AVAILABILITY AND RELIABILITY OF STATISTICS IN SOCIALIST CUBA

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This is the second part of Professor Mesa-Lago's article. The first section appeared in LARR IV:1, pages 53–91.

C. *Examples of Statistical Misuse in Cuba*

In this section a sample of interesting cases is provided to illustrate the problems involved when attempting to judge the reliability of Cuban statistics. The paper does not attempt to cover all the existing difficulties nor to offer final answers to some of the intriguing puzzles discussed. Yet the process of describing these statistical abnormalities occasionally clarifies the way in the search for truthful figures. The eight reconstructed tables included in this section do not have to be taken as absolutely reliable, but at least they offer a ten-year perspective (1957–66) of the most credible statistics available. The fact that this section has a negative approach should not lead the reader to the conclusion that all Cuban statistics are purposely misleading. Examples of accurate data are given when dealing with foreign trade, for instance. In some cases of erroneous data, the fault lies with the flaws in the system, including those detailed in the two previous sections. In other cases figures are deliberate misrepresentations. The author's ultimate objectives in this section are to alert the researcher to the frequent difficulties he will encounter when working with Cuban data, and to suggest criteria for selecting the more accurate figures from the Cuban statistical tangle.

1. *Vital Statistics*

Table 1 furnishes essential information on Cuba's demographic trends. Statistics have been computed by JUCEPLAN and are drawn from several sources. Contradictions concerning mortality rates are frequent. For example, in January, 1967, Premier Castro reported that the general mortality rate for 1966 was 6.8 per thousand (6.5 in Table 1), and asserted that prior to the revolution it was 13 per thousand.[156] Nevertheless, in the 1953 population census a mortality rate of 6.3 was computed for 1952, while the rate for 1953 was given by the 1957 statistical yearbook as 5.8 per thousand. The average mortality rate for 1960–65 according to Table 1 is 6.7, but ECLA's estimate for the same period ranges from 8 to 9 per thousand (*UN-DY*, 1966:344–345).

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TABLE 1

Vital Statistics of Cuba: 1957–1966

Years	Population[a] (Thousands)	Live Births	Crude Live Birth Rates[b]	Infant Deaths[c]	Infant Mortality Rates[d]	Total Deaths	Death Rates[b]	Migration[e]	Rate of Population Growth[f]
1957	6,414.2	187,936	29.3	6,079	32.3	40,409	6.3		2.15
1958	6,548.3	178,800	27.3	5,906	33.0	42,508	6.5	— 4,449	2.09
1959	6,692.7	192,400	28.7	6,646	34.5	44,043	6.6	—12,345	2.21
1960	6,825.8	214,900	31.5	7,604	35.4	43,164	6.3	—62,379	1.99
1961	6,938.7	234,600	33.8	8,717	37.2	45,945	6.6	—67,468	1.65
1962	7,068.4	260,900	36.9	10,350	39.6	51,579	7.3	—66,264	1.87
1963	7,235.8	256,900	35.5	9,666	37.6	49,624	6.8	—12,201	2.37
1964	7,434.2	264,300	35.6	9,994	37.8	47,922	6.4	—12,064	2.74
1965	7,630.7	263,975	34.6	9,965	37.7	49,279	6.5	—19,656	2.64
1966	7,799.6	255,413	32.7	9,597	37.6	50,472	6.5	—53,409	2.21

[a] Estimates at June 30
[b] Per 1,000 inhabitants
[c] Infants below one year
[d] Per 1,000 infants born alive
[e] Balance of migratory movement
[f] Per cent

Source: CEC 1966: 8–11; U.N. *Demographic Yearbook, 1966* (New York, 1967). The author has filled a few gaps in the table by deriving magnitudes from official percentages or vice-versa.

In his quoted speech of January, 1967, Cuba's Premier asserted that the infant mortality rate for 1966 was 37 per thousand, while being 60 per thousand in 1958. The 1957 rate according to the UN was 32.3, while Table 1 gives a rate of 33 per thousand for 1958. The average rate for 1959–66 according to the table is 37.2 per thousand, substantially above the pre-revolutionary rates.

2. *National Accounts*

Since the early 1960's official statistics on national and per capita income and GNP, as well as on rates of growth and investment, have tended to deflate prerevolutionary figures and to inflate revolutionary achievements. Possibly this is done to support the revolutionaries' theory that Cuba's economy was stagnant in the three decades prior to the revolution, and has rapidly expanded since 1959.

Official statistics published by the revolutionary government in mid-1960 should be discussed in order to evaluate the previous statement. The statistical yearbook of the National Bank (*Memoria 1958–59*:100–101) records the average rate of national income growth measured in current prices in 1950–58 to be 4.6 per cent annually. (National account statistics began to be com-

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puted in Cuba at the turn of the 1950's.) The rate of population growth during the period was 2.5 per cent, hence average annual growth of per capita national income was 2.1 per cent. A similar average may be computed on the basis of annual rates of growth of per capita national income as given by the National Bank. The index of retail prices of foodstuffs computed for Havana in 1951–58 showed an increase of 9.2 per cent for the whole period, or 1.2 per cent annually. Other price indices computed by the Pan American Union and the UN show annual increases of 1.1 per cent in 1955–58 and 1.0 per cent in 1953–58 respectively.[157] The only reliable national account statistics related to the pre-revolutionary period do not suggest stagnation but a modest rate of per capita income growth.

The gross investment coefficient (i.e., gross domestic formation of capital as a percentage of national income, measured in current prices) reached an annual average of 18 per cent in 1950–58. In 1956, the gross investment coefficient was 19.4 per cent. ECLA has computed Cuba's gross investment in fixed capital goods during 1952–57 in constant prices of 1950 (*ECLA-S 1957*: 200). These computations show that the coefficient (as a percentage of GNP) had an annual average of 15 per cent, showing a steady upward tendency throughout the period.

Table 2 provides a summary of national accounts in 1957–58 and 1962–66, but figures in these two periods are difficult to compare. In the 1950's, national accounts followed western computational techniques; since the inauguration of the 1962 year plan, Marxist definitions and socialist techniques have been employed. An important difference between the two systems is that Soviet-type accounts refer to *material production* ("tangible goods") and exclude the value of services ("intangible goods") not directly used in production. Another problem is that GNP figures were only slightly affected by inflation in the decade before the revolution, but heavily influenced thereafter. Price indices have not been published in Cuba since 1959. There are computations of pre-revolutionary GNP at constant prices, but most figures available in the socialist period are given in current (market) prices. Therefore, increasing inflation has created an upward-bias tendency in GNP figures since 1960. The vagueness in definition of socialist statistics aggravates the previous difficulties. For example, capital-formation figures in 1950–58 distinguished between gross and net investment while after 1962, data refer ambiguously to "investment," and figures which might indicate depreciation are not published. Possibly, the most serious obstacles to overcome when dealing with revolutionary GNP figures are the tendency to release over-optimistic targets as actual accomplishments, and the frequent contradictions and corrections.

Although complete data for 1959–60 are not available, ECLA has expressed the opinion that growth rates achieved during these two years were

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higher than in 1956–58 (*ECLA-S 1963*:267–268). According to Boti (1961: 22–23, 28–29), the annual growth rate of GNP at current prices in 1959–62 was 12 per cent, but the Russian specialist Efimov (1963:20) gives a rate of 6 per cent for 1959–61; and the French planner Bettelheim (1962:15) estimates that GNP declined by 10 per cent in 1962. The four-year plan (1962–65) based on Polish planner Kalecki's projections set the growth rate of GNP at 10 to 15 per cent annually, and per capita rates at 7 to 13 per cent annually. Consumption per capita in 1965 was expected to be 60 per cent greater than in 1958. Boti (1964:25) informed the public that the four-year plan was not the result of simple speculation and forecast, but rather was based on solid facts.

