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GOVERNMENT POLICY AND NUTRITION IN REVOLUTIONARY CUBA: RATIONING AND REDISTRIBUTION

by Nancy Forster
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In an analysis of Cuban agricultural policy during the first years of that nation's revolution, Joseph Collins and Frances Moore Lappé lauded "Cuba's dramatic increase in food production." "In the first three years of the revolution [1959-1961]," they claimed, "bean production shot up 136 percent, rice 96 percent, corn 92 percent, potatoes 46 percent—all the most basic staples of the people's traditional diet."[1] Yet, a review of those same early revolutionary years, by agricultural analyst Leon Mears, offered polar opposite conclusions. Speaking of "the failure of the once-prosperous agricultural sector," Mears insisted that "food consumption in Cuba [had] dropped 15 percent since the [revolutionary] government assumed power three and one-half years [earlier]." "In that time," he charged, "the Cubans have gone from being among the best fed people in Latin America to a diet below the area's minimum nutritional standards."[2]

More than a decade later scholars and nonspecialists wishing to inform themselves about the achievements or failures of Cuban food policy were still faced with seemingly opposite and irreconcilable expert testimony. Returning from Cuba in the mid-1970s, economist David Barkin and his fellow American scholars were impressed by "Cuba's tremendous success in feeding its people." The revolution's priority of "making equitable and nutritious diets available to all Cubans has become a national policy.... Despite a shortage of beef, the Cuban diet offers an ample and varied supply of protein from eggs, fish, milk, milk products, and beans. This nutritious diet has been a major factor in improving the health of the Cuban population."[3] Similarly, Collins and Lappé claimed that "between 1971 and 1974 food consumption increased by 20 percent."[4]

Such observations by outsiders were buttressed by the claims of the revolutionary government itself. In a 1976 interview, Dr. Pablo Resic of the Cuban Ministry of Public Health boasted: "What happens if we analyze the studies we have done in order to measure nutrition?... Since the triumph of the revolution it has improved a great deal. We feel it's...a favorable modification of the nutrition of the masses." Conceding that the level of food consumption had diminished for those members of the prerevolutionary upper class who still remained in Cuba, Dr. Resic nevertheless argued: "Perhaps the bourgeoisie today, comprising 2 percent, is not eating as well as before the revolution, but the workers and the masses, 98 percent of the population, are definitely eating better!"[5]

Again, other scholars reached very different conclusions. Examining official Cuban production statistics and data on food rationing, economist Sergio Roca maintained that per capita food production and consumption had fallen sharply during the first 10-12 years of the revolution. Annual rice consumption, he maintained, had decreased from 120 pounds per capita in 1956 to 36 pounds in 1965-1967 and had recovered only slightly to 48 pounds in 1969. "The sharp drop in per capita consumption of rice—one of the basic staples of the Cuban diet and within the reach of all income groups—must have implied," argued Roca, "a significant deterioration of both urban and rural food intake." Looking more broadly at the Cuban diet as of 1970, he added, "the presentation of a wide sample of actual food quantities distributed... serves to dispel any notion of an improved diet...."[6]

Since all these authors were looking at the same problem for the same period (1959 through the early 1970s), it is sometimes hard to believe they were analyzing the same country. More recent events do little to dispel the confusion. Many Cuban emigrées leaving Mariel Harbor in 1980 complained about alleged food shortages and inadequate diets, a picture contrasting sharply with more positive reports of the eradication of malnutrition furnished by sympathetic visitors to the island.

In short, as in so much discussion of the Cuban revolution—and probably more so than in other policy areas—descriptions of Cuban nutritional levels offered either by scholars or by average Cuban citizens differ greatly depending on which time period, set of circumstances, or statistics the observer is using. In this paper we will draw on official (Cuban government) data and our own observations during three visits to Cuba (within the period 1978-1980) in an attempt to examine the effects of government policy and of more generalized socioeconomic change on that nation's nutritional levels since the 1959 revolution. More specifically, we will examine the extent to which revolutionary policies in agriculture and in food distribution have succeeded in reducing the level of malnutrition that existed among the more impoverished strata of Cuban society under the old order.[7]

The Transformation of Cuban Agriculture and Food Production

While the focus of this paper is on food consumption levels, any discussion of Cuban nutritional policy must consider the revolutionary transformation of the agrarian sector and the way the changes influenced food production.

The Prerevolutionary Situation. Cuba is blessed with a high percentage of arable land (22% of the nation's total area in 1977), abundant—though highly uneven—rainfall (45-70"/year), and a mild climate. Despite these apparent advantages, however, productivity in agriculture has traditionally been relatively low for most crops. If one were to compare Cuban output/acre for rice and sugar during the period 1948-1958 with comparable data for Peru, one finds that Cuban yields were consistently one-third to one-half lower.[8]

Cuba's poor productivity record may have been due to poor management, misuse of inputs, or inadequate cultivation of arable lands. Whatever the causes, from a nutritional perspective, Cuba's prerevolutionary problems were further compounded by the nation's agricultural export dependency. Land was overwhelmingly devoted to sugar production (65% of all cultivated area), largely for export. Another sizable portion was in pasture, producing meat for the affluent minority. While there is nothing inherently harmful about export agriculture (indeed, postrevolutionary Cuba painfully discovered the necessity of concentrating on sugar, a crop in which it maintained a comparative advantage in world trade), the foreign exchange earned from sugar (or tobacco) exports was not used to improve the general welfare or nutritional level of most of the population.

Indeed, the limited data available suggest that the "bottom half" of the income pyramid suffered from widespread malnutrition in the prerevolutionary period. With urban incomes under the old order five to ten times those prevailing in rural areas, and with widespread seasonal unemployment among the country's many sugar workers, it is not surprising—though ironic—that hunger was concentrated in the countryside. An extensive survey of 1,000 rural families conducted in 1956 by the Association of Catholic Students of the University of Havana revealed that only 4 percent of the families surveyed regularly ate meat; only 2.2 percent consumed eggs more than once per week; and only 11.2 percent regularly drank milk. Consequently, adult agricultural workers had an average weight 16 pounds below the national norm.[9]

Revolutionary Change and Stagnant Production. In the first years after the triumph of the revolution, the government enacted Latin America's most far-reaching agrarian reform program.[10] All private holdings of over 67 hectares (150 acres) were confiscated, resulting in the transfer of some 70 percent of the nation's agricultural land to the state sector. Substantial additional amounts were given as private plots to former tenants and sharecroppers. The government introduced into the private farm sector varying types of cooperative credit, service, and marketing arrangements, or (less frequently) cooperative production efforts; production goals and other means of stimulating production were periodically altered; and, over the years, varying methods were tried to market food more effectively to urban consumers. Occasionally these changes brought the land-owning peasantry and the state into conflict over credit, pricing, and marketing policies. At the same time, the regime's social policies brought about impressive gains in rural living standards and in social infrastructure (health care, education and—to a far lesser extent—housing).

Governmental agricultural policies have emphasized the production of eggs, dairy products (particularly yogurt), milk, oranges, and poultry. Foreign visitors touring state farms are repeatedly shown one of Fidel Castro's pet projects—development of a crossbreed between Holstein and Zebu (Brahma) designed to produce higher milk yields under inhospitable tropical climatic conditions.[11] Cuban spokesmen also point with pride to the extensive orange groves planted in recent years (and only now beginning to bear significant additional yields).

In some areas, heavy inputs of labor, capital and new technology have achieved impressive growth. The most dramatic production gains (of 400% or more) have come in eggs and fish, providing Cubans two important protein sources. Cuba has also become the world's fourth largest orange producer. Outside of these areas, however, the "revolution in the countryside" (despite impressive socioeconomic benefits for the peasantry and rural workers) has failed so far to achieve a sustained record of growth in food production.

