 in the short run and -.26 in the long run.<sup>3/</sup> Although

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<sup>3/</sup> These long-run elasticities are considerably smaller in absolute value than those estimated from annual data in Houthakker and Taylor (1970). Although the model used there was linear rather than double-logarithmic, this does not appear to account for the discrepancy, which may be related to a defect in the dynamic specification of the underlying model of consumer behavior (see an unpublished paper by B. Sexauer of Stanford University).

fairly small, the price effects are quite significant from a statistical point of view, and also important for the subject of this paper, since the performance of a free market depends in part on the responsiveness of the demand side to price changes.

#### The Demand for Food Abroad

Since the U.S. is a major food exporter the price of food in this country is heavily influenced by foreign demand. It is therefore of interest to estimate the price elasticity of food demand abroad. A comprehensive analysis would meet with serious data problems, but valuable insights can be obtained by looking at a few countries for which comparable data are available for a sizable number of years.<sup>4/</sup> The

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<sup>4/</sup> Data were taken from the Organization of Economic Cooperation and Development, National Accounts of OECD Countries (the most recent printed version covers the years 1962-73, but data from 1960 on were used here). These data cover not only food and beverages but also tobacco. For seven countries (Australia, Belgium, Canada, Finland, Germany, Italy and Japan) data were available for the entire period 1960-1973, and these are the countries used here. The variables used are generally the same as in the U.S. analysis (see footnote 2), except that personal disposable income had to be calculated from "current receipts of households" by subtracting direct taxes on income and social security contributions; it was deflated by the implicit deflator for total consumption. Mid-year population figures were taken from International Financial Statistics. Despite standardization by OECD conceptual differences among the national accounts data of different countries are inevitable, but believed to be minor. In two cases missing observations had to be obtained from national sources.

time series for these countries were pooled, that is, the same regression coefficients were assumed to apply to all countries; the intercepts however, were allowed to differ so as to absorb currency and other statistical differences. The counterpart of equation (1) for the seven countries is:

$$(2) \quad \ln q_{it} = a_i + \underset{(12.1)}{.756} \ln q_{it-1} + \underset{(3.9)}{.155} \ln y_{it} - \underset{(-1.4)}{.130} \ln p_{it}$$

$$\bar{R}^2 = .986$$

where the variables are the same as in (1), except for the additional subscript  $i$  indicating the country. The intercepts  $a_i$  are not relevant for the present purpose and have therefore not been calculated; the squared correlation coefficient from pooled time series does not have a straightforward interpretation and is given only for completeness.

In comparing (1) and (2) it should be borne in mind that (2) is based on annual data. The short-run elasticities with respect to income and price (here .16 and -.13 respectively), while apparently similar to those in (1), do not mean the same; in fact to be consistent with (1) the short-run elasticities in (2) would have to be three or four times as large. The long-run elasticities, which are .63 for income and -.53 for price in (2), are conceptually comparable with those in (1), but much larger. Actually what matters here is not so much whether the elasticities are different in the U.S. from

those abroad, but whether the price elasticities are significant. In this respect (2) leaves much to be desired since the t-ratio for  $p_{it}$  is only -1.4. A better equation is

$$(3) \quad \Delta \ln q_{it} = a'_t + \underset{(5.8)}{.340} \Delta \ln y_{it} - \underset{(5.2)}{.534} \Delta \ln p_{it}$$

$$\bar{R}^2 = .351$$

where  $\Delta$  is the first-difference operator and the intercepts  $a'_i$  now represent the residual trends prevailing in each country. The lagged dependent variable is absent from (3), so an interpretation in terms of short and long run is no longer possible. Although the discussion in Houthakker (1965) suggests that (3) reflects primarily short-run effects, the estimated elasticities in (3) are actually closer to the long-run elasticities implied by (2). This suggests once more that the dynamic assumptions underlying these equations need further examination.

#### Composition of Food Consumption

Notwithstanding these problems it seems fair to conclude from the econometric analysis that the demand for food is responsive to price changes. It is also important to know whether the pattern of food consumption depends on prices, for it is sometimes maintained that the industrialized countries are inexorably bent on consuming more meat and other livestock products in lieu of crop products. Since grain fed to livestock produces fewer calories for human consumption than grain

products consumed directly (for instance in the form of bread) this allegation would imply that the rich countries, by insisting on meat, are causing starvation in the poor countries. While a full investigation of this question would lead us too far afield, it is interesting to see what has happened in recent years to the balance between livestock products and crop products.

This is done in Table 1, which breaks down calories and proteins per head per day into crop products and livestock products for those OECD countries, not all of them highly industrialized, for which data for 1955-59, 1965-69 and 1973 are available.