Based on JUCEPLAN figures, ECLA computed the annual average rate of Cuba's GNP in 1961–63 as 9 per cent, but due to the rise in prices, it asserted that the growth of production and population had been virtually the same for the period (*ECLA-S* 1963:267–268). However, ECLA made other adjustments (e.g., allowance for the value of services) to give a final figure of 2 per cent real per capita growth. This figure is upwardly biased because ECLA's computations used a rate of population growth of only 1.6 per cent, while Cuban sources (*CEC 1966*:8) give a rate of 2 per cent. An official report from Cuba to ECLA in 1966 stated that "in the years 1961–63 per capita GNP was stagnant."[158] Advisor Dumont (1964:91) believes that per capita GNP became stagnant in 1961, and declined by 15 to 20 per cent in 1962. In the Seminar of Planning held in Algiers in July, 1963, Guevara qualified as "ridiculous" Cuba's former goal of 10–15 per cent of GNP growth, because such targets had been made without real statistical bases, and were only supported by excessive optimism. Later he suggested that a 7 per cent rate of growth was more feasible, although he disclosed that the Cuban economy had actually grown only at a 2–3 per cent rate.[159]

Cuban index numbers published in early 1966 (*CE*, 5:1:99) report rates of GNP growth at 1 and 14 per cent in 1963 and 1964 respectively. In addition, a decline of GNP per capita equal to 1 per cent was acknowledged for 1963 while an increase of 10 per cent was claimed for 1964. However, a new index released in 1967 (*CEC 1966*:13) corrected previous figures, raising the total GNP rate to 9 and 16 per cent in 1963 and 1964, and per capita rates to 7 and 14 per cents. The official index for 1965 reported either stagnation or decline of both rates over 1964. UN index numbers for Cuba's GNP (*UN-SY 1967*:542) take 1963, the year of the most serious recession in the last decade, as base year for the index. As a result, the index shows increases of 9 and 2 per cent in 1964 and 1965, but a decline of 4 per cent in 1966. Concerning per capita GNP, a decline of 6 per cent is indicated in 1966 over the good year 1965, and even a decline of 1 per cent over the bad year of 1963. More recent statistics (*UN-MBS 1968*, 22:4:182,188) suggest that in 1965–66 there was an annual

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average decrease in total GNP at the rate of 2 per cent. Taking into account the annual average rate of population growth of 2.4 per cent for the period, it seems that per capita GNP declined by 4.4 per cent in 1965 and 1966. The UN has also computed (no information is given about methodology) real GNP growth at constant prices in 1962–66 as 1.9 per cent annually. There was an average rate of population growth of 2.4 per cent in the same period; therefore, GNP per capita should have declined at an annual rate of .5 per cent.

A word about the process of capital accumulation since the revolutionary takeover. According to Bettelheim (1966:13) the coefficient of gross investment in 1959–60 was 14 per cent annually. ECLA has computed an annual average coefficient of 17.9 per cent for 1961–63 (ECLA-S 1963:288), and the UN has given one of 20.5 for 1964–66 (UN-MBS 1968:22:4:182).

From the previous statistical entanglement, some tentative conclusions may be drawn. The average rate of growth of per capita GNP at current prices was of some 2 per cent in 1950–58, possibly rose in 1959–60, became stagnant in 1961, sharply declined in 1962 by at least 10 per cent, reached a trough in 1963, had a brief period of recuperation with a rate of at least 6 per cent in 1964 (without reaching the previous 1960–61 levels), became stagnant again in 1965, and declined once more in 1966, this time by 6 per cent. If constant prices are used, it seems that real per capita GNP rose annually by 1 per cent in 1950–58 and declined by .5 per cent in 1962–66. The coefficient of gross investment was 18 per cent (annual average) in 1950–58, declined to 14 per cent in 1959–60, increased to 17.9 per cent in 1961–63, and rose to 20.5 per cent in 1964–66. The final conclusion is that early in the revolution consumption was increased at the cost of investment restriction, but since 1961 the policy has been reversed. The situation in 1966 became critical due to the combination of a serious decline in GNP together with a rise in investment which has resulted in a new and drastic curtailment of consumption.

3. *Agriculture*

According to the FAO agricultural index, Cuba's total output rose by 1 and 3 per cent respectively in 1958–59 and 1959–60, and then showed a sharp increase of 16 per cent in 1961. Per capita production in 1959–60 was below 1957–58 levels, but increased by 12 per cent in 1961 (FAO 1966: 27–30). At the 1962 FAO meeting, the Cubans proclaimed 1961 as the year of highest agricultural output in Cuba's history.[160] Most of the appraisals of the success of Cuba's agrarian reform both from native officials and foreign specialists (e.g., Bianchi: 115, 343; Bettelheim: 4) refer to that year. Based on the 1961 success, Cuba's agrarian reform was declared to be an unique case internationally in that it had not induced a decline in production.

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TABLE 2

National Accounts in Cuba: 1957–58 and 1962–66

(In million *pesos*, at current market prices)

	1957	1958	1962	1963	1964	1965	1966
National income	2294	2210	2890	3594	......	......	......
Net national product*	2584	2496	......	......	3984	3886	3781
Gross domestic product*	2844	2688	2854	3461	......	......	......
Gross national product*	2778	2640	3079	3788	4202	4136	4039
Private consumption expenditures	2089	2020	1978	2584	2801	2887	2811
Government consumption expenditures	264	276	279	310	485	474	480
Fixed capital formation	486	464	608	724	772	842	930
Increase in stocks	4	7	214	171	417	105	114
Export of goods and services	938	858	547	564	740	713	624
Import of goods and services	939	938	771	891	1014	886	925
Net factor income from abroad	—66	—48	—225	—327	......	......	......

* Since 1962 data refers to *material* product, which excludes the value of services.

...... Not available.

Source: 1957–58 from *RBNC,* 5:5:756–757 (1959), *Memoria, 1958–59,* and *ECLA-SB,* 1:1:42 (1964). 1962–63 from *UN-MBS,* 20:3:61 (1966). 1964–66 from *UN-MBS,* 22:6:176, 182, 188 (1968).

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In 1962–63 two significant institutional changes took place in Cuba; these were the transformation of agricultural cooperatives into state farms, and the reduction of maximum size of private farms from 400 to 65 hectares. Detailed articles have been published concerning these changes, but they do not offer quantitative data on the impact of the revolutionary change upon production.

The 1962–65 plan projected increases of sugar output of 60 per cent and of other agricultural products of nearly 90 per cent. Increases in agricultural yields were set at 25 per cent for the same four-year period (Boorstein: 80–81). Based on the 1963 planned target, Minister Boti (1963:32) announced an increase of agricultural output of 14 per cent over 1961. Yet the FAO index shows that after 1961, when most of the private land was nationalized, agricultural output declined (with the exception of 1965) even below the 1957–58 levels. Between 1960–61 and 1965–66, total agricultural production declined by 32 per cent while per capita production decreased by 37 per cent (*FAO* 1966:27–30). The most recent index of agricultural output computed by ECLA is based on the year 1963, possibly the worst agricultural year of the revolution. Hence, increases are shown in 1964–66 with respect to the base year 1963, although such increases actually fell short of the 1960–61 levels. The level of total agricultural output (including livestock) in 1966 was 12 per cent below that of 1960. In per capita production, the decline in 1966 was 30 per cent over 1960, and 15 per cent over the pre-revolutionary level of 1958 (*ECLA-B* 1967, 4:1:87).

In its 1963 economic survey, ECLA suggested that Cuba's decline in total agricultural output was largely the result of the decrease in sugar cane production, due in part to mistakes in economic planning. More recently ECLA has acknowledged declines in almost all Cuban crops and meat in 1962–66 over 1960–61. Sugar cane production reached a peak in 1961 close to the record set in 1952, but then declined in 1962–64. Despite the fact that in 1964 Cuba's economic policy was reverted to increasing sugar output, production goals were met only in 1965, with fulfillment ranging from 60 to 80 per cent in 1966–68.[161] More significant is the fact that production in some of the most important crops (e.g., coffee, tobacco, rice, maize, dry beans, potatoes, tubers, henequen, cocoa, and garlic) either declined steadily after 1958, or increased until 1960–61 and thereafter declined at times below 1957–58 output levels. The output of another group of crops (e.g., tomatoes, cotton, onions, some fruits, sweet potatoes) increased throughout 1959–61 and then declined, although the 1965 output was still above pre-revolutionary levels. It is not clear whether the production of meat, milk and eggs has increased or declined.