Table 1 indicates that from 1958-1969 food production oscillated but generally failed to grow, resulting in a significant decline in per capita output. Total output reached record levels in 1970 only to be followed by a precipitous drop from 1970-1972. Since 1972, absolute and per capita food production have grown steadily, yet per capita output in 1978 had still apparently failed to reach prerevolutionary levels.[12]

Table 1

Indices of Cuban Food Production: 1952-78 (selected years)[a] (1952-56 = 100)

	Index of Total Food Production	Index of Food Production Per Capita
1952-56 Pre-revolutionary	100	100
1954	95	95
1956	95	91
1958	108	99
1960 Post-revolutionary	116	102
1962	101	86
1964	95	77
1966	102	78
1967	118	93
1969	103	77
1970	144	109
1972	99	71
1974	106	79
1976	114	81
1978	132	87

Notes: [a] Statistics on Cuban agricultural production from 1959-1966 are not very reliable. FAO data seem to include estimates of production outside Cuban government collection figures. Consequently, FAO raw data for individual crops are generally higher than other sources. However, since they are internally consistent, they can be used for longitudinal comparisons of indices over time.

Sources: Extrapolated from FAO *Production Yearbooks* for 1967, 1971, 1978; all indices have been recalculated to a base of 1952-56 = 100.

Yet, Cuban "food production" indices such as these are a poor indicator of the nation's ability to feed itself since they are influenced so heavily by one dominant crop—sugar. Because sugar is primarily an export crop (and has little nutritional value when consumed domestically), its production affects Cuban food levels only to the extent that export revenues are used to import other food.

Indeed, the figures in Table 1 reflect, more than anything else, the revolutionary regime's changing policy regarding sugar production as Cuba's core economic activity. During the early years of the revolution, Cuba's leadership—like that of many other Third World nations trying to

break long-standing economic dependency relationships—embarked on a program of import substitution which de-emphasized sugar production in favor of industrialization and agricultural diversification. By the mid-1960s the government's highest-ranking economic decision-makers (Fidel Castro, Ché Guevara, Carlos Rafael Rodríguez) all agreed that this policy had not worked well and that Cuba had to concentrate first on the area in which it enjoyed the greatest comparative advantage—sugar—in order to generate capital for later economic diversification and growth.[13] The late 1960s, then, saw a dramatic reversal of policy during which all the country's efforts were mobilized toward producing a record "ten million ton sugar harvest" in 1969-70. Offering "moral incentives" (nonmaterial, ideological inducements) for additional labor inputs, the Committees for the Defense of the Revolution (CDRs) and the revolutionary leadership were able to elicit extensive volunteer labor in the sugar fields from brigades organized in the schools and urban work places.[14] While the 10 million ton goal was not reached (an important psychological setback), the 8.5 million ton harvest was a record for Cuba and the largest annual sugar cane output ever attained by any nation. That record sugar harvest is reflected in the 1970 index of Cuban food production (Table 1) which indicates an incredible 44 percent increase over 1969 levels.

The effort had its costs, however. With agricultural inputs (fertilizers, farm equipment, labor) heavily concentrated in sugar, other crops were apparently neglected. Inputs were often used inefficiently, leading to later bottlenecks in production. Finally, and most important, the vast mobilization of volunteer labor and extraordinary human effort—a feature of the "Guevarista" era in the late 1960s—could not be sustained over a prolonged period.[15] All these factors contributed to the sharp drop in sugar output from 1970-1973 which caused overall food production indices to fall back below 1967 levels.[16]

The period since 1970 has been marked by more balanced agricultural development. While sugar continues to dominate land use, stress has also been placed on dairy, egg, and citrus production. In order to look at the Cuban food production record without the distorting effects of sugar output, Table 2 provides raw data on output for several critical foods in the national diet (particularly that of low-income Cubans).

Production of eggs is obviously the greatest achievement, featuring an increase of more than 400 percent in total volume during the 1960s and a further 37 percent gain from 1970-1978. Citrus fruits (mostly oranges)—a major focus of government effort—and tomatoes also seemed to have performed well, if less spectacularly. Milk and rice outputs have been uneven, however, falling sharply in the mid-1960s and then recording small but steady gains from the late 1960s (rice) or the early 1970s (milk) onward.[17] Root and tuber yields (sweet potatoes, yams, taro, yucca) seem to have fallen sharply and the declines in dry beans (a major protein source for low-income Cubans) appear disastrous. Overall, then, agrarian performance has been unimpressive.

The Limits of Food Production Statistics

While many scholars have analyzed such statistics in order to evaluate the effectiveness of Cuban agricultural policy, the data, unfortunately, are not very precise indicators of production or productivity trends. During the early years of the revolution, rural activists were far more concerned with implementing agrarian reform, mobilizing the peasantry behind the new order, and stimulating production than they were with gathering statistics. Observers, ranging from French agronomist, René Dumont (who served as an adviser to the government and was later repudiated by the revolutionary leadership), through Fidel Castro himself, have dismissed figures for the early years of the revolution as totally inaccurate.[18] In addition, from 1963 onward the government drastically revised the basis of their official production figures, excluding large quantities of food produced by the remaining private agricultural sector (30% of all farmland). Private farms, gradually organized into cooperatives, produced (and still produce) 40-70% of most tubers, root crops, and vegetables. Up through 1962, Cuban production figures included estimates (probably highly inaccurate) of *all* production by state and private farms. From 1963 onward, the official data included only the *acopia* intake—i.e., total state farm production and that portion of private farmers' output sold to the state to fulfill acopio quotas.[19] Any private production beyond the acopio quota which the farmer (and his family) consumed, or sold legally in "private sales" (at a controlled price) to individual consumers, or illegally on the black market (at uncontrolled prices) to consumers or (illegal) middlemen, was not included in official data (and still isn't).

Table 2
Production of Selected Food Crops: 1957-78
(1,000 metric tons unless specified)

	Eggs (million units)	Milk	Rice	Yucca (Cassava)	Sweet Potatoes	Malanga (Taro)	Dry Beans	Citrus	Tomatoes
1957	275	806	167	186	161	91	36	91[d]	44
1959	341	770	282	224	183	240	14	70	65
1962	530	690	229	162	181	60	56	117	140
1964	830	715	129[b]	73[b]	89[b]	43[b]	14[b]	119	112
1967	1,178	565	94	50	88	42	15	144	164
1970	1,403	520	291	22	22	12	5	164	62
1973	1,586	550[a]	237	73	87	20	3	177	101
1975	1,851	591	338	83	90	33	5	182	184
1977	1,846	722	334	83	62	45[c]	2.4	178	146
1978	1,927	782	344	86	54		2.4	198	132

[a] 1974 data
[b] The drops partly reflect different bases of compilation after 1963
[c] 1976 data
[d] Average for 1957-58

Sources: Archibald R.M. Ritter, *The Economic Development of Revolutionary Cuba: Strategy and Performance* (New York: Praeger, 1974); Comite Estatal de Estadisticas, *Anuario Estadístioco* (Havana, Cuba), 1967-1976 issues; Comite Estatal de Estadísticas, *Compendio del Anuario Estadístico de Cuba* (Havana, Cuba) 1977 and 1978; Carmelo Mesa-Lago, "Economic Policies and Growth" in C. Mesa-Lago (ed.) *Revolutionary Change in Cuba* (Pittsburgh: University of Pittsburgh Press, 1971).