Inspection of Table 1 confirms the almost universal shift towards livestock products, but in many countries consumption of grain products (as measured by calories) also went up. In fact most countries witnessed an increase in total calorie intake per head; it is especially pronounced in what were (and sometimes still are) the poorer countries: Italy, Japan, Portugal, Spain and Yugoslavia. The shift towards livestock products implied an increase in protein consumption in the large majority of countries, though in most of them protein consumption has stayed well below the U.S. level <sup>5/</sup>

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<sup>5/</sup> According to the Spring 1965 Household Food Consumption (U.S. Department of Agriculture, Dietary Levels of Households in the United States, Report No. 6, p. 20, the average protein consumption of American households with incomes over \$15,000 was 113.7 grams; the average for all households at that time was 105.8 grams.

In Fig. 1 the data on total protein consumption from Table 1 are plotted against per capita GNP in 1970 dollars at 1974 exchange rates.<sup>6/</sup> Each of the eleven lines links the three observations for one country, and both variables are on a logarithmic scale. While the dispersion is considerable some tendency towards a flattening towards the right-hand side of the chart can be detected: generally the slopes are steeper for the low-income countries at the left, except for Ireland where protein consumption was high throughout the period of observation.

It is too early to say whether the increase in protein consumption is indeed slowing down, and these data also shed little light on the effect of relative price changes on the composition of food consumption. Pending further evidence the worries about the effects of increasing consumption of livestock products on world nutrition can therefore not be dismissed lightly.

#### Nutrition in the U.S.

Let us now turn to the most important concern that a national

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<sup>6/</sup>The Gross National Product (or in some cases Gross Domestic Product) was used instead of personal disposable income because otherwise too many countries would have dropped out for lack of consistent data; even so six of the seventeen countries in Table 1 could not be included in the chart. Exchange rates for 1974 were used because the adoption of floating in 1973 probably made them more realistic than in previous years.



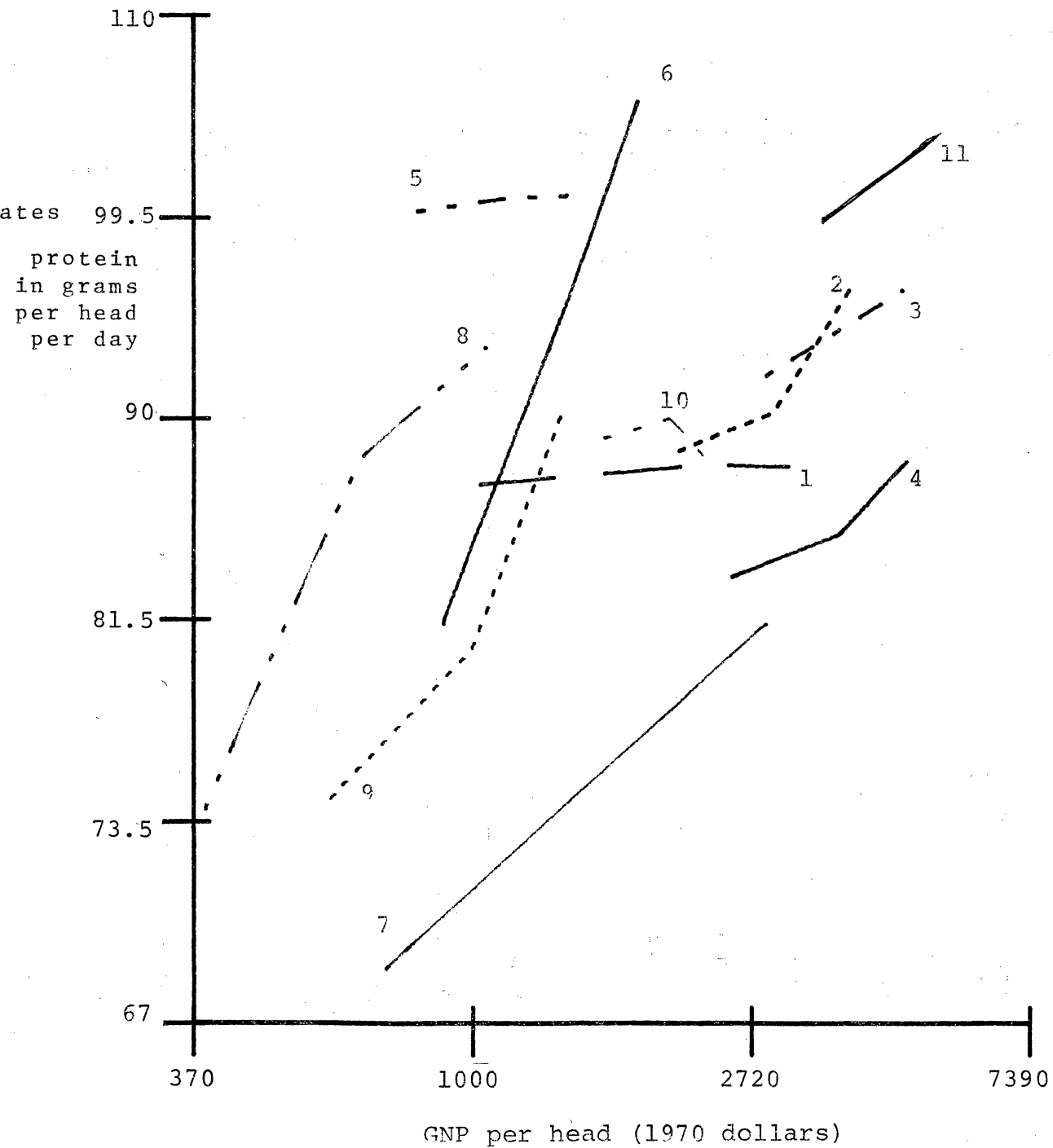
Table 1. Calories and Proteins by Source, Selected periods