Sugar statistics have been dubious since January, 1965, when Premier

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Castro asserted that the Cubans had deliberately released false figures in order to mislead the enemies of the revolution.[162] In 1966 Cuba was unable to meet her sugar export commitments with various socialist countries, especially the USSR. According to official statistics, internal sugar consumption in 1966 was 541,529 metric tons (MT), while in 1962 and 1964 Cuba's consumption was 373,110 and 401,450 MT respectively.[163] An international sugar journal contended that Cuban statistics on consumption in 1966 had been deliberately inflated by at least 150,000 MT.[164] Despite this criticism, Cuba announced an increase of 16 per cent in its internal consumption in 1967, i.e., 629,498 MT.[165] Because of this manipulation of statistics, some specialists have suggested that the output of sugar in 1966 and 1967 was below the official figure published by Cuba.[166]

Another dubious point in sugar statistics concerns yields. The Cuban government contends that current yields are higher than prior to the revolution, due to improved fertilizers and irrigation. Since 1962, sugar harvests have begun in the month of November when the sugar cane is not yet ripe enough. Castro has stated that sugar yields in November–December, 1966, were 10 per cent (expressed as a proportion of the total weight of cane ground).[167] But less than two months before, a report from the Technological Institute for Sugar Cane Research had stressed that maximum yields in these months, under optimum conditions, could not exceed 9 per cent.[168] Several Cuban radio broadcasts in December, 1966, reported yields of 8 per cent. Prior to the revolution, sugar crops were harvested in January–April. In these months the cane has a higher sugar concentration; hence, pre-revolutionary yields were of 12 per cent as an average (*AAC* 1962).

Sugar targets offer a typical example of successive correction in planned goals due to actual nonfulfillment. In mid-1961, Guevara announced a sugar crop of 8 to 9 million tons (Spanish tons) for 1965, which would be the largest in history.[169] A few months later, Boti (1962:31–32) changed that target to 7–7.5 million tons. The four-year plan announced still another reduction in the original and amended targets, this time the expectations were to produce from 6.5 to 7.0 million tons in 1965. Finally, in late 1964, the long-range sugar plan set the target for 1965 at 6 million tons, while assigning the original 8 million ton target to 1968.[170] In 1968 the actual sugar crop was between 5 and 5.5 million tons.[171]

In 1954–58 the average tobacco production was 47,800 MT.[172] According to UN statistics, production rose to 52,870 MT in 1959–61, but JUCEPLAN figures submitted to ECLA suggest a decline to 46,170 MT for the same period (*UN-SY* 1966:143; *ECLA* 1963:270). Both the UN and FAO statistics indicate that production increased to 50,000 MT or more in 1962–64 (*FAO* 1966: 252); Cuba has reported only 47,800 MT which is the same average output

for 1954–58.[173] For 1966 divergent figures of 70,000, 42,000, and 32,000 MT have been reported by a Cuban specialist, a Party member, and the U. S. Department of Agriculture respectively.[174] Coffee production in 1962 was reported to be 39,000 MT by UN, 55,000 MT by ECLA and 58,000 MT by FAO (*UN-SY* 1966:115; *FAO* 1966:242; *ECLA* 1963:242).

The Cuban delegate to the 1965 FAO meeting stated that the highest rice crop ever gathered in Cuba was the 243,000 MT crop of 1962.[175] But previously JUCEPLAN had reported to ECLA, for the same year, a lower figure of 229,000 MT (*ECLA* 1963:270, 272). Two years later ECLA corrected the JUCEPLAN figure, reducing it to 200,000 MT (*ECLA* 1965:65). Furthermore, rice output in 1958 ranged from 253,000 to 270,000 MT, and in 1959 from 282,200 to 326,000 MT (*UN-SY* 1966:138; *CC* 1962:7). Even if the lowest estimates available are taken for 1958–59, and the highest for 1962, the decline in rice output is evident in the latter year. FAO reported an increase of 13 per cent in rice output in 1965 over 1964. Previously the Vice-Minister of JUCEPLAN had announced, at an ECLA meeting, a 36 per cent decline in the 1965 crop; this was due to the transfer of land from rice to sugar-cane production.[176]

In 1960, while most international agencies reported Cuba's maize crop to be 212,000 MT, the Cuban figure was 300,000 MT. For 1962, the UN gave an estimate of 257,000 MT while FAO estimated 159,000 MT. During 1963–65 FAO estimates are substantially higher than those of ECLA (*UN-SY* 1966:128; *FAO* 1966:55; *ECLA* 1963:270–272, and 1965:285; *CC* 1962:7).

Premier Castro has asserted that in 1967 the dry-bean crop reached 93,100 MT, a two-fold increase over the average output of 1959–66. This was claimed, despite the previous announcement that 1964 dry-bean production had declined 46 per cent below that of 1963, and would decrease further to increase sugar output in agreement with the 1965–70 sugar plan.[177]

FAO estimates on potato and tomato production are often higher than figures released by Cuba. For example, in 1961 FAO reported an output of 113,000 MT for potatoes, while the president of INRA acknowledged only 88,400 MT. Tomato output was estimated in MT by FAO as 65,000 (1959), 116,300 (1960) and 140,000 (1962); INRA gave estimates of 37,700, 88,600 and 97,100 MT for the same years.[178] Contradictions are also common among Cuban sources, e.g., the 1962 potato crop was estimated by INRA to be 92,400 MT, by the Ministry of Commerce to be 127,500 MT, and by JUCEPLAN to be 100,200 MT.[179]

The 1952 cattle census counted 4,042,000 head and numerous sources (FAO, PAU, CC) reported an increase to 5.7 or 5.8 million by 1958. Official Cuban sources have suggested that in 1959 the cattle population was either stagnant or had declined to less than five million head.[180] The 1961 cattle

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TABLE 3

Physical Output of Selected Agricultural-Livestock Products in Cuba:1957–1966

(Thousand Metric Tons)

	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
Industrial Crops										
Sugar cane[a]	44.7	45.7	48.0	47.5	54.3	36.7	31.4	37.2	50.7	36.8
Tobacco	41.7	50.6	35.6	45.3	57.6	53.4	58.9	43.4	30.5	42.0
Coffee	43.7	29.5	48.0	42.0	48.0	39.0	28.5	36.0	27.6	27.0
Cotton										
(seed & lint)	......	0.2	4.3	21.7	14.1	10.8	12.0	12.0	12.0	12.0
Henequen	11.7	9.4	8.5	12.2	11.1	8.8	10.0	10.0	10.0	10.1
Cocoa	2.8	2.8	2.8	2.8	2.5	2.3	.8	2.6	3.1	3.0
Peanuts	11.0	9.0	5.0	9.0	18.0	23.0	23.0	10.0	10.0	9.0
Cereals & Pulses										
Rice	261.0	253.0	326.0	323.0	207.0	227.0	184.0	160.0	181.0	120.0
Maize	247.0	148.0	193.0	212.0	197.0	152.0	140.0	129.0	100.0	....
Dry Beans	35.7	23.0	35.0	37.1	34.0	30.0	27.0	30.0	30.0	23.0
Yams & Tubers										
Potatoes	94.3	70.6	63.5	97.4	88.4	92.4	97.0	82.0	83.0	....
Sweet potatoes										
and ñame	184.0	186.0	224.0	272.0	142.0	201.0	280.0	300.0	250.0	....
Cassava (yucca)	186.0	213.0	224.0	225.0	155.0	162.0	230.0	180.0	200.0	180.0
Malanga	91.0	226.0	240.0	257.0	77.0	61.0	....	....	....	....
Vegetables										
Tomatoes	43.9	55.2	65.0	116.3	109.2	140.4	103.0	103.0	118.0	119.0
Onions	1.3	7.8	11.1	18.0	6.0	16.1	12.0	8.0	10.0	11.0
Garlic	3.0	5.4	5.9	6.5	1.3	.2	....	....	....	....
Fruits										
Citrus	——111.3——[b]		69.7	72.9	91.0	117.0	86.0	105.0	116.0	....
Bananas	——42.0——[b]		....	....	60.0	76.0	70.0	60.0	60.0	....
Pineapples	——102.0——[b]		....	....	87.0	100.0	100.0	100.0	100.0	....
Coconuts	——10.0——[b]		....	....	....	....	10.0	....	....	....
Dairy Products										
Meat (beef)	185.0	184.0	200.0	170.0	163.0	147.0	143.0	170.0	165.0	177.0
(pork)	42.0	37.0	39.0	36.0	40.0	42.0	39.0	44.0	48.0	35.0
Poultry	47.0	....	....	....	45.0	47.0	48.0	48.0	48.0	....
Milk	806.0	765.0	770.0	767.0	706.0	690.0	695.0	715.0	575.0	....
Eggs[c]	275.0	315.0	318.0	429.0	433.9	530.0	483.0	300.0	300.0	....

[a] Unprocessed sugar cane. Million metric tons.