Official spokesmen for the Cuban agrarian reform agency (INRA) and outside observers such as René Dumont have established that 40-60 percent of the vegetables, tubers, and legumes produced by private farms have generally either been consumed on the farm or sold outside the acopio. Our own conversations with private farmers in 1978-1980 support such estimates. Consequently, the steep drop in production figures between 1962 and 1963 for crops such as taro, cassava, and dry beans was partially a statistical artifact. Moreover, all official production figures since 1963 for any crop which is largely grown by private farmers (most vegetables, roots, and legumes) understate real output by 25-65 percent.[20]

The fact remains that there undoubtedly was a decline in production in the mid-1960s—smaller than the data may suggest, but real nevertheless. Commenting on the situation in 1963, René Dumont noted "The agricultural production of the country is declining.... There has been a reduction in the production of sugar cane, millet, beans,..tubers,..meat, and milk. The situation is serious, and runs the risk of becoming a catastrophe."[21] Cuban agricultural experts and visiting scholars familiar with the agricultural situation all tended to agree with that analysis.[22] Since by 1963 most of the nation's meat, milk, and rice was being produced on state farms, the mid-1960s decline in output figures for those items cannot be attributed to black market sales or to on-farm consumption.

Explanations for Cuba's early slump in food production vary considerably. Some critics of the revolution argue that state farming is inherently inefficient. Others point to the overcentralization of planning that characterized that period of Cuban development, mercurial switches in policy by Fidel (abandoning sugar, then concentrating overwhelmingly on sugar...) and a pricing policy by the acopio that offered private farmers little incentive to produce. More sympathetic observers note the inevitable dislocations caused by the revolutionary reorganization of a dependent, capitalist economy; the flight of managerial talent on the large estates (particularly affecting sugar and cattle); the slaughter of cattle herds

and the decapitalization of farms by private farmers as they faced agrarian reform in the early 1960s; and the subsequent neglect of farm machinery and irrigation facilities by untrained state farm managers. Whatever the causes (and all the factors cited above played their part), as of 1978 total production of many crops still appeared to be below prerevolutionary levels (even with adjustments for non-acopio production).

Exports, Imports, and Import Substitution

For all their limitations, Cuba's food production figures provide a baseline for evaluating how well the regime has been able to feed the population. Still, one must also factor in the effects of food exports, imports, and production gains which are used to reduce food imports (import substitution) rather than to increase the domestic food supply.

Both before and after the revolution, sugar accounted for most of Cuba's exports (with tobacco and nickel a very distant second and third in export revenues). Only one of the foods listed in Table 2 is exported in any substantial quantity—citrus. Indeed, most of the expansion in orange production since 1964 has been channeled into exports rather than domestic consumption. Fish and seafood have also been export commodities. Between 1960 and the late 1970s, Cuba developed one of the world's more modern and sophisticated fishing and fish-processing fleets. During that period the fish and seafood catch increased from some 30,000 MTs to over 200,000 MTs annually.[23] Such gains have raised domestic fish consumption substantially and, by 1979, fish was unrationed. However, anyone who has talked with urban Cubans about their diet knows that only a portion of the increased catch has found its way onto the nation's dinner tables. The rest—including the seafoods and fish most desired by consumers—has been exported.

Similarly, increases in rice yields, milk output, and the dramatic growth in egg production have not led to a corresponding rise in domestic consumption. Rather, increased output has been used, in part, to reduce imports. Even today Cuba is heavily dependent on rice imports—rice being a key staple of the lower-class diet. Since the country badly needs to reduce its imports, future increases in rice production will continue for some time to result in import substitution rather than increased domestic consumption.

If food exports and import substitution have somewhat diminished the availability of certain foods, imports of other goods (paid for by sugar revenues) have provided additional supply when national consumption needs have exceeded domestic output. Cuba continues to import substantial amounts of rice, wheat (for bread), and lesser quantities of dry beans and canned meat. The first two items constitute a substantial portion of popular caloric intake; dry beans are a popular dish (mixed with rice) and an important protein source for low-income Cubans; and canned meat (a "Spam"-like product from Eastern Europe) provides a (not very popular) alternative to fresh beef, pork, and chicken when these are not produced in sufficient quantities domestically.

Distribution: The Critical Factor

Because of the unknown quantity of food produced by Cuba's private farmers (outside the acopio) and because of adjustments that need to be made for imports, import substitution, and exports, it is difficult to calculate precisely the amount of food available to the Cuban consumer generally or to the low-income Cuban in particular. Yet, virtually all analysts agree (and government statistics suggest) that per capita caloric consumption is probably a bit lower today than before the revolution. *Average* consumption of basic foods such as rice, black beans, most vegetables and tubers, many fruits (excluding oranges), and of "luxury foods" such as meat and coffee is undoubtedly lower than in the years immediately preceding the revolution. Only in the consumption of eggs, fish, and some dairy products (yogurt) has per capita intake increased significantly.

For critics of the revolution—including many urban "middle income" citizens and the thousands who have left the island—these statistics "prove" that Cubans are more poorly fed today than before the revolution. On the other hand, government nutritional experts and foreign scholars who have visited Cuba in recent years agree that malnutrition among the nation's "lower half"—a serious problem in rural, prerevolutionary society—has been virtually eradicated. Spokesmen for the Cuban Institute of Nutrition told us that the proportion of the nation's population receiving fewer than the requisite daily number of calories had declined from nearly 40 percent in 1956 to less than 5 percent in 1979. Our own visits to the island and more extensive observations by other visiting scholars and journalists support the government's contention that malnutrition is no longer a serious problem.

How can we reconcile Cuba's fairly mediocre record in food production and in per capita *consumption* with its extraordinary performance—unmatched in Latin America—in eliminating malnutrition among the nation's "bottom half"? The answer lies in the effects of two government policies: first, dramatic income redistribution; and, second, mandatory equity—imposed through rationing—in the consumption of most basic foods. Keith Griffin and other development economists have noted that increases in gross national production (including food production) in the Third World often fail to reduce bottom-end poverty and hunger because the benefits of growth (and its burdens) are inequitably distributed.[24] Indeed, economists Irma Adelman and Cynthia Taft Morris have demonstrated that economic growth frequently intensifies poverty (and, thus, hunger) among the bottom sectors of the income ladder.[25] In the remainder of this paper we will argue that, while Cuban middle-income groups—mostly urban—have suffered a decline in their dietary standards since the revolution (mainly a loss of meat and other "luxury" foods), more equitable distribution of income and food has improved the nutritional levels of lower-income citizens significantly, particularly in the countryside.

Income Redistribution and Supplements to Income

Analysis of any government's efforts to reduce "bottom end" malnutrition must begin by looking at national income policy. Specialized government programs designed to provide the poor with cheap or free food (e.g., food stamps, food for work, subsidized retail outlets in low-income neighborhoods) have achieved some positive results in Third World nations such as Mexico, Venezuela, India, and Egypt. In these nations and many others, however, such narrowly targeted food programs have not reduced the general level of malnutrition to any significant degree. Most of the Third World's poor still lack the land or income to secure adequate amounts of food through normal channels. So long as income distribution is highly skewed (as in most developing nations), increases in food production or in national income will have little impact in reducing hunger among the poor. In Venezuela, for example, the 1970's oil boom helped generate dramatic increases in per capita GNP, food imports, and *average* food consumption (as well as modest increases in food production). Yet, because of inequitable income distribution (with the lowest 40% of the population earning 8% of the national income), the portion of the population suffering from malnutrition only fell from 40 percent to 35 percent.[26] Similarly, in India, sharp increases in food production have led to a national grain surplus of impressive magnitude. Middle-level peasants have improved their lot substantially, but the overall level of malnutrition (concentrated among the rural landless) has scarcely changed.