		Calories derived from			Proteins derived from		
		Crop Products	Livestock Products	All	Crop Products	Livestock Products	All
Austria	1955-59	1994	1167	3161	42.9	44.2	87.0
	1965-69	1915	1347	3262	36.4	51.5	87.9
	1973	1932	1400	3332	33.9	53.9	87.8
Belgium - Luxembourg	1955-59	1926	1162	3088	41.7	46.8	88.5
	1965-69	1927	1314	3241	37.6	52.6	90.2
	1973	1980	1461	3441	37.7	58.6	96.3
Canada	1955-59	1714	1288	3003	31.0	60.9	91.9
	1965-69	1800	1274	3074	30.4	63.7	94.1
	1973	1901	1257	3158	30.9	65.0	95.9
Denmark	1955-59	1885	1365	3250	32.7	51.3	83.9
	1965-69	1677	1526	3203	28.2	59.3	87.5
	1973	1634	1595	3229	26.7	65.5	92.2
France	1955-59	1992	1086	3078	47.3	51.1	98.4
	1965-69	1886	1294	3180	39.6	64.0	103.6
	1973	1879	1340	3219	35.7	67.0	102.7
Germany	1955-59	1920	1199	3119	38.1	45.0	83.1
	1965-69	1784	1347	3131	31.8	53.1	84.9
	1973	1821	1417	3238	30.5	57.5	88.0
Ireland	1955-59	2083	1323	3406	49.3	50.4	99.7
	1965-69	1955	1413	3367	41.7	58.7	100.4
	1973	1891	1488	3379	38.2	62.3	100.5
Italy	1955-59	2062	484	2546	53.2	28.0	81.2
	1965-69	2379	648	3027	56.2	40.0	96.1
	1973	2533	810	3343	56.4	48.9	105.3
Japan	1955-59	2052	162	2214	43.4	15.1	68.5
	1965-69	2103	349	2452	51.5	24.9	76.4
	1973	2089	482	2571	49.0	32.2	81.2
Netherlands	1955-59	2066	1049	3115	36.3	50.2	86.5
	1965-69	2005	1190	3195	31.9	54.1	86.0
	1973	1981	1195	3176	30.9	57.0	88.8
Norway	1955-59	2151	899	3050	36.1	51.0	87.1
	1965-69	1704	1267	2970	31.5	55.6	87.1
	1973	1712	1299	3011	30.4	54.6	85.0
Portugal	1955-59	2107	454	2560	48.9	25.1	74.1
	1965-69	2444	553	2997	56.2	32.0	88.2
	1973	2578	719	3297	54.2	39.0	93.2
Spain	1955-59	2100	365	2465	52.2	22.3	74.5
	1965-69	2048	562	2610	45.1	35.1	80.2
	1973	2097	732	2829	44.3	45.9	90.2
Sweden	1955-59	1737	1233	2970	30.8	55.5	86.3
	1965-69	1667	1174	2841	27.5	56.1	83.6
	1973	1640	1120	2760	26.3	57.6	83.9
U.K.	1955-59	1950	1227	3178	37.7	51.5	89.1
	1965-69	1848	1323	3171	34.8	55.2	90.0
	1973	1860	1270	3130	33.3	54.6	87.9
U.S.	1955-59	1806	1350	3156	32.2	67.1	99.2
	1965-69	1925	1307	3232	31.2	70.8	102.0
	1973	2040	1276	3316	31.0	72.6	103.6
Yugoslavia	1955-59	2311	559	2870	66.3	22.7	89.0
	1965-69	2581	608	3190	69.8	24.9	94.7
	1973	2484	680	3164	64.3	28.6	92.9

Source: Organization for Economic Co-operation and Development, Food Consumption Statistics, 1955-1973, Paris 1975 (final table on each set of country pages) Protein is in grams per head per day.