[b] 1957–58 average

[c] Million units

.... Not available

Sources: *UN-SY 1966; FAO 1966; ECLA 1963, 1965; PAU 1960–1964; PEL 1964–1967;*

CC 1962; RBNC 1960; and AEC 1956–1957. Also: Rodríguez "Cuatro años de reforma agraria," 1–30, and "Cuba en la Conferencia de la FAO," 13–43; Cepero Bonilla, "Los problemas de la agricultura en América Latina . . . ," 76–94; Incháustegui, "Informe ante la XII Conferencia General de la FAO," *PEL 1967*; Santalla, "Plenaria Provincial Tabacalera de Pinar del Río"; and "Plan para ampliar la producción de papas," *CS*, 5:45:158–161 (1965).

census (*CC* 1962:6) estimated the cattle population to be 5,776,000, a similar figure to that of 1958, although at a lower per capita level. The Cuban industrial report to ECLA cautiously estimated cattle head in 1966 to be above 6 million, but the 1967 cattle census reported a figure of 7,140,000, an abnormal increase of one million cattle in the period of a year.[181]

Despite the apparent increase in cattle, ECLA has reported a decline in production of beef and milk between 1957–58 and 1964–65; this report is based on JUCEPLAN figures (*ECLA* 1965:288–289). The ECLA index of livestock production shows that output in 1966 was 18 per cent below that of 1961 and slightly below the 1958 level (*ECLA-B* 1967:87). FAO's figures on Cuba's beef and milk output in 1961–65 are as much as two times higher than ECLA's statistics for the same period (*FAO* 1966:333–342).

Concerning poultry, FAO reports a similar production rate in 1952–56 and 1961–65. Statistics on the output of eggs are contradictory. ECLA's estimate for 1961 is 433.9 million units, while the Cuban government figure is 651 million. FAO gives a production estimate of 300 million eggs in 1965, but official figures for the same year are more than three times higher.[182]

4. *Industry*

In 1953–57 industrial output in Cuba grew by 24 per cent or an average of 4.8 per cent annually (*RBNC*, May 1959). Data after the revolutionary take-over are contradictory. According to an adviser of JUCEPLAN, there were increases of industrial output of 17 per cent in 1959 and 25 per cent in 1960.[183] Nolff (1964: 323) estimated an annual increase of 8 per cent in 1959–61, but Bettelheim (1966:4) gave 26 per cent as a "modest" rate of growth and 58 per cent as an "optimistic" rate for the same period. The UN index of industrial output had computed rates of 13 per cent for 1960 and 7 per cent for 1961 (*UN-SY* 1966:155).

In the early 1960's, planned goals for increasing industrial output were impressive. At that time Boti stated: "In 1965 Cuba, in relation to its population, will be the most industrialized country in Latin America, and will be leading in per capita production of electric energy, steel, cement, tractors, and refined oil."[184] Guevara asserted that by the end of 1965, Cuba's heavy industry would be very advanced.[185]

Bettelheim's report concerning the 1962–65 plan judged as reasonable

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an annual rate of industrial output of 17.8 per cent, with rates above 26 per cent in mining, cement, transport equipment, and mechanical industries.[186] Boorstein (1968:80–81) mentions a planned increase of industrial growth greater than 140 per cent in 1965 over 1961. Nolff (1964:331), using both Cuban statistics and his own computation, gave a more cautious annual rate of 14.4 per cent in 1962–65 or 57.6 per cent for the whole period.

Achievements have fallen short of expectations. During the first meeting on national production, Guevara (1961:107–128) reported serious drops in the output of most industrial enterprises. He also stated: "Not one of the aggregate production goals has been fulfilled. In any case, only one or two of the 40 combined enterprises have done so." According to the UN index, rates of industrial output in the years 1962–65 were consecutively 2, 7, 9, and 12 per cent. ECLA, based on JUCEPLAN's statistics, reported rates of 5.1 and 2.8 per cent respectively for 1962 and 1963 (*ECLA-S* 1963:282). The Ministry of Industry supplied a 1962 rate of 10 per cent to Nolff (1964:323–325) and he in turn corrected it to 7 per cent. Bettelheim (1966:4) estimated the 1963 rate at 4 to 5 per cent, about one-fourth of his own computations for the average rate for 1962–65, and about one-fifth of Boti's goal for the same year (1963: 36).

In mid-1964, a Czech economist stated in a paper about Cuba published in Prague: "Production in many industrial plants dropped so rapidly that the entire economy was shaken to the core. In many enterprises, they [the Cubans] have still not re-established the pre-revolutionary level of production . . ."[187] The industrial report sent by the Cuban government to ECLA (1966:170) asserted that ". . . the industrial sector is not stagnant, but nevertheless growing at a lower rate than expected."

Table 4, based principally on statistics supplied by international agencies and the Cuban government shows either decline or stagnation of output between 1957–58 and 1964–65 in mining, manufactured gas, rayon and acetate fibers, sugar, and beer. Increases are registered in electric energy, cement, and cigarettes, although it should be noted that growth rates in the period 1950–58 were higher. Production of fish and salt has increased substantially. Doubtful increases are those in paper and board, tires, footwear, cigars, and evaporated milk.

Cuba's industrial report to ECLA (1966:154) acknowledged a reduction of mining production with the exception of nickel. PAU has published an index of mineral extraction for 1958–62 which indicates that Cuba output suffered a reduction (with the exception of salt) in all metals and minerals, including nickel (*PAU* 1963:2:34). UN and ECLA statistics show Cuba's output declining in 1957–65 in manganese, iron ore, and sulphur, but increases in salt (*UN-SY* 1966: 193, 203, 206; *ECLA* 1965:303).

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Concerning nickel production in 1964, the UN listed 17,000 MT, while JUCEPLAN reported 18,000 MT to ECLA, and Castro claimed in his speech on the ninth anniversary of the Revolution an output of 24,100 MT (*UN-SY* 1966:195; *ECLA* 1965:306; Castro: 2). According to Cuba's industrial report to ECLA (1966:15), production of nickel increased by 35 per cent between 1954–58 and 1961–65, while the UN has recorded a decrease of 11 per cent between 1957–58 and 1964–65. In order to compare both estimates, it should be taken into account that the highest output of nickel in the 1961–65 period was achieved in 1964–65 (*UN-SY* 1966:188).

In copper, ECLA reproduced in 1963 inflated statistics supplied by JUCEPLAN, but two years later reduced these figures by two-thirds, giving estimates similar to those released previously by the UN which are recorded in Table 4 (*UN-SY* 1966:188; *ECLA* 1963:271, 1965:301). Extraction of crude oil in 1965 was reported as 37,000 MT by the UN and as 57,400 MT by Castro. The latter asserted that oil output in 1967 was 113,600 MT, an almost two-fold increase over his own figures for 1965 (*UN-SY* 1966:201; Castro, "Speech on the Ninth Anniversary": 3). This increase seems quite dubious not only because there is no record of substantial oil discoveries, but also due to the time required for oil-well building.

As Table 4 illustrates, production of electric power rose steadily in the 1959–65 period, for a total increase of 29.5 per cent or 4.2 per cent annually. However, the increase in the 1949–55 period was 74 per cent, or 12.3 per cent annually. Production of manufactured gas increased by 8.9 per cent in 1959–64, but by 39 per cent in 1949–54.[188] One definitional problem has induced a distortion in these types of statistics. The Cuban government usually publishes data on the state output of electric power, instead of total output including private production. Because Cuban nationalization policy has resulted in an expansion of the state sector, the rate of growth of state output of electric energy has been almost two times higher than the rate of growth of total power production.

According to Castro, cement production grew by 15 per cent between 1958 and 1967 ("Speech on the Ninth Anniversary": 2). Yet in the years 1957–58, production increased by 70 per cent (*Memoria 1958*). Nolff (1964: 323) has reported a rate of growth of cement output of 25.3 per cent between 1958 and 1962, although the official rate is only 7.4 per cent (*PEL* 1966: 283–284). Table 4 suggests a decline in the output of cement since the peak year 1961.

In its industrial report to ECLA, the Cuban government stated (1966: 153) that in 1964, production of paper and board was 94,000 MT, that is, a two-fold increase over the pre-revolutionary maximum output of 45,000 MT. Less than one year before, another report prepared by Pernas, a specialist of

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the Ministry of Industry (1965:67–70) asserted that in 1958, Cuba's total consumption of paper and board was 155,000 MT, and in 1964 it had slightly increased to 157,000 MT, while consumption per capita had declined from 23.8 to 21.5 kilograms.[189] ECLA has reported lower Cuban production and consumption figures for 1964, i.e., 80,000 and 125,000 MT (*ECLA* 1965: 331–333). One important reason for the decline of consumption of paper and board was the 1964 curtailment of imports of these items by one-half in relation to 1958. But another more important cause, as noted by Pernas, was under utilization of installed equipment to produce pulp from sugar-cane bagasse. Due to inefficient operation, each ton of bagasse pulp produced by the socialist government cost a net loss of $15; hence, the installed capacity (53,500 MT) was only 56 per cent utilized. The five bagasse pulp plants reported in operation in 1964 had been installed by the end of 1958.[190] Import of wood pulp was recorded to be 23,000 MT in 1950, 35,000 MT in 1960, and 39,000 MT in 1964. There are no accurate figures available on 1958 imports, but an educated guess may be 32,000 MT. If all these facts are put together, it is difficult to accept as factual the alleged two-fold increase in the output of paper and board between 1958 and 1964.