The Cuban revolution, on the other hand, has produced impressive income redistribution (unmatched in Latin America) through the mechanisms of guaranteed employment, higher minimum wages, and the imposition of policies regulating income differentials. As of 1978, the lowest wages paid in Cuba were approximately $75-$80 per month (for unskilled farm and urban labor) while few professionals earned more than $350-$400 monthly.[27] Equally important, employment is not only officially guaranteed, but is legally required of all able-bodied men.[28] Thus, the apparent eradication of unemployment (albeit through sometimes nonproductive hiring) and the raising of minimum wage levels have assured Cuba's erstwhile impoverished sectors a minimum family income. Table 3 reveals the far-reaching redistribution of income achieved since the Cuban revolution through state control of the economy.

Table 3

Income Distribution in Cuba: 1953, 1962, 1973

Percent of the National Income

% of the Population	1953	1962	1973
Poorest 40%	6.2%	20.0%	20.3%
Middle 40%	33.8%	42.2%	44.7%
Richest 20%	60.0%	37.8%	35.0%

Source: Claes Brundenius, "Measuring Income Distribution in Pre- and Post-Revolutionary Cuba," *Cuban Studies* (July 1979), p. 43 (extrapolated).

To be sure, wages of most agricultural workers are still significantly below average urban salaries, while the income differential between professionals (doctors, professors, technicians) and unskilled workers may be as high as six to one. Moreover, Cuba's geni index of income distribution is not significantly different from those of most industrialized nations.[29] However, compared to other developing nations (and to other Latin American countries in particular), the Cuban income figures are highly egalitarian. Furthermore, because of the redistributive effects

of government social programs, standards of living differences are actually far narrower than Table 3 suggests. Rents have been reduced to nominal levels; medical care and medication are free. Thus, the real incomes of low-income Cubans (who are the major beneficiaries of such policies) are substantially higher than their cash income.

The Origins of the Rationing System

In addition to raising the real income of the nation's poorer strata, the Cuban government has established equity in food consumption and has virtually guaranteed minimum nutritional levels for the poor by means of food rationing. Mandatory rationing of a few foods (meat and animal fats) was initiated in July 1961—less than three years after the revolution. In March 1962 the government began distributing ration cards (*libretas*) on a household-by-household basis. Rationing was extended to include most basic foods—rice, beans, poultry, beef, pork, fish, eggs, milk, and a variety of legumes, fruits, vegetables, and tubers (depending on the availability of supply). Each individual (or household) was allowed to purchase only a specified quantity of these items (with the price set by the state at a very low level). Critics argue that the continued rationing of most basic foods demonstrates the failure of revolutionary agricultural policies. Many Cubans who left the island in the early 1980s expressed their discontent over the ongoing shortages of meat and other desired foods.

In our interviews with urban Cubans (of varying class origins), even citizens who supported the regime often expressed their unhappiness over the long lines each morning for bread and milk rations. When lower-income adults were asked if they were eating better than they had before the revolution, most agreed that they were. But in the cities, many of them had developed increased aspirations either as the result of the optimistic rhetoric of revolutionary leaders or because of the natural inclination of people throughout the world to ask of their government "what have you done for me lately?" Visiting a Havana working-class neighborhood one morning, we watched people scurrying to the butcher shop for their bi-weekly beef quota. While the libretas allow for a ration of 12 ounces of beef every 9-15 days, we were told by local butchers that it had actually been nearly a month since the last fresh beef had come in and might be just as long until the next shipment arrived.[30] Since supplies sometimes run out before all the families receive their ration, many people had been waiting in front of the butcher shops for hours before opening time. As word spread through the neighborhood that the beef had indeed finally arrived, early shoppers were joined by many others.

Rationing was initially part of a response to the agricultural problems of 1962. As production of eggs, fish, and some vegetables and tubers has increased, these items have been removed from the ration books (sometimes to be returned at a later date) and sold "libre" (without quantitative limits). Beans, rice, beef, poultry, and milk have been rationed permanently. Equally important, however, the postrevolutionary shortages that necessitated rationing also reflected a large increase in consumer demand, owing to the greater purchasing power of the lower classes. The sharp reduction in rent, provision of free medical care and medicines, the availability of free or cheap lunches at school or the workplace and the virtual eradication of unemployment (previously a serious problem), all greatly increased the disposable income the Cuban lower classes could allocate for food purchases. Thus, at the very time when the countryside, in the midst of massive reorganization, was supplying reduced (or stagnant) quantities of food, demand was growing sharply.

Had the government allowed the market mechanism to adjust the supply and demand curves, prices would have risen rapidly, "rationing" food to Cubans, in effect, on the basis of their ability to pay. (Indeed, for most of the developing world, food is primarily allocated on this basis.) By 1962 speculation was already driving up the price of many foods in Cuba; consequently, the government's decision to ration basic staples was based on equity considerations. From that time onward, whenever demand for particular foods has far exceeded supply, such items have been rationed relatively equally (though full equity has never been achieved).

The Ration Diet

The typical Cuban's diet today remains rather spartan and bland, featuring heavy doses of starch (rice, bread, tubers) and little of the beef, pork, black beans, and coffee so dear to most people's hearts. If the foreign visitor is first impressed by the lines of people carrying their libretas, she/he is next struck by the sparse quantity of food and the very narrow range of items in virtually all food stores. Our tours of

grocery stores in Havana, Pinar del Rio, Santiago, and Camaguey showed that most had limited selections consisting of: cooking oils and fats, yogurt, margarine or butter, rice, beans (sometimes), coffee (sporadically), sugar, powdered milk, and a few assorted canned goods. Eggs, bread, fish, poultry, and meat (when available) were sold in special shops notable for their absence of display cabinets. Similarly, fruit and vegetable stores usually had only one or two items such as taro (malanga), potatoes, bananas, cucumbers, or tomatoes (depending, in part, on the season.) Fish markets sold their products in unrationed quantities, but generally offered only one type of fish at a time. Middle-class, urban consumers complained to us that "lower quality" fish were usually sold while the more desired seafoods were exported.

The range available and the quantity of food on display were visibly less than in the city markets of Jamaica, Ecuador, Peru, or Mexico. Such surface observations are misleading, however, for the vast array of foods sold in the groceries and supermarkets of Quito and Mexico City are too expensive for large segments of the population, who remain malnourished.

The types of food that are rationed have varied over the years, with the general trend during the 1970s being toward a reduction of rationing and the "free" (unlimited) sale of more items (still at controlled prices). As of January 1980, eggs, fish, yogurt, and certain types of sausage were unrationed. Rice, bread, milk, meat, poultry, dry beans, cooking oils, butter, and coffee were still rationed. Vegetables, tubers, and fruits were sold in unlimited quantities when they were plentiful and rationed when they were in short supply. Determination of what is to be rationed is reached through surveys of supply and demand conducted by the Institute of Internal Demand.

While the general trend over the years has been toward increasing the number of unrationed goods, the exact quantity of the rations allocated through the libreta has fluctuated more unevenly and some basic foods such as black beans are less available today than they were 10-15 years ago. Table 4 offers a comparison over the years of the quantities of critical foods officially allocated to most Cubans through the ration books. The latest column (January 1980) also includes the price of these items at that time. A comparison is also offered between average prerevolutionary consumption and postrevolutionary ration levels.