Fig. 1 Protein Consumption in Relation to GNP per Head

Key to line numbers:  
 1=Austria; 2=Belgium-  
 Luxemburg; 3=Canada;  
 4=West Germany;  
 5=Ireland; 6=Italy;  
 7=Japan; 8=Portugal;  
 9=Spain; 10=United  
 Kingdom; 11=United States



food policy is intended to deal with, namely domestic malnutrition. Detailed statistical evidence on this problem is available mostly from the 1965-66 Household Food Consumption Survey, which shows, not surprisingly, that malnutrition is associated with low incomes. However, some malnutrition is also found among higher-income households.

The adequacy of nutrition was measured in this survey by converting observed consumption of a large variety of foodstuffs into nutrients by a standard formula, and comparing the calculated nutrient consumption with the recommended allowances of seven important nutrients (protein, calcium, iron, vitamin A value, thiamine, riboflavin and ascorbic acid); there was no physical examination of the households' members. No attempt could be made here to verify the validity of these allowances or of the methods by which they were compared with actual consumption. No doubt these survey data are also subject to sampling fluctuations and to systematic biases inherent in household surveys, especially if they extend only over one week, as was the case here.

Table 2 gives some overall measures of the nutritional adequacy of household diets by income group. The correlation with income is evidently close. Further examination

shows that three of the seven nutrients, namely calcium, vitamin A value and ascorbic acid (vitamin C) are particularly likely to be below the recommended allowance. For two of those (calcium and ascorbic acid) this is shown graphically in Fig. 2; the pattern for vitamin A is somewhat intermediate between the two shown. In Fig. 2 the full bar indicates the percentage of households that fall short of the recommended allowance, while the cross-hatched part gives the percentage of those who do not even reach two-thirds of the allowance.<sup>7/</sup>

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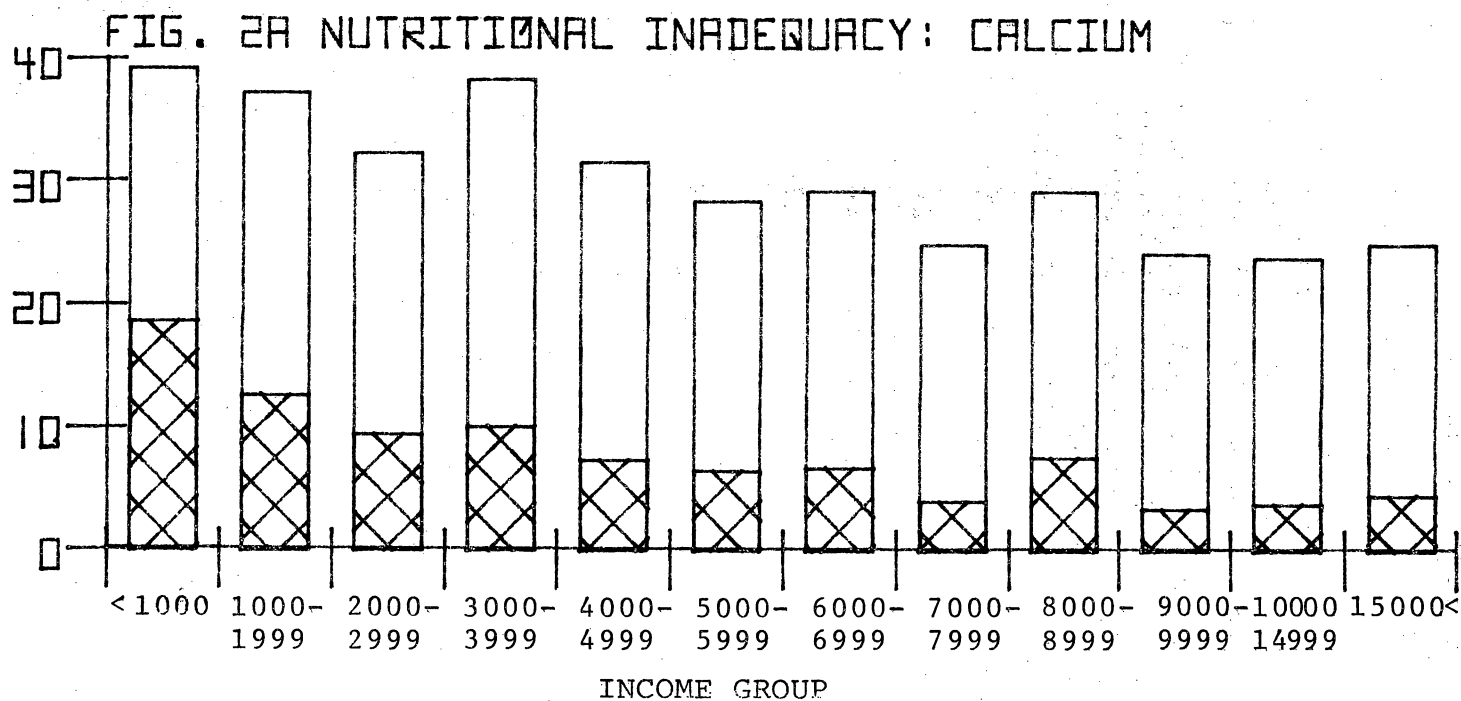
<sup>7/</sup> Another report in the same series (No. 17) relates dietary adequacy to per capita expenditure on food. Although \$5 per person per week was theoretically sufficient to meet all recommended allowances at the time of the survey, three quarters of the households who spent between \$5 and \$7 per week were deficient in at least one nutrient. Even of households spending between \$12 and \$16 per week one-quarter did not meet all recommended allowances. Sampling errors aside this suggests that many households either do not agree with these nutritional requirements, or that they consider other aspects of food (such as palatability and variety) more important.