Cuban figures on tire and tube production since 1959 are confusing, due to imprecise definitions; in some cases, output refers to tires alone, while in others it includes tubes. In any event, production of tires in 1958 amounted to 264,914 and declined to 232,337 in 1963. The figure reported by the UN for both tire and tube production in 1964 (451,000 units) seems to be inflated, both in the light of output in 1960–63 and 1965, and because the planned target for tire production of 1964 was 284,641 units. Usually tire output is about two-thirds of the combined production of tires and tubes.[191]

Another definitional problem concerns the production of footwear. Statistics occasionally refer to total output, which includes leather and rubber shoes, but most often they refer only to leather shoes. The data on the output of leather shoes is not consistent with total footwear output. This could be the result of varying output of rubber shoes, but also may be caused by statistical manipulation. Per capita consumption of footwear that was officially reported to be 2.5 pairs in 1959 went down to 1.4–1.7 pairs in 1963–65.[192] This latter computation is not consistent with footwear output for 1963–65, as shown in Table 4, and population growth as recorded in Table 1. Both tables suggest that per capita production was 2.4–2.6 in 1963–65. One may assume either that 60 per cent of Cuba's footwear output was being exported in those years, or that production figures have been inflated.

Production of cigars was officially set by the Cuban industrial report to ECLA (1966:156) at 450 million in 1957, and 600 million in 1966. However, the Party journal has pointed out that this increase is not as great as it

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seems because pre-revolutionary statistics did not include the large "clan-destine" production that was actually in effect. Another official source reports that total cigar production in 1956–58 ranged from 600 to 630 million, while "legal" factories turned out only 378 to 450 million units.[193] The nationalization of the tobacco industry has absorbed the "clandestine" producer (*chincha-lero*). Therefore, due to better statistical coverage the illusion of an increase in production in conveyed. In Table 4 proper allowance has been made for "clandestine" cigar output, so that a decline in output is evident after 1958.

According to Castro, production of evaporated milk declined from 355,000 cases in 1958 to 223,000 cases in 1964, but suddenly increased to 640,000 cases in 1965 ("Speech on the Eleventh Anniversary": 3). The figure recorded for 1965 cast serious doubt. It represents an almost three-fold increase over the output for 1964, and an almost two-fold increase over the highest production of evaporated milk ever reached in Cuba (see Table 4). In addition, production of fresh milk, as given by international agencies, was either stagnant in 1964 (*UN-SY* 1966:131) or decreased by 20 per cent in relation to the previous year (*ECLA* 1965:289).

5. *Foreign Trade*

Similar to other small developing countries, Cuba has depended sub-stantially on her foreign trade. In larger socialist countries, such as China and the USSR, foreign trade usually represents from 5 to 8 per cent of the GNP. Cuba's foreign trade percentage (about one-third of GNP) is close to that of Bulgaria and of Hungary (*PEL* 1967:253). Cuban economists and foreign specialists such as Seers (1964:7–20) have brought to light the three main flaws of Cuba's foreign trade prior to the revolution: (a) an excessive reliance on the export of a single product, sugar, while other leading products such as tobacco did not have a dynamic market, and mineral exports fluctuated vio-lently; (b) an over-dependency on a single market, i.e., the U. S. bought most of Cuba's sugar and tobacco crops, and supplied most of the needed imports; and (c) the tendency of the value of imports to exceed that of exports. This is a fair judgment, but the statistical problem comes to the foreground when alleged improvements in these fields due to revolutionary change are con-sidered.

The four-year plan, as well as the 1962 and 1963 annual plans, had among their objectives the diversification of production by reducing the proportion of GNP originating in the sugar sector. An ancilliary objective was the increase of the proportion of GNP originating in non-sugar agriculture and manufacturing sectors (Boti 1964:34–37). That the shift of foreign trade to the socialist bloc would help to solve some of the problems explained above was a common

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TABLE 4

Physical Output of Selected Industrial Products in Cuba: 1957–1966

	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
Mining										
Nickel[a]	20.2	17.9	18.0	12.8	14.8	16.6	16.7	17.0	17.0	......
Copper[a]	20.2	17.9	17.8	11.8	5.0	5.5	6.0	5.8	5.9	......
Manganese[a]	59.9	28.9	25.0	8.2	10.0	33.0	33.3	33.3	33.0	33.0
Iron Ore[a]	8.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	......
Chrome[a]	40.4	26.3	13.9	10.4	9.0	10.0	19.8	11.5	14.9	......
Salt[a]	68.0	68.0	60.0	59.0	60.0	71.0	90.0	87.0	106.0	100.0
Sulphur[a]	17.0	17.0	9.0	8.0	9.0	12.0	15.0	14.0	14.0	14.0
Crude Oil[a]	52.0	45.0	25.0	14.0	10.0	12.0	31.0	37.0	37.0	30.0
Energy										
Manufactured Gas[b]	59.0	75.0	60.0	60.0	60.0	50.0	64.0	66.0	......	......
Electric power[c]	2357.0	2589.0	2806.0	2981.0	3030.0	2998.0	3057.0	3250.0	3355.0	......
Manufacturing										
Cement[a]	672.6	735.6	672.7	813.3	870.9	778.9	811.6	805.3	801.1	750.0
Tires & Tubes[d]	215.8	344.6	......	343.0	362.0	391.0	364.0	(451.0)	265.0	......
Paper and Board[a]	......	(45.0)	65.0	79.0	......	......	......	80.0	......	......
Footwear[e]	......	20.0	16.7	14.1	7.1	11.9	18.7	18.8	16.2	......
Rayon & Acetate Filaments[a]	9.8	6.2	9.1	7.7	4.1	3.2	1.8	1.1	1.3	......
Food										
Sugar[a]	5672.0	5782.0	5964.0	5862.0	6767.0	4815.0	3821.0	4590.0	6082.0	4867.0
Fish[a]	22.0	21.9	28.2	31.2	30.4	35.5	35.5	36.4	40.2	43.2
Beer[f]	1292.0	1232.0	1557.0	......	1394.0	927.0	891.0	1036.0	993.0	1088.0
Evaporated Milk[g]	319.0	336.0	129.0	214.0	314.0	360.0	267.0	223.0	(640.0)	......
Cigars[h]	......	628.0	591.0	......	......	......	369.0	616.0	655.0	622.0
Cigarettes[h]	9803.0	10197.0	11434.0	......	13611.3	14400.2	15346.8	16015.3	16462.3	18455.0

[a] Thousand metric tons   [e] Million pairs (both rubber and leather)   [f] Thousand hectolitres   [h] Millions

[b] Million cubic meters   [c] Million KW/h   [d] Thousand units   [g] Thousand cases   ...... Not available

Figures in parentheses are doubtful.

Source: *UN-SY 1966; ECLA 1963, 1965; PAU 1960, 1961, 1963; AEC 1956; CEY 1959–60; PEL 1964, 1966, 1967;* and "El desarrollo industrial de Cuba," *CS,* 6:56:128–183 (1966). Also: Emilio Lugo, "Ia industrial del tabaco torcido y sus perspectivas," *CS,* 3:21:58, 65 (1963); "Hacia una mejor calidad de los artículos de consumo," *CS,* 6:53:127 (1966); "Electrificación y desarrollo económico," *CS,* 6:59:126 (1966); *PEL,* 7:231:10 (1967): *Verde Olivo,* 61–63 (February 4, 1968); and Castro, "Speech on the Eleventh Anniversary of the Events of March

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citation in Cuban literature of the early 1960's. Cuban data does not appear to support this hypothesis. Since 1959 there has not been a single year with a positive balance of trade, as is illustrated by Table 5. In 1951–58 there was a cumulative surplus in the balance of trade equal to $420 million *pesos,* but in 1959–66 there was a negative trade balance of $1.6 billion *pesos.*[194] Exports in the revolutionary period have not reached the 1957–58 levels, although in 1963–64 and in 1966 imports did. Except for 1963, the volume of total transactions was higher in 1957 than in any other year.