Table 4

Monthly Quotas of Selected Food Items: 1958-80 (pounds/person)

Items	1958[a]	1963	1969	1972	1978	1980	(price per lb.)
Rice	10.2	6	3-4	6	5	5	(20c)
Dry Beans	2.1	1.5	1.5	1.5-3.0	1¼	1½	(32¢)
Cooking Fat	2.9	2.0	2.0	2.0	1¼	1.0	(24¢)
Beef	9	3	3	3	1⅔	1¼	(38¢)
Eggs (units)	7	2	15-24	15-24	free[c]	free[c]	(10¢ pu)[e]
Fish	2.2	1	2	free[c]	free[c]	free[c]	(45-70¢)
Fresh Milk	14	b	b	b	b	b	b (20¢/qt.)
Bread	NI[d]	free[c]	15[b]	NI[d]	15	15	
Canned Milk	NI[d]	3	3	3	3	3	(21¢ pu)[e]

[a] Average (unrationed) consumption
[b] Children under 8 years of age received 1 liter of milk daily as did elderly, ill, and pregnant adults through 1979
[c] "Free" means unrationed
[d] No information
[e] Price per unit

Sources: *1958-69*: Ricardo Leyva, "Health and Revolution in Cuba," in R. Bonachea and N. Valdés (eds.), *Cuba in Revolution* (New York: Doubleday, 1972), p. 462; *1958-72*: Sergio Roca, "Distributional Effects of the Cuban Revolution: Urban Versus Rural Allocation," (Dallas, Texas: Paper delivered at the 88th Annual Meeting of the American Economic Association, 1975), Table 12; *1978 and 1980*: data collected by Nancy Forster and Howard Handelman, selected data for 1972 from unpublished data collected by Carmelo Mesa-Lago.

The ration limits listed in Table 4 are drawn from Havana and calculated for the average adult. There may be some regional variation within the country (in January 1980, for example, beef rations were slightly lower in Pinar del Rio than in the capital but fruit and vegetables were more plentiful), though such differences are currently less significant than they were in the 1960s. Minor alterations or supplements may be offered for people with special nutritional needs: for example, only children under 8, expectant mothers, the elderly (over 65), and persons with diabetes and certain other diseases are offered a daily milk ration. Other adults receive no individual milk allotment, but can buy yogurt in unlimited quantities.[31] Individuals with special medical needs (documented by a doctor's letter) can receive additional meat or poultry rations. (The high proportion of such people that we interviewed in butcher shop lines of several cities suggested there might be some abuse here.) Finally, further individual variations in diet and consumption may result from trading. Thus, one elderly Havanan told us that he regularly trades his poultry ration for his neighbor's small coffee allocation.

The quantities allowed in the libretas are projections based on anticipated supply. A produce store manager in Camaguey showed us a list which she had recently received from the state marketing agency enumerating the vegetables and tubers which were officially available at that time through the libreta but which would *not* be allocated because of unexpected shortages. Similarly, while the libreta allowed for 12 ounces of beef per person each 15 days, for the last months of 1979, that ration had come in only once per month.

In some cases, libreta allocations are generic. Thus, if the bi-weekly fresh beef allowance is not available, the libreta can be used to purchase 10 ounces (per person) of ham or 16 ounces of poultry. If fresh beef, pork, or poultry are all unavailable, the meat ration may have to be purchased in the form of Soviet or Polish canned luncheon meat. In short, Table 4 does not provide a precise indication of the amount and type of rationed goods available to all Cuban citizens. However, it is a reasonable estimate of the quantity of basic staples which most Cubans can consume.

What is perhaps most startling about the Table is that *average* consumption of rice, dry beans, cooking fat, and beef is substantially lower today than before the revolution. Similarly, data cited by Ricardo Leyva indicate that per capita caloric "availability" averaged 2,740/day in 1951-1957, was 2,730 in 1958 (the year before the revolutionary victory) and fell to 2,300 or less in 1962-1966. By 1979 average average consumption had recovered to 2,759 calories per day—still below the 1958 level. These averages, however, mask vast prerevolutionary gaps in the nutritional levels of urban and rural Cubans and of different income strata within those regions. As Leyva notes, "in the 1950s no rich man ever suffered from food shortage, but the poor were extremely lucky to escape it."[32]

The postrevolutionary rations listed here are not merely national averages, but rather a minimum which virtually all Cubans—regardless of income—are guaranteed. The controlled prices of rationed staples (see Table 4—1980) are undoubtedly lower relative to the minimum wages than in any other Latin American nation. Consequently, even the lowest-paid household can afford to buy their full libreta allowance when those foods are available. According to surveys by the Institute of Internal Demand, rationed foods alone currently provide all Cubans a daily average of 2,100 calories. For the poorest strata of the population, particularly agricultural workers, that constitutes a significant improvement over prerevolutionary nutritional levels.[33]

Food Consumption Beyond the Ration Book

From a nutritional perspective, the most important current supplements to rationed foods that are now freely sold to the consumer are eggs and fish. Unfortunately, there is no way of knowing what portions of the retail sales of these items are consumed by different economic strata, including those who were formerly most undernourished. However, unpublished survey data (1979) collected by the Institute of Internal Demand indicate that 96 percent of all Cuban families now consume eggs periodically, including 33 percent who eat them daily and an additional 50 percent who have eggs 2-3 times weekly. Since previously cited surveys indicated that only 2.2 percent of the rural population consumed eggs even once a week prior to the revolution, this would suggest a dramatic improvement in low-income nutritional levels. Similarly, 44 percent of all Cuban families now eat fish at least once weekly and an additional 43 percent have it at least twice per month. While poor roads and a lack of refrigerated transport (for fish) still retard distribution to the traditionally more

underdeveloped rural regions, the proportion of families eating eggs and fish is sufficiently high to suggest that those foods are reaching a large portion of the rural lower classes.

For the worker and his family, there are two other important food sources: workplace and school cafeterias. Most workers are entitled to low-cost luncheons at special cafeterias near their place of work. We visited one such cafeteria in Havana (one of five in the neighborhood) which served lunch to 440 workers. Each patron worked in a nearby factory or shop, was assigned to that cafeteria, and was issued coupon books entitling him/her to one meal daily. Cafeteria employees and workers who ate there told us that a typical lunch might consist of rice, beans, a small quantity of canned meat, and a dessert. We were not able to ascertain what proportion of urban workers had access to such cafeterias, what proportion availed themselves of the food, or to what extent worker lunches were consumed by the most poorly paid workers. Ricard Leyva calculates that in 1969, one-fourth of the Cuban population was getting subsidized meals.[34] Our interviews with government officials and analysis of food distribution data both indicated that institutional meal programs—particularly schools and worker cafeterias—account for a significant portion of national food consumption. The price of worker lunches—50 cents—is far lower than the cost of meals at even the most modest restaurants, yet is also a significant percentage of a typical worker's daily wage (generally ranging from $4-$8). Because medical care and housing are either free or negligible in cost, however, the lunches can be readily afforded by most workers. Several workers also told us that, because they were able to get a large lunch at work, they could transfer some of their at-home food rations to their wives (who weren't working) or children (who also received free lunches and snacks at school).

School lunch programs are also an important source of supplementary nutrition; in this case, free to the consumer. Students whom we interviewed at several schools told us that while their lunches were composed largely of starches and carbohydrates (rice, taro, yucca, etc.), they did get some protein—eggs, canned meat, fish, poultry, or (occasionally) fresh meat—with most meals. School food programs are obviously a very significant source of nutrition for secondary-level students attending rural boarding schools. By 1978 there were 350 such schools with more being built annually. It is anticipated that by the mid-1980s a majority of secondary school students will be attending these boarding schools. Their nutritional needs will be entirely provided during the school year by the state without cost to their parents. Some of the food consumed at these rural boarding schools is grown by the students themselves.