Table 2. Percent of Household with Various Dietary Deficiencies

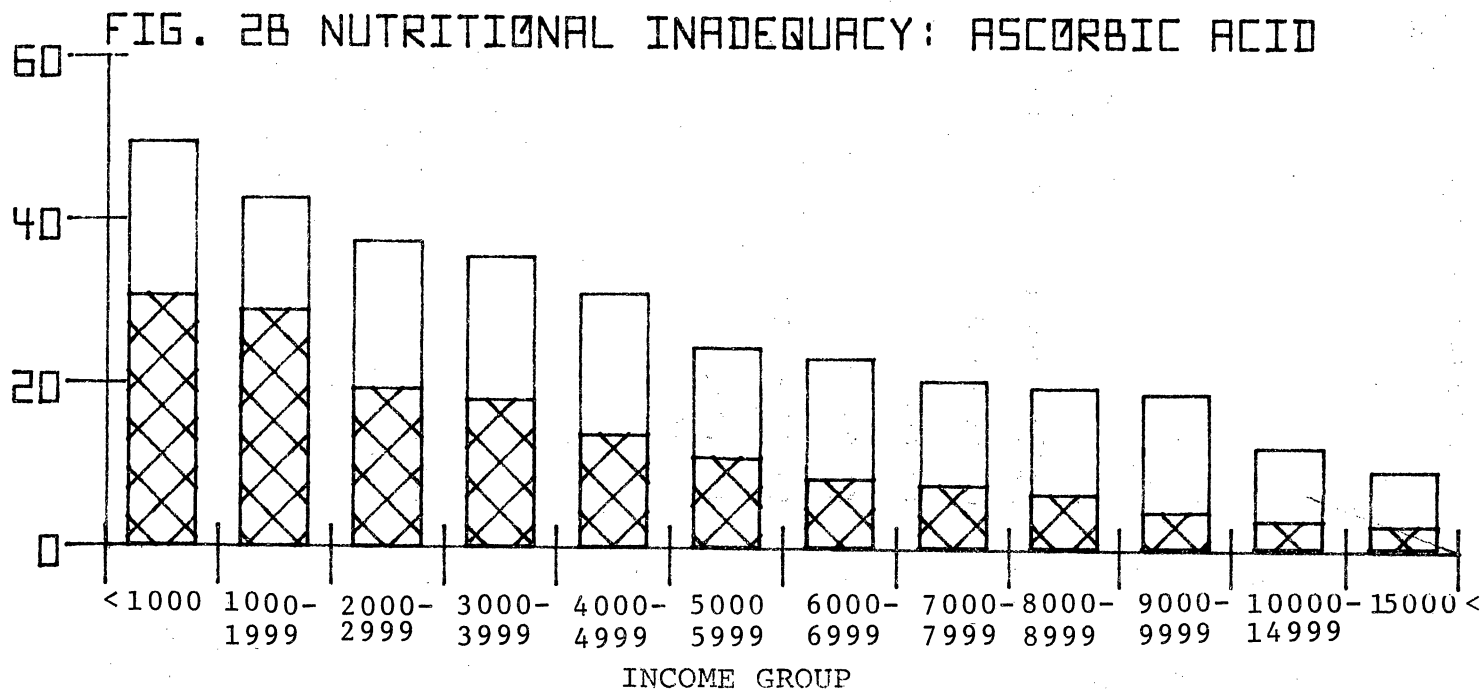
<u>Income Group</u>	<u>Number of households in sample</u>	<u>% with less than recommended allowance in one or more nutrients</u>	<u>% with less than recommended allowance in three or more nutrients</u>	<u>% with less than two-thirds of recommended allowance in one or more nutrients</u>
Under \$3,000	1697	63	22	36
\$3,000-4,999	1515	57	17	24
\$5,000-6,999	1756	47	14	18
\$7,000-9,999	1360	44	10	12
\$10,000 and over	790	37	10	9