Concerning foreign trade diversification, Table 5 suggests that at the beginning of the revolution there was a reduction in the proportion of sugar exports related to total exports, compensated for by a rise in the export of tobacco and other products. Thereafter the situation rapidly changed, and in 1961–64 the proportion of sugar exports to total exports had risen above the 1957–58 proportion, while there was a relative decrease in the exports of almost all other products. Summarizing this situation, a Czech specialist stated: ". . . as a result of a lower production of certain traditional export articles (tobacco, coffee, minerals), the share of exports of sugar in the last years was actually higher than in the last pre-revolutionary period . . ."[195]

Cuban trade with the U. S. in 1947–58 comprised an average of 67 per cent of total Cuban transactions, while trade with the socialist bloc (mainly the USSR) averaged 77 per cent in 1961–66 (see Table 5). In 1962–64 Cuba incurred a negative trade balance with the socialist bloc and enjoyed a positive balance with the non-socialist nations, although in 1965–66 the situation had reversed.

The American economist Boorstein has made a realistic and honest evaluation of Cuba's balance-of-payment problems in the 1960–62 period. (At the time, he was a foreign-trade advisor to the Cuban government.) Yet, when making forecasts he conveyed the same kind of optimism that he had criticized the Cubans of having. He noted, "By the end of this decade, the full benefits of socialism will begin to show themselves in Cuba. . . . Increased output of sugar, nickel and meat will have solved the balance-of-payments problem and begin to produce a surplus" (1968:130–31, 191–92, 225). Tables 3 to 5 do not support Boorstein's forecast. The balance of payment situation was worse in 1963 than in any previous year, and after a slight improvement in 1964–65, it reached a peak deficit of $344 million *pesos* in 1966.

6. *Employment and Unemployment*

Seasonal unemployment in agriculture, the worst structural malaise of pre-revolutionary Cuba, has been eliminated since the early 1960's, because of increased employment in state farms, rural to urban migration, and the expan-

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TABLE 5

Cuba's Foreign Trade: 1957–1966

Years	Value Composition (million *pesos*)				Percentage Distribution of Exports by Product				Percentage Distribution of Trade by Region		
	Exports (f.o.b.)	Imports (c.i.f.)	Total Transactions	Trade Balance	Sugar	Tobacco	Minerals	Others	U.S.	Socialist Bloc	Others
1957	807.7	772.9	1,580.6	+ 34.8	81	6	6	7	66	—	34
1958	733.5	771.1	1,510.6	− 37.6	81	7	3	9	62	2	36
1959	637.7	742.2	1,380.0	−104.5	77	9	2	12	66	2	32
1960	618.2	637.9	1,256.1	− 19.7	80	10	1	9	46	24	30
1961	624.9	702.6	1,327.5	− 77.7	85	6	1	8	4	75	21
1962	520.6	759.2	1,279.8	−238.6	83	5	7	5	2	82	16
1963	542.9	866.2	1,409.1	−323.3	87	4	7	2	—	67	33
1964	713.8	1,008.5	1,722.3	−294.7	88	4	5	3	—	80	20
1965	686.0	865.0	1,551.0	−179.0	....	....	....	....	—	77	23
1966	592.0	926.0	1,518.0	−334.0	....	....	....	....	—	80	20

(....) Not available

(—) Negligible or no trade at all

Source: Columns 1 to 4 *RBNC 1956–59; PEL 1966*: 292, 294; *PEL 1967*: 260–261; and *UN-BS 1968*: 22:4:102–103. Columns 5 to 8 from *CEF*: February, 1960; *AAC 1962*: 26:61; *PEL 1967*: 256; and *PAU 1963*: 3:125. Columns 9 to 11 from *PEL 1967*: 257; and Guevara, "Informe de la delegación cubana al seminario económico afroasiático," *NIRE*: 3:13:33 (1965).

sion of the number of fellowships granted to rural adolescents. This does not mean, however, that the problem has been thoroughly and definitely eliminated. For example, redundant employment in the service sector has caused inefficiency and waste, while labor shortages in the countryside have induced serious diffiiculties in the economy.[196]

The distortion of employment statistics, particularly in industry, has led some foreign specialists and international agencies to erroneous conclusions. Cuban statistics after 1959 tend to inflate pre-revolutionary figures of unemployment, and to deflate the revolutionary ones; the opposite is true concerning employment. As early as 1953, Castro asserted that there were 700,000 unemployed workers.[197] Yet the 1953 population census later gave a figure of 173,811 overt unemployed, plus 266,512 workers in varying degrees of underemployment (e.g., employed less than 30 hours per week or working without pay for a relative) for a total of 430,323 workers either unemployed or underemployed.

Concerning unemployment in 1958, divergent estimates have been released by socialist Cuban officials and agencies; e.g.: 600,000 by Party leader Roca; 500,000 and 657,000 by President Dorticós; 627,000 by the Ministry of Labor; and 515,000 by the Ministry of Foreign Relations.[198] The survey conducted by the National Council of Economics (1958: Tables C and 2) was

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the most accurate study of employment and unemployment made prior to the revolution. It estimated overt unemployment at 361,000 during 1956–57, while giving 154,000 people working without pay for a relative, plus another 150,000 paid workers employed less than 30 hours per week. Socialist officials and agencies obtained the above estimates by indiscriminately adding all these figures, mixing overt unemployment with varying degrees of underemployment and part-time employment.

The occupational distribution of the labor force in 1956–57 supplied by this survey is reproduced in Table 6, column one. Unfortunately, the survey did not separate employment from unemployment, and unemployment was spread throughout the various occupational categories. In 1962 the Ministry of Labor released an estimate of employment in 1958, based principally on the 1956–57 survey. To compute this estimate a figure of 627,000 unemployed was utilized; this was derived by adding figures on overt employment, several types of underemployment, and part-time employment. As a result, the official estimate of 1958 employment, which is reproduced in column two of Table 6, is downwardly biased. The author's estimate of 1958 unemployment distributed by occupational categories, shown in Table 6, column 3, is helpful when making comparisons with Cuba's official data.

In April, 1960 in the midst of the "busy season" (sugar harvest) the labor census conducted by the Ministry of Labor collected overt unemployment data which are listed in Table 6, column four. Neither information on people working for a relative without pay, nor on those working less than 30 hours per week was gathered by the census; hence, underemployment is not included in the reproduced figures. The census counted 472,000 overt unemployed in the busy season, a figure substantially higher than the 360,000 annual average computed by the 1956–57 survey which included unemployment both during the sugar harvest and the "dead season."[199] Table 6 indicates that in 1960, unemployment in industry, construction and transportation was higher than in 1958, but it was substantially lower in the agriculture, service, and trade sectors.

The survey conducted among industrial workers by the sociologist Zeitlin (1967:23, 45–65) indicates that of those who had worked six months or less before the revolution, 79 per cent were working on the average ten months or more since the revolution. Another 19 per cent were working between seven and nine months a year. In other words, 98 per cent of the former unemployed and underemployed in this sector had in 1962 more regular employment than in pre-revolutionary days. Zeitlin's sample excluded workers in small industries, as well as in agriculture, trade, construction, transportation and service sectors. A total of 92 per cent of the labor force was not covered by the survey. A doubtful point in the survey's results is how the skilled manpower working in the highly concentrated and large industrial enterprises, controlled by the

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Ministry of Industry (from which the sample was taken) was not able to find stable jobs before the revolution but found them after 1959. Zeitlin's conclusions would have been more valid if he had taken the sample among agricultural or construction workers (affected by seasonal fluctuations) or among the underemployed in the service sector. These groups of the labor force are relatively easy to place in agricultural jobs during the slack sugar season, or in public work, defense activities, or the state administration. Yet industrial jobs in large factories are not as easy to create in a short period of time.