Of course, private farmers or members of Production Cooperatives can also improve their diets substantially by cultivating food for their own consumption. Those who still own and work their plots within Credits and Services Cooperatives (perhaps 100,000 rural families or nearly one-third of the agrarian population) normally grow a significant portion of their family's tuber and vegetable needs. On Production Cooperatives (a more collectivized unit—not yet very common—in which private farms have been merged and are cultivated jointly), members seem to consume much of their surplus, once they have fulfilled their delivery quotas to the state acopio. In one such co-op we visited in Pinar del Rio Province, farmers grew tobacco, vegetables, and tubers for sale to the state. In addition, the 55-60 member families consumed a substantial portion of their joint output of rice, beans, corn, and vegetables. During the 1960s, workers on state farms (some 2/3 of the nation's agricultural population) had been allowed to cultivate small plots for family consumption. That practice, however, was subsequently prohibited because farm managers felt that workers were devoting too much time to those plots and neglecting their salaried work.[35]

In the past, particularly during the serious shortages of the late 1960s, private farmers were allocated less food than city dwellers on their ration cards since they could grow some food for themselves. Now, however, members of cooperatives that we visited told us they receive the same libreta allowances as urbanites and can supplement that substantially with their own cultivation. While there are no figures available as to the quantity of such "subsistence farming," the evidence strongly suggests that most rural smallholders currently have a larger and better diet than the average city dweller. One farmer we interviewed, for example, ate black beans daily—an unheard of "luxury" in Havana. This, then, represents a dramatic reversal of prerevolutionary dietary patterns.

Private Sector Sales

In addition to the food they grow for their own consumption, Cuba's private farmers sell an

unknown (but clearly substantial) quantity of vegetables, tubers, and fruits directly to urban and village consumers. Since some 21 percent of all agricultural land in Cuba (and a higher percentage of arable land) remains in private hands today, and since that sector produces 40-60 percent of the country's supply of most vegetables, legumes, and root crops (and a substantial portion of its fruit), private (nonrationed) sales are quite important.[36]

Once small farmers have filled their production quotas for the state, they have been permitted to sell any surplus. Through the early months of 1980, "private sales" were constrained by two restrictions: first, although farmers could market their produce at higher prices than those prevailing in retail stores, their selling prices were still officially controlled by the state; second, farmers could legally sell only to neighbors or to urban purchasers who traveled out to the countryside to buy food for themselves. Since government policy was designed to prevent retail sales by middlemen, city dwellers could buy only 25 pounds of produce per customer on any single trip. Obviously this rule was violated, and we were told that many taxi drivers—with access to a car and extra gasoline rations—served as illegal middlemen bringing in food from the countryside. During 1978-79, police set up roadblocks periodically to stop and search cars coming into the cities. Persons found with more than 25 pounds of produce in their car were assumed to be dealers and not only had their purchases confiscated, but were also subject to arrest as "profiteers."

Along with the legal private sales, a large number of Cuban farmers undoubtedly participated in the black market. Black marketeers either brought their food directly into the city (and sold it at whatever price the market would bear), or sold it to middlemen who marketed it under the same terms. While such sales were illegal, it was obvious that the government was responding to consumer demand for more (and more varied) food in the late 1970s by turning its back on much black market activity, particularly when the food was sold by farmers themselves. Thus, several foreign journalists visiting provincial cities in Cuba in 1978-79 reported having seen open markets in which farmers were selling food at "free market" prices. During our visit in January 1980, we saw two elderly women selling green peppers and onions to customers outside a central Havana grocery store. The women informed us that they each lived on farms outside the capital and came in periodically (on public transport) with bags of produce to sell on the street. Indeed, one woman told me that only 20 percent of the onions grown on her family's farm went to the government acopio, with the remainder either consumed by the family (perhaps another 10 percent) or sold privately.[37] Neither vendor professed to know whether their sales were legal, but indicated that "the police never bother us."

The spread between the price of food on the black market in Havana and the controlled, official price in the store was extraordinary. In the case of coffee, for example, the libreta allows each Cuban a ration of only 4 ounces per month at a price of 96 cents/pound. Black market coffee was available in early 1980 at $20-$30/pound. Similarly, while beef was rationed at about 50¢/pound, it was sold on the black market for about $8. Black beans—selling for 32¢/pound on the ration book—were $2.00-$2.50 on the black market.

While the black market offered foods that were in short supply to those with sufficient income to afford it (skilled workers or professionals with incomes of $200-$350/month), it was clearly not an important nutritional source for Cuba's lower-income strata (though sales on the black market might benefit poorer private farmers). In any event, since May 1980 the "need" for a black market has been eliminated. Areas, known as "Free Peasant Markets," have been designated in urban areas where private farmers can bring in their produce, set up stalls, and legally sell their goods at whatever price they can negotiate with the buyer. Prices, established by supply and demand, apparently vary widely from place to place, vendor to vendor, day to day, and even hour to hour (with prices dropping at the close of the day).

With the creation of these markets, farmers living within commuting distance from Cuba's cities can sell directly to urban consumers in unlimited quantities once they have fulfilled their acopio quotas. Already there is evidence that this has greatly increased the supply of root crops, vegetables, and fruits readily available to urban citizens. To some extent this reflects added planting by farmers in anticipation of the new policy (plans for the free market had been announced many months in advance). With the lure of additional profits, farmers are now finding it worth their while to extend production.

Thus, there are reports that previously abandoned patches of land outside Havana are now sprouting with crops. At the same time, some of the produce sold in the free markets is undoubtedly food that formerly was being peddled illegally through the black market or in limited quantities (up to 25 pounds) through private sales.

The Free Peasant Markets may or may not become a long-term phenomenon. Given the changing patterns of government food policy in the first two decades of the revolution, it is possible that this experiment may only be temporary (although its termination would undoubtedly provoke discontent among both private farmers and urban consumers). For the present, free market prices tend to be much higher than in the government-owned stores, where rationed foods are sold at controlled prices. They are also more expensive than private sale prices (which were higher than ration-book prices but still controlled).[38] Consequently, while the Free Peasant Markets have brought more food into the cities and helped satisfy the complaints of middle-income housewives, they probably won't significantly affect the nutritional level of the lowest-income urban Cubans.

Nutritional Levels in Cuba Today

Comparison of Cuba's pattern of food production and consumption with the records of other Latin American nations is intriguing. Cuba's aggregate agricultural output growth rate during the first 15 years of the revolution (1959-1973) was among the very worst in the hemisphere (only Chile had a poorer record). As noted earlier, during the 1960s Cuban per capita food consumption declined, falling some 15 percent (from 2,740 calories daily to under 2,300). Since the early 1970s, overall agricultural output recovered, and surpassed prerevolutionary levels (though per capita food production still apparently is lower than in the early 1950s). Per capita consumption in the 1970s has risen sharply (Tables 1, 2, and 5) though, again, only to prerevolutionary rates. Thus, Cuba's average consumption level currently is still below that of Argentina or Uruguay and perhaps even Brazil and Mexico.[39]

Yet, averages can be quite deceptive. In Brazil, Chile, Mexico, and Venezuela satisfactory average food consumption levels hide wide variations in urban-rural and middle class-lower class nutritional levels. In the nations just mentioned, official statistics reveal that 30-50 percent of their respective populations suffer from varying degrees of malnutrition. In Cuba, on the other hand, there is very little variation from the national norm of 2,759 calories and 73 gms. of protein (Table 5). Ration cards currently provide each citizen an average of 2,000-2,300 calories daily. The remaining caloric intake comes from institutional meals (schools, workers' cafeterias), subsistence farming (for private farmers), unrationed purchases by urban consumers (either of nonrationed foods sold at government stores or in private purchases from farmers) and restaurant consumption. Only the last two supplementary sources are income-related. Consequently, it is unlikely that there are many Cubans today who consume less than 2,300 calories daily or more than 3,000.[40]

Given the equity imposed by wage policy and food-rationing, there is no reason to doubt the government's claim that malnutrition in Cuba has been lowered from a prerevolutionary level of 40 percent to a current rate of less than 5 percent. That assertion is supported by Cuba's extremely low child mortality rate (mortality rates among 1-4 year olds are excellent indicators of nutritional levels) and high life expectancy. With child mortality of 21 per 1,000 and life expectancy of 70.4 years, Cuba apparently has the most positive

Table 5

Per Capita Calorie, Protein and Fat Consumption: 1951-1979

	1951-57	1959-61	1962-64	1965	1970	1975	1979	Goals
Calories	2,740	2,730	2,200-2,300	2,552	2,565	2,645	2,759	2,900
Protein (gms.)	NI	NI	NI	66.4	68.8	72.9	73.0	80.0
Fats (gms.)	NI	NI	NI	56.5	60.4	70.7	72.3	NI

Sources: *1951-64*: Ricardo Leyva "Health and Revolution in Cuba," in R. Bonachea and N. Valdés, *Cuba in Revolution* (New York: Doubleday, 1972), p. 463; *1962-79*: Unpublished data from the Institute of Internal Demand.

quality of life indicators in Latin America. [41] This record has been accomplished in the face of a poor production record and in the absence of any specialized programs of food supplements for the poor (though the government does carefully monitor nutritional levels at the many national polyclinics).