Source: As in footnote 5, pp. 5,6,14.

% of  
house-  
holds



% of  
house-  
holds



### Malnutrition and Market Imperfection

Is it a coincidence that the three nutrients in which dietary deficiencies are most common are also the ones where the market is least perfect? The principal sources of calcium is milk, and of vitamins A and C it is fresh fruits and vegetables, in addition to citrus juices. These are precisely the commodities where marketing orders have long been used to restrict competition among producers. In the case of dairy products, where import restriction are an additional barrier to competition, the main effect of marketing orders is to prevent, or at least severely limit, interregional flows of milk from undercutting local milk producers. Dairy cooperatives have organized so-called superpools to strengthen their market power, and their exercise of political pressure can without exaggeration be called scandalous. That their practices place a heavy financial burden on consumers is well-known but that artificially high milk prices are also a major cause of malnutrition appear to be less widely realized.<sup>8/</sup>

In many fruits and vegetables marketing orders, reinforced by the antitrust exemption of farm cooperatives, are being used to restrict supply; California oranges and Florida

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<sup>8/</sup> The dairy interests sometimes claim in defense that many dairy farmers are poor. If so, one major reason appears to be that low-cost dairy producers are not permitted to sell in their best markets.

tomatoes are two examples among many. Since production of specialty crops is often confined to one or a few small areas, supply control is not difficult to achieve provided the government is willing. Destruction of so-called surpluses, whether before or after harvest, is a common practice in certain tree crops. Admittedly there are special problems in the marketing of perishable fruits and vegetables when the bulk of the crop becomes available in a short period of time, but that does not justify government intervention at the expense of consumers.

#### The Food Stamp Program

After this digression from the main subject of this paper it is time to go back to the consumer. In recent years the main activity of the Federal government on behalf of consumers has become the food stamp program. From a small start in the early 1960's it has been expanded in stages, and at present involves budget expenditures at an annual rate of well over \$5 billion; the number of beneficiaries is now approaching 20 million. Originally intended mostly to increase the demand for food, it has now become one of several overlapping programs to counteract poverty. <sup>9/</sup>

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<sup>9/</sup> As Browning (1975) has pointed out, the effects of these programs on the distribution of income is hard to analyze from published statistics, which refer only to money income. According to his calculations the distributive effect has been substantial, though it has been accomplished at a relatively high cost because subsidies linked to particular expenditures (such as food and housing) are inherently inefficient in raising real income.



Under this program eligible households are entitled to stamps which can be used like money in the purchase of domestic foodstuffs and certain inputs into food production. Eligibility is determined by income and family size, and these factors also determine how much participating households must pay for the stamps. Thus in early 1975 a four-person household was entitled to stamps with a face value of \$154 per month, for which it would pay nothing if its net money income was below \$30 per month, \$53 at an income of \$200 per month, and \$130 at an income of \$500 per month. Four-person households with monthly incomes over \$513 were not eligible.

The program therefore can in principle have two effects on participating households: it increases their disposable income by the money value of the bonus stamps (those received free of charge) and it reduces the relative price of food. These two extents offset each other. Since the stamps can be used only to buy food, their money value is less than their face value. It appears, in fact, that food stamps are traded at about half their face value.

While these two effects are fundamental in analyzing the impact of food stamps, the problem is complicated by the fact that some participating households would have spent more on food than the face value of their stamp entitlement (the \$154 per month just mentioned for four-person households)

even if they had received no stamps at all. Such households presumably use the stamps to pay for their accustomed food bill; their disposable income rises by the full face value of the bonus stamps, but the relative price of food to these households does not fall.<sup>10/</sup> Their food consumption would rise only by what they spend on food out of the increase in disposable income. This is not to be considered a defect of the program, whose principal economic justification is that it enables poor families to attain an adequate diet. It represents, however, a rather complicated way of raising the disposable income of households who are probably relatively well off to begin with.