One point against Zeitlin's conclusion is that unemployment in industry increased between 1958 and 1960, as may be seen by comparing columns three and four of Table 6. One-third of the 1960 unemployed was industrial workers, the occupational branch having the highest unemployment incidence. On the other hand, Zeitlin's conclusion could be supported by the promises of the Minister of Industry Guevara who, at the end of 1960, announced that 20 new factories would be installed in 1961 or before the end of 1962. Basing their assumptions on this figure, those responsible for the four-year plan (1962–65) set a high target of employment creation in industry for 1962 (see Table 6, column 5). The Chilean Nolff (1964:325) apparently trusted Guevara's promise and took as reality the 1962 targets, by arguing that "Part of the employment figures registered for 1961 and 1962 corresponds to the opening up of 30 new plants." By mid-1962 a statement by Guevara tempered previous expectations: "We cannot say yet that the new industries are reducing unemployment because the first large factories will start to operate at the end of 1962 and early 1963."[200] It should be noted that both Zeitlin's survey and Nolff's study were completed by September, 1962. Towards the end of the year, Guevara postponed his own deadline, this time with a safer margin: "In this four-year period ending in 1965, none of the basic industries acquired from abroad will be in operation yet."[201]

In the mid-1960's the Cuban government published an estimate of actual employment in 1962, which is reproduced in Table 6, column six. These figures suggest that planned employment targets were to a significant extent unfulfilled in all occupational sectors except in trade and services. Actual employment in industry and mining was 37 per cent below the planned target for 1962, and 19 per cent below the downwardly biased estimate for 1958 which was prepared by the Cuban government. How was it possible to reduce industrial unemployment in 1962 if by that time there were 298,000 industrial jobs, that is, 68,000 fewer industrial jobs than in 1958 (366,000 jobs)?

ECLA's economic survey (1963:266) provides another case of erroneous conclusion in the matter of employment expansion. Based on the unrealistic employment targets of the four-year plan, as well as on an estimate of employment for 1956–57 (which was even lower than the 1958 estimate prepared by

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TABLE 6

Employment and Unemployment in Cuba: 1957–58, 1960 and 1962
(In Thousands)

Occupational Categories	1956–57 Survey Labor Force (1)	1958 Estimate of Employment (2)	Estimate 1958 Unemployment & Underemployment (3)	1960 Census Unemployment (4)	1962 Target of Employment (5)	1962 Actual Employment (6)
Agriculture	855	598	257	78	915	867
Industry and Mining	384	366	18	146	473	298
Construction	84	54	30	......	150	99
Transportation & Communication	105	94	11	17	121	74
Trade of Distribution	268	180	88	44	188	201
Services	418	289	129	66	339	409
Not Specified	90	......	94	122	......	238*
Unemployed and Underemployed	......	627	......	......	215†	214†
Totals	2,204	2,208	627	472	2,401	2,400

Explanation of Table 6
(1) Classification of the usual occupation of the total labor force (including those unemployed). This is not a distribution of those employed; the unemployed are distributed among occupations and were not disaggregated in the survey. Industry and construction figures were originally clustered and have been disaggregated by the author based on data from the National Bank of Cuba.
(2) Gross estimate fabricated by the Cuban planners in 1962 to separate unemployment and underemployment from actual employment, based on 1956–57 data. The figure of 627,000 unemployed and underemployed is actually an addition of the overt unemployed, plus people working without pay for a relative, plus those employed working less than 30 hours per week.
(3) Distribution of estimated unemployment and underemployment for 1958 among occupations. Computed by the author mainly by subtracting coulumn 2 from column 1.
(4) Overt unemployment according to the April 1960 census; underemployment was not included. Construction figures are included in industry-mining.
(5) Employment targets set by the 1962–65 Plan.
(6) Actual employment reached in 1962 according to official estimates.
* The unusual number of people in this category (compare it with 90,000 in 1957–58) plus other data suggest that this figure includes either hidden unemployment, or employment in services or both.
† Overt unemployment only.
Source: Column 1 from *El empleo, el subempleo y el desempleo en Cuba*, Table 5. Columns 2, 4 and 5 from *Censo laboral 1960* and *Primer estudio provisional del balance de recursos del trabajo*, in Seers, 39, 52. Column 3 has been computed by the author based on figures from columns 1 and 2, and additional information. Column 6 based on scattered data from *Profile of Cuba*, 54–58.

Cuba) ECLA projected increases of employment for 1963 over 1958 that in some cases (e.g., industry and construction) were as high as 47 per cent. Early in 1966, the industrial report sent by Cuba to ECLA (Part Two: 94) acknowledged that the industrial sector was giving employment to only 12

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per cent of the labor force. If this percentage is applied to the estimated labor force at the end of 1965 (2.5 million workers) the resulting number of employed industrial workers (300,000) would be similar to that in 1962 (298,440) but much less than that in 1958 (366,000). If the employed labor force instead of the total labor force was used in the computation, industrial employment at the end of 1965 would be even smaller, i.e., some 282,000 workers. By any token, the revolutionary target for attaining in 1965 an industrial employment of 498,000 workers was a gross exaggeration.

7. *Public Health, Housing and Education*

Public health statistics after the Cuban revolution suggest an increase in medical personnel and facilities available (particularly in the countryside) as well as in the commitment of state funds to develop preventive medicine. Quantitative data do not reflect, however, an important fact which is quality of personnel and services. From 1959 to 1965 some 2,000 physicians (one-third of the total) left the country. To fill this vacuum, medical schools reduced their standards in terms of time and study in order to graduate more doctors. Medical facilities were improvised and graduates were put to work without sufficient training. Trade problems created a scarcity of medicines and surgical equipment. In summary, although in 1961–1964 medical facilities in the countryside were remarkably increased, there was a decline in the general standards of public health. This is reflected by the increase of general and infant mortality rates in 1961–64 as shown in Table 1. The situation since that time has apparently improved, but health standards have not reached pre-revolutionary levels.

Official statistics have created confusion by conveying the impression of an uninterrupted, steady, and overall elevation of public health facilities and standards since the early revolutionary days. For example, in the last days of 1962, the Minister of Public Health reported that there were 98 hospitals in Cuba, with 29,170 beds. Scarcely two months later President Dorticós announced that there were 146 hospitals with 43,721 beds.[202] This apparent increase of 50 percent in less than two months is not explained by an actual increase of such facilities, but rather by the state confiscation in January 1963 of all private hospitals. In mid-1963 the chief of the Cuban delegation to the ILO meeting in Geneva stated that the number of hospitals in Cuba was 144, with 38,199 beds, a reduction of the facilities available at the beginning of the year.[203] Between 1964 and 1968 high officials of the Ministry of Public Health supplied divergent figures, ranging from 145 to 162, on the number of hospitals existing in 1964.[204]

Similar contradictions exist in the ratio of physicians to inhabitants. In

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1962 the President of the University of Havana stated that there were 9.3 doctors per ten thousand inhabitants. Two weeks later the Minister of Public Health noted that the rate was only 6 per ten thousand.[205] This was a lower rate than that of 6.05 reported by the 1907 population census.

Albert Sabin, American scientist and researcher who visited Cuba in 1967, stated that the improvement of medical services had had "an immensurable impact" on the health of the nation, an effect that could be measured in various ways, such as declining mortality and morbidity rates.[206] Sabin candidly admitted not having double-checked Cuban mortality rates. Tables 1 and 7, based primarily on Cuban statistics, indicate that he should have done so before making his evaluation.

On some occasions morbidity statistics are composed in such a way as to create the illusion that infectious diseases have been substantially reduced throughout the revolutionary period, in comparison with pre-revolutionary standards. To accomplish this, 1962 is taken as a starting point. This was the peak year in 1957–66 concerning high morbidity rates, as Table 7 illustrates. For example, reported cases of malaria decreased from 3,519 in 1962 to 125 in 1965. But in 1958 only 128 cases were reported, a per capita rate below that of 1965. (Yet reported cases in 1966 declined to 36, a noticeable improvement over 1957–58). It may be alleged that the increase of reported cases of infectious diseases after 1959 is the result of better statistical coverage. This argument, however, loses weight when contrasted to vital statistics presented in Table 1. Both infant and general mortality rates rose in the 1959–62 period, along with morbidity rates. The system for recording deaths in 1959–62 was the same as that in force in 1958.

A serious difficulty when comparing housing construction before and after 1959 is the lack of precise statistics on number, space, and cost of dwelling units. Private construction prior to the revolution was concentrated in urban areas, with emphasis on apartment buildings which were counted as one housing unit, although they could be composed of several apartments. Fifty per cent of state housing construction during the revolution has been small houses in rural areas. Estimated value of building construction is not an accurate measure for comparative purposes either, because data do not disaggregate housing from commercial or business edifices. In addition, these data were regularly published until 1960; since that time only occasional estimates on the value of housing construction have been released. Construction costs per dwelling unit were possibly higher in the pre-revolutionary period than after 1959 because of the revolution's policy of building low-cost dwellings. On the other hand, growing inflation since 1959 has increased construction costs.