On the other hand, neither government officials nor average citizens (particularly in urban areas) are totally satisfied with their diet. In 1975 government nutritionists set desired levels of consumption for generic food categories. As of 1979, official surveys showed that the average Cuban was consuming slightly above the desired level of cereals (104%); nearly the target level of fats (85.5%), black beans (85.8%), and eggs (83.5%); below desirable levels of milk and dairy products (70.6%); and well below "optimal" rates of meat (56.8%), fish (56.7%), root crops (63%), fruit (49.8%), and vegetables (36%).[42]

These figures confirm what one readily observes: Cubans are eating heavy doses of starches and insufficient amounts of fruits and vegetables. To a large extent shortages of particular types of food in the typical family diet are the result of inadequate supply (meat, vegetables, fruits). In some instances, however, highly nutritious foods (fish, eggs) are now reasonably plentiful, but are not eaten in sufficient quantities due to consumer tastes. Opinion surveys conducted by the Institute of Internal Demand reveal that the typical Cuban erroneously believes that beef and chicken are more nutritious than eggs or fish. Cubans simply don't like eggs (the least popular animal protein source), and list them below pork in their consumer preference even though they know them to be more nutritious. Similarly, while they realize that yogurt is more nutritious than most other dairy goods, it is their least desired dairy product. Ironically, according to the surveys, most people want to eat black beans but erroneously believe they are low in nutritional content. In short, while almost all Cubans are getting sufficient quantities of calories and protein, many are dissatisfied with the shortages of beef, chicken, and black beans. Government nutritionists, on the other hand, are less concerned about these items and would like to see people eating more eggs, yogurt, fish, fruit, and vegetables.

Tasks for the Future

Institute of Nutrition spokesmen point out that Cuba's leading causes of death are now cardiovascular diseases and cancer—a pattern typical of developed, rather than Third World nations. Obesity (affecting over 15% of the population of some provinces), excessive sugar consumption, and diabetes are now far more important problems than malnutrition or infant avitaminosis. While the ration quantities of many basic foods (Table 4) have either failed to grow (bread, rice) or fallen (dry beans, beef, cooking fat) since the early to mid-1970s, the availability of non-rationed foods has apparently grown, thereby providing a steady growth in calorie and protein consumption (Table 5).

Two obvious tasks lie ahead. First, there is a need for improved nutritional education. The government surveys just cited indicate that many Cubans are either misinformed regarding the nutritional value of various foods or dislike nutritious products (fish, yogurt, eggs) that are widely available. Anthropologists note that food preferences are among the most difficult human habits to change. Cuba's massive networks for popular mobilization and political socialization—the Committees for the Defense of the Revolution (encompassing some 80-90% of the adult population) and the National Federation of Women—offer unique channels for educational campaigns in this area.

Finally, while Cuba's agricultural production record has improved substantially from its low point in the early 1970s, productivity rates (yields per acre, per animal) are still generally poor. This is particularly true of the state agricultural sector. Given that state farms receive greater inputs per acre of fertilizer, irrigation, etc., it is noteworthy that private farmers achieve slightly higher yields in sugar, citrus, and milk production and far higher productivity (often 5-10 times as high) in vegetables and root crops. Thus, in the future, a sustained period of bad weather or a deterioration of Cuba's trade position (reducing its ability to import rice, wheat, black beans, powdered milk, canned meat, cooking oils, and fats) could once again bring about food shortages.

The creation of the Free Peasant Markets will likely raise private sector outputs of fruits, vegetables, and tubers. Equally important, because farmers cannot bring their produce to these markets unless they have fulfilled their acopio obligations, the creation of the free markets seems to have induced many private farmers to meet their state quotas more quickly and readily than before. Indeed, there is evidence that some farmers near Havana and other large cities were regularly failing to meet their acopio quotas in

the past and diverting much of their production into the black market. This is now less likely to happen. If this trend continues, the state would be able to satisfy both production goals (facilitated by a free market system) and equity considerations (protected by the acopio and the rationed, price-controlled, foods the acopio supplies).

(December 1981)

NOTES

1. Joseph Collins and Frances Moore Lappé, "Food for Whom?" *Cuba Review* VI, No. 4 (December 1976), pp. 6-7, 9. Data drawn from *1st Congress of the Communist Party of Cuba* (Havana, 1975); Pedro Alvarez Tabio (ed.), *The Overall Situation of the Cuban Economy* (Havana, 1975). These figures are contrary to other data sources.

2. Leon G. Mears, "The Food Situation in Cuba—Where Food Shortages Plague the Castro Government," *Foreign Agriculture* (May 1962), pp. 7-8.

3. "Feeding the People," *Cuba Review*, VI, No. 4 (December 1976), pp. 18 and 24. Article written by the editors drawn from observations by David Barkin, Richard Riseling, and Donna Katzin. For an earlier, more scholarly, and more critical account of Cuban agriculture and food production, see David Barkin, "Cuban Agriculture: A Strategy of Economic Development," *Studies in Comparative International Development* 7, No. 1 (1973).

4. Collins and Lappé, "Food for Whom?"

5. "Nutrition and Health," *Cuba Review*, VI (December 1976), p. 28.

6. Sergio Roca, "Distribution Effects of the Cuban Revolution: Urban versus Rural Allocation" (Dallas, Texas: 88th Annual Convention of the American Economics Association, 1975), fn. 162 and p. 73.

7. Much of the debate between foreign (or Cuban exile) scholarly critics and those who endorse the Cuban revolution has focused on the extent to which the revolution has succeeded in providing "basic needs." Much has been written on Cuban education, health care, housing, and agriculture: virtually no systematic research has been published on nutritional levels and food consumption (as opposed to agricultural production). Excepting the issue of *Cuba Review* cited above (published by the Cuba Studies Center in New York)—which draws heavily on indirect indicators of nutrition and selective impressions from admittedly prorevolutionary authors—the extensive bibliographies of *Cuba Studies* (University of Pittsburgh)—the foremost research journal on revolutionary Cuba—include but one obscure published work on nutrition.

8. Climatic information and comparisons with Peru drawn from FAO, *Production Yearbook*, 1976-78.

9. Melchor Gastón et al., "Por Qué Reforma Agraria?" (Havana: Agrupación Católica Universitaria), 1957, pp. 20-24.

10. For an examination of the most significant structural and organizational changes, see Nancy Forster, "The Revolutionary Transformation of the Cuban Countryside" (Hanover, NH: *UFSI Reports*, forthcoming, 1982); for other analyses of various aspects of agrarian reform and rural change in Cuba, see: Jorge Domínguez, *Cuba: Order and Revolution in the Twentieth Century* (Cambridge: Harvard Press, 1978); Archibald R.M. Ritter, *The Economic Development of Revolutionary Cuba* (New York: Praeger, 1974); Carmelo Mesa-Lago, *Cuba in the 1970s* (Albuquerque: University of New Mexico, rev. ed., 1978); Carmelo Mesa Lago, *The Economy of Socialist Cuba: A Two Decade Appraisal* (Albuquerque: University of New Mexico, 1981); Arthur MacEwan, "Agriculture and Development in Cuba" (unpublished manuscript, 1978, in revised form, St. Martin's Press 1981).