In its present form and coverage the food stamp program is too new to permit conclusive evaluation of its effects on the demand for food.<sup>11/</sup> The size of the food stamp program (as measured by budget expenditures from the Monthly Treasury Statement) was introduced as an explanatory variable in the demand analysis is for the U.S. discussed earlier in this paper, but it was either not statistically significant or

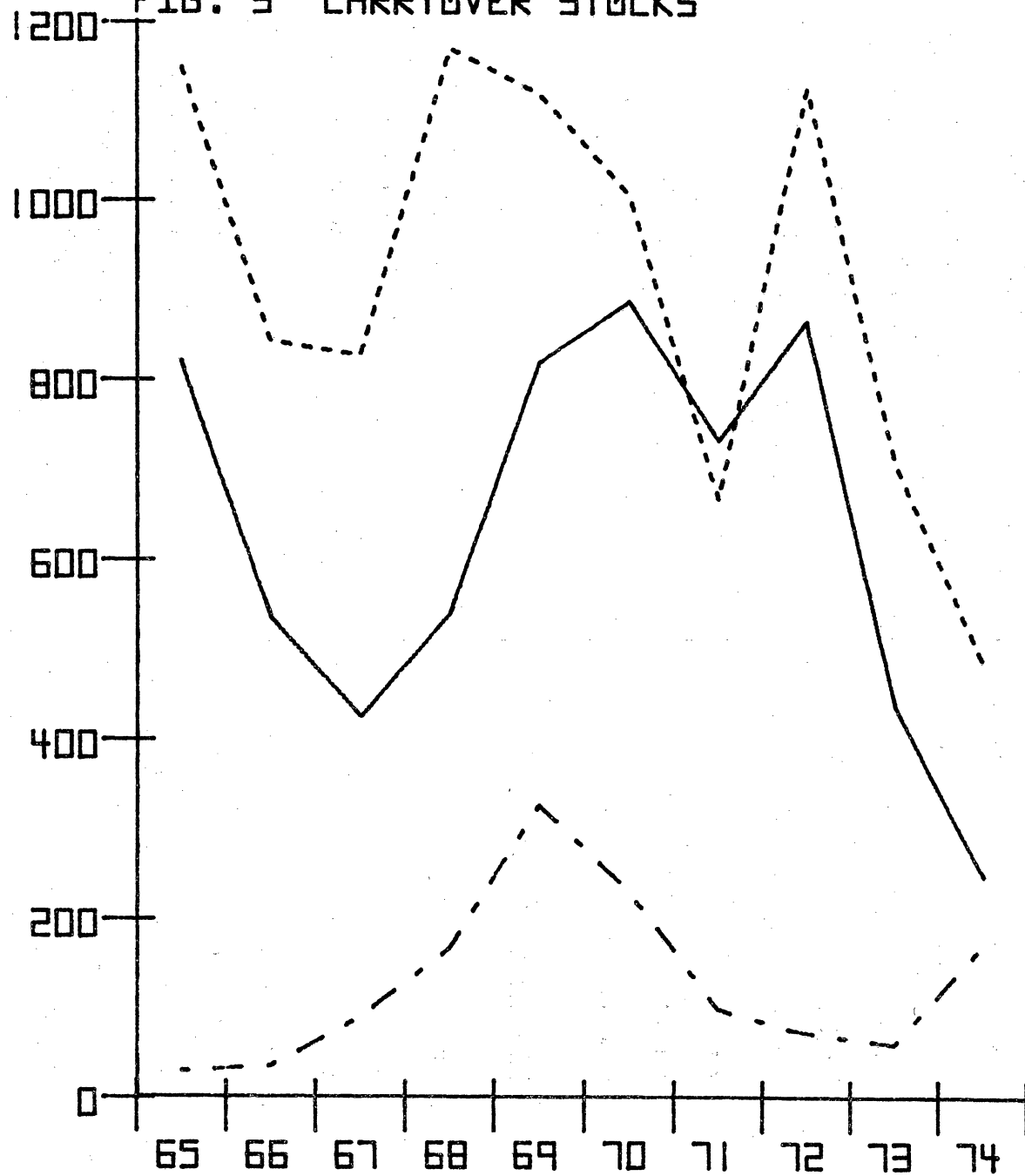
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10. For a detailed analysis see Clarkson (1975)

11. A recent government study (Reese, Feaster & Perkins, 1974) is largely inconclusive, though it does find that in 1972 the aggregate demand for red meats was 0.85 percent larger as a result of bonus stamps. Clarkson (1975, p. 81) reports that food stamps did not account for the relative improvement in per capita disposable farm income; he also presents estimates of the benefits to participating households.