According to socialist officials Rojas (1964:4) and Arrinda (1964: 11–21), in 1945–58 some 143,170 dwellings were built in Cuba, an average

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TABLE 7

Reported Cases and Rate of Infectious Diseases in Cuba: 1957–66

Diseases	Reported Cases									
	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
Brucellosis	4	2	8	5	16	35	37	53	....	....
Diphtheria	224	156	316	551	1335	1368	923	640	625	359
Gastroenteritis*	....	2784	2887	....	....	4157	2974	2525	2012	1662
Hepatitis	....	....	....	....	349	3615	4659	5249	8834	8977
Leprosy	32	27	190	134	122	291	159	156	....	....
Malaria	270	128	141	1290	3230	3519	833	624	127	36
Measles	184	....	684	728	31	1590	6799	2151	....	....
Poliomyelitis	96	103	288	330	348	46	1	1	0	0
Syphilis	....	46	47	566	482	805	1691	1863	....	....
Tetanus	....	....	274	311	....	....	358	332	....	....
Tuberculosis	1832	1177	1849	1856	2625	2725	2768	3909	....	....
Typhoid Fever	457	331	865	1191	948	1007	420	1158	236	169

Diseases	Rates (per 100,000 inhabitants)									
	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
Brucellosis	——	——	.1	——	.2	.5	.5	.7	....	....
Diphtheria	3.5	2.4	4.7	8.1	19.2	19.4	12.8	8.6	8.2	4.6
Gastroenteritis*	....	42.5	43.1	....	....	58.8	41.1	34.0	26.4	21.3
Hepatitis	....	....	....	....	5.0	51.1	64.4	70.6	115.8	115.1
Leprosp	.5	.4	2.9	2.0	1.8	4.1	2.2	2.1	....	....
Malaria	4.2	2.0	2.1	19.0	46.6	49.8	11.5	8.4	1.7	.5
Measles	2.9	....	10.3	10.7	.4	22.5	94.0	28.9	....	....
Poliomyelitis	1.5	1.6	4.3	4.9	5.0	.7	....	....	....	....
Syphilis	....	.7	.7	8.3	6.9	11.4	23.4	25.1	....	....
Tetanus	....	....	4.1	4.6	....	....	4.9	4.5	....	....
Tuberculosis	28.7	18.0	27.6	27.2	37.8	38.6	38.3	52.6	....	....
Typhoid fever	7.1	5.1	13.0	17.5	13.7	14.2	5.8	15.6	3.1	2.2

* Deaths
— Negligible
.... Not available

Source: *PAU 1960–1964,* PAU, *Health Conditions in the Americas*; Font Pupo, "Hacia la salud pública socialista," 33–38, and "El factor social, lo determinante para la salud," 65; *Granma,* 6, April 3, 1968; *GWR,* 6, June 30, 1968; Ministerio de Salud Pública, *Salud pública en cifras* (La Habana, 1968); and Castro, "Discurso en el policlínico del Valle del Perú," Radio Havana, January 8, 1969.

of 10,020 per year. The same source noted that only one-third of the housing demand from a growing population was satisfied in that period. Pre-revolutionary statistics indicate that in 1945–57 the housing gap was being reduced at an average rate of 7 per cent annually (*RBNC* 1958:4:8:153). Rojas and Arrinda computed a total of 85,447 dwellings constructed in 1959–63 by

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state and private builders, an annual average of 17,089 dwellings. Comparing annual averages of 1945–58 and 1959–63, an increase of 70 per cent in dwelling construction is evident; this, noted the officials, satisfied half of the additional housing demand during the period.

Statistics on the value of building construction contradict with the assertion that housing construction increased significantly in 1959–60 over 1957–58. The National Bank estimated the value of building construction at $77,368,000 in 1957, $74,028,000 in 1958, and $33,587,000 in 1959. In monetary terms, building construction in 1959 declined by 54.6 per cent below 1958, and by 56.5 per cent below 1957. While the value of building construction was $6,201,000 in March 1958, it decreased to $2,384,000 in March of 1960, a decline of 61.6 per cent (*Memoria* 1957–58 and 1958–59). The National Association of Architects made the following computations of the value of building construction: $61,544,000 in 1958, $20,375,000 in 1959, and $12,993,000 in the first nine months of 1960 (*CEF*: August–October 1960). In any case the decline in the value of building construction between 1958 and 1960 was above 50 per cent. The average value of building construction in 1955–57 was $74.7 million *pesos* annually (RBNC 1958:4:7:7), while the average value of housing construction (both state and private) in 1959–61 was $34.7 million *pesos* per year (*PEL* 1964:9:100:14).

The principal reasons for the decline in building construction after 1959 are the revolutionary legislation and the decline in imports. The March 1959 law reducing urban rent by 50 per cent, and the October, 1960 law expropriating all rental houses and buildings, and prohibiting all future renting of real estate, paralyzed private construction in Cuba. It is true that state housing construction in 1959–60 was among the highest in history, but the reduction of private construction to almost zero after October, 1960 possibly offset the increase in state housing construction. Since 1961 the scarcity of building materials and equipment has induced, in turn, a reduction in the construction activities of the state sector. Early in 1963, the government agency in charge of maintenance of real estate in urban areas announced that in that year housing facilities would not be expanded, nor would housing under construction be completed, due to the scarcity of building material.[207]

At the closing meeting of the National Builders Congress held in 1964, Castro acknowledged a deficit of 655,000 dwellings in Cuba, as well as the urgent need to repair another 200,000. To solve the deficit he proposed a program to build two million houses by 1990, at the rate of 80,000 per year.[208] One year later the Cuban Premier increased his previous target of dwelling construction to 100,000 units per year, but explained that because the nation's cement output would be insufficient to meet such a plan, the input of cement per dwelling unit would be substantially reduced.[209] Early in 1968 Castro again

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discussed the housing problem. At this time he asserted, "In the years of the Revolution [1959–67] we have not built more than 10,000 dwellings per year, whereas we need to build some 100,000 dwellings annually."[210]

The Rojas-Arrinda estimate of 17,089 dwellings constructed annually in 1959–63 should be contrasted to the recent Castro estimate of 10,000 dwellings in 1959–67. If the latter is accepted, either the former estimate was a gross exaggeration, or dwelling construction in 1964–67 declined to an average of 4,553 annual units. Castro's estimate of 10,000 dwellings in 1959–67 is below the Rojas-Arrinda estimate of 10,020 dwellings for 1945–58. The Cuban Premier also suggested that the housing deficit in 1967 was 810,000 dwellings, a substantial increase over his own estimate of the 1964 deficit, i.e., 655,000 dwellings. Due to the population increase between 1958 and 1967, dwelling construction per capita in this period seems to have declined from 1.5 to 1.2 units per one thousand inhabitants.

Statistics on education are among the most accurate, consistent and detailed in Cuba. Contradictions are minimal, and series cover a long period (i.e., 1958–1967) facilitating comparisons of the pre-revolutionary situation with performance in the latest decade. Table 8 shows that achievements in terms of number of schools, teaching personnel and student enrollment have been quite remarkable, particularly at the primary and secondary levels. Some qualification, however, is in order.

The nationalization of private schools in mid-1961 resulted in an apparent increase (registered either in 1960–61 or 1961–62) in the number of schools, teachers and enrolled students at primary, secondary and vocational levels, but without an actual expansion of services. In 1956–57 the proportion of the private sector in total education was approximately as follows: 15 per cent at the primary level; 30 per cent at the secondary level; and 20 per cent at the college level. The Ministry of Education does report that most data of the period 1959–61 is limited to the state sector alone. However, the report neglects to mention that nationalization was among the principal causes of the big increase in educational services registered in 1960–62. Further increases in these services are exclusively the result of real growth of state facilities.

Prior to 1959, data on primary schools disaggregated kindergarten and nursery schools from primary education while, since the revolution, both types seem to be clustered, conveying the impression of an increase in services which did not actually take place in the indicated magnitude. At the teacher training level, data since the early 1960's include "in-service training," that is, students who are learning while or through teaching. In addition, in 1962–63 new schools to improve teaching skills of graduated teachers whose training was found to be inadequate began to operate, resulting in a dramatic increase in total enrollment in this field. Finally, official data on higher education is

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upward biased due to the inclusion in the series, since 1962, of pre-college courses, and courses for training peasants and workers without formal secondary-school study. In Table 8 the author has tried to eliminate these sectors from data on higher education, but a similar correction has been impossible to implement with respect to the other levels.

The above discussion