11. On Cuba's crossbreeding and other dairy efforts, see Fred Ward, *Inside Cuba Today* (New York: Crown, 1978), pp. 207-211; René Dumont, *Cuba: Socialism and Development* (New York: Grove Press, 1970). Despite widespread acclaim within Cuba (and from many foreign authors) for the dairy sector's efforts in crossbreeding and artificial insemination (the F-1 and F-2 crossbreeds are now found in dairies throughout Cuba), the results have apparently not been impressive.

12. The accuracy of Cuban agricultural statistics from 1959-1966 is very questionable. Scholarly data on agricultural production for much of the 1960s vary greatly and even the more reliable data issued since 1967 by the Cuban government understate total production by excluding much of the output of the private sector. Thus, comparisons between pre- and postrevolutionary agricultural output should be viewed with caution. The indices presented here do correspond with parallel calculations in Roca, "Distribution Effects of the Cuban Revolution:..." and Mesa-Lago, *The Economy of Socialist Cuba:....*

13. On the revolution's early economic difficulties, see: Edward Boorstein, *The Economic Transformation of Cuba* (New York: *Monthly Review*, 1978); Archibald Ritter, *The Economic Development of Revolutionary Cuba....* Mesa-Lago (various).

14. On the use of moral incentives, see Bertram Silverman (ed.), *Man and Socialism in Cuba* (New York: Atheneum, 1973); Terry Karl, "Work Incentives in Cuba," *Latin American Perspectives* II, No. 4 (1975); on the CDRs and mass mobilization, see Richard Fagen, *The Transformation of Political Culture in Cuba* (Stanford: Stanford University Press, 1969).

15. Karl, "Work Incentives in Cuba..."; Mesa-Lago, *Cuba in the 1970s....*

16. In an attempt to come as close as possible to the goal of 10 million tons in 1970, some of the sugar that normally would have been counted in the next harvest was included in the 1970 total. Consequently, the 1970 harvest (and the index in Table 1) was overstated and the 1971 harvest (and index) understated.

17. Many studies by critics of the Cuban Revolution compare 1969 production figures for milk and rice (a rock bottom year) with 1960-61 (good years) in order to show a poor performance record. Similarly, revolutionary enthusiasts often compare 1978-79 output with 1969-70 data to show a strong record of growth. Readers should be careful to note the base years being compared in production data.

18. On the problems of data collection in that period, see Carmelo Mesa-Lago, "Availability and Reliability of Statistics in Socialist Cuba," *Latin American Research Review* IV, Nos. 1 and 2 (1969).

19. The government agency which collects farm produce for the state—including all state farm production and a portion of private output—is called the *acopio*. Cuban farmers refer to the quota which the collection agency sets for them as their acopio.

20. See Domínguez, *Cuba: Order and Revolution...*; McEwan, "Agriculture and Development in Cuba..."; and Ritter, *The Economic Development of Revolutionary Cuba....*

21. Dumont quoted in Cuban Economic Research Project, *Cuban Agriculture and Planning: 1963-64* (Miami: University of Miami, 1965), p. 258.

22. Ritter, *The Economic Development of Revolutionary Cuba:..*: McEwan, "Agriculture and Development in Cuba:..."

23. See Ward, *Inside Cuba Today:...*; Mesa-Lago calls fishing "the great success story of the Revolution." Mesa-Lago, *The Economy of Socialist Cuba.*

24. Keith Griffin, *Land Concentration and Rural Poverty* (London: McMillan, 1976).

25. Irma Adelman and Cynthia Taft Morris, *Economic Development and Social Equity in Developing Countries* (Stanford, CA: Stanford University Press, 1973).

26. Howard Handelman, "Scarcity Amid Plenty: Food Problems in Oil-Rich Venezuela," in B. Huddleston and J. McLin (eds.), *Political Investments in Food Production* (Bloomington, IN: Indiana University Press, 1979).

27. On wages, see H. Handelman and N. Handelman, "Cuba Today: Impressions of the Revolution in Its Twentieth Year" (Hanover, NH: *AUFS Reports*, No. 8, 1979). There are some "historical wages"—high wages of as much as $800-$1,000 per month—retained after the revolution for skilled workers and professionals.

28. Able-bodied men aged 18-65 who do not work can be charged with "social parasitism." Despite official statements there is no unemployment, most experts believe there is some, including men evading the law and people between jobs. Increasing problems in finding jobs for all has resulted in some Cubans going to East Europe on a fixed-term basis as "guest workers."

29. While the U.S. and Western Europe have income distribution patterns quite similar to Cuba's current spread, Cuba's control on rents, free medical care, and rationing all produce a narrower gap in real standard of living. Also, accumulated wealth is far less important in Cuba.

30. When beef is unavailable, chicken may be substituted; if neither is available, canned meat from Eastern Europe is used to fill the ration quota.

31. Beyond the milk allotments mentioned here, there is a ration of one quart daily for every family unit of four persons or more.

32. Ricardo Leyva, "Health and Revolution in Cuba," in R. Bonachea and N. Valdés, *Cuba in Revolution* (New York: Anchor, 1972), p. 463. The Institute of Internal Demand claims that in 1965 per capita caloric consumption was 2,500. It may be that Leyva's estimates of under 2,300 covered only rationed foods and excluded food consumed from other sources (see below).

33. Diets have obviously deteriorated for those who belonged to the prerevolutionary middle class and skilled working class in Havana. Many people we spoke to in the Vedado district of Havana (an old middle-class neighborhood) complained of this bitterly.

34. Leyva, "Health and Revolution in Cuba," notes that 2.2 million Cubans were getting free meals at least once daily at that time. It is not clear whether this only represented students or, more likely, included many workers who now have to pay for their lunch at workers' cafeterias.

35. Several small farmers told us they have resisted government enticements to turn their land over to state farms (a pension, free housing, a television) because they wish to continue family subsistence farming.

36. See Forster, "The Revolutionary Transformation of...." The state agricultural sector is overwhelmingly devoted to sugar and livestock, with some 80 percent of all state farmland in cane or pasture. The state sector is also the principal producer of eggs, citrus, and rice. Vegetables, legumes, and root crops, however, are grown in large part by private farmers.

37. Acopio quotas are periodically readjusted and are raised if a co-op or individual farm seems to be easily surpassing its quota. This woman indicated that her farm's obligation to the state for the coming year had been raised, but that she would still be able to sell privately half her anticipated 1980 output (more if production could be raised over 1979 levels).

38. Presumably the creation of the free market will largely put an end to the parallel market (limited sales at controlled prices). At the same time, by legalizing free sales, the state has ended the *raison d'être* for a black market.

39. The most recent figures published by the Inter-American Development Bank only covered 1971-1973. At that time Uruguay and Argentina had per capita calorie consumptions of 3,000-3,200 daily while Chile, Brazil, and Mexico ranged from 2,657-2,781. Since that time average calorie consumption has probably risen slightly for Brazil and Mexico and fallen sharply for Argentina, Chile, and Uruguay (all three having suffered sharp declines in average living standards). See *Nutrition and Socio-Economic Development in Latin America* (Washington Inter-American Development Bank, 1979), p. 18.

40. Since a meal in a restaurant costs from $7-$20 per person, even Cubans with fairly high-paying jobs ($300-$450 per month) cannot afford to eat out very often.

41. *Gramma* (Havana), June 22, 1980.

42. All statistics in this section are from unpublished data provided the authors by the Institute of Internal Demand.