KWT# WHEAT  
KCN# CORN  
KSB# SOYBEANS

FIG. 3 CARRYOVER STOCKS



significant with the wrong sign.<sup>12/</sup> There are as yet no comprehensive cross-section data, similar to the 1965-66 Household Food Consumption Survey, in which food stamps are isolated as a factor influencing food purchases, but such data are expected to be available in 1976. Aggregate data on nutrition (from U.S. Department of Agriculture, National Food Situation, November 1975, p. 27) do not suggest any marked change in the nutritional status of the population in recent years; an increase in the availability of vitamins A and C is offset by a decrease in calcium.

#### The Role of Inventories

In addition to concern about malnutrition, the second justification for a national food policy admitted in this paper was excessive fluctuation in food prices due to inadequate inventories. As Fig. 3 shows, there has indeed been a considerable fall in inventories since the middle 1960's. In 1974 stocks of both wheat and corn at the end of the crop year (July 1 for wheat, October 1 for corn) were at record lows, yet at the same time foreign demand for our crops was particularly intense. Increased exports had been a major factor in the rise in food prices during the Great Inflation of 1972-74, and they had also depleted our inventories.

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12. The latter finding is presumably due to multicollinearity. The recent massive expansion of the program coincided with a rise in the relative price of food and a fall in real disposable income. Future observations may make it possible to disentangle these effects.

The international aspect of inventory policy, in fact, is of crucial importance. For several basic farm products, including those charted in Fig. 3, the United States is now the world's supplier of last resort, a position attributable to the efficiency of our farmers and merchants, and of such marketing institutions as the Chicago Board of Trade. In addition our agricultural policies have long favored--indeed sometimes over-stimulated--farm exports, to the benefit of farm income and the balance of payments but occasionally at the expense of domestic consumers. The natural desire of farmers for profitable overseas markets has increasingly clashed with consumers' concern over sudden rises in food prices.

It would take great confidence in the efficacy of the political process to argue that it could resolve this conflict better than the free market<sup>13</sup> Nevertheless there may be a case for improving the stability of the free market, that is for reducing the probability of sharp price fluctuations. Because of the large risks involved the stocks held by private operators may be

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<sup>13</sup>/ Some government intervention is needed, however, in the case of exports to Communist countries whose monopsonistic buying practices have at times (especially in 1972) constituted a disruptive abuse of market power; the recent agreement with the Soviet Union promises to be helpful in this respect.

smaller than is socially optimal, and prices may be correspondingly more volatile. The Commodity Credit Corporation, whatever else it may have done, did help keep prices stable when it carried large inventories, but it no longer does. In any case it is not clear that government stocks are desirable for this purpose, since their acquisition and release may be subject to political pressures. To do the most for price stability the inventories should probably be in the hands partly of farmers, and partly of merchants.

If larger stocks are to be held by the private sector the risks just mentioned have to be reduced. In the case of farm stocks this could be done by an appropriate support price, set at a level that will prevent disaster but not encourage production. Trade inventories would presumably be hedged in the futures markets, where an official agency could participate as a buyer or seller (according to prescribed rules) to permit an adequate volume of hedging.<sup>14/</sup>

Whether this agency should be national or international cannot be fully analyzed here; suffice it to say that price stabilization can--and under ordinary circumstances

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<sup>14/</sup> See Houthakker (1967). Some of the rules proposed there need revision in light of the discussions of flexible exchange rates in the early 1970's.

should--be stabilizing, at least over a period of years. Improved arrangements for food reserves should therefore not necessarily be viewed as a burden to be shared with other countries. The danger of leaving this task to an international organization is that prices may be fixed at unrealistic, politically determined levels.

### Conclusions

If a national food policy is needed, it is not because the food markets are seriously malfunctioning; thus there is now evidence of a significant price elasticity on the demand side. More valid reasons for government intervention are malnutrition, especially of children in low-income households, and excessive price fluctuations. It appears that malnutrition in the U.S. is largely confined to foodstuffs (milk, fruits and vegetables) where prices are kept artificially high by marketing orders and import restrictions. There is as yet little evidence that the food stamp program has had much impact on the nutritional status of the population or on the aggregate demand for food, but the program in its present size is still new.

Rather than dream about a comprehensive policy we should perhaps concentrate on correcting those partial policies that impede the efficient use of food resources by distorting the market mechanism. In addition measures to

relieve specific malnutrition, and to facilitate the holding of adequate inventories by private operators, may be needed.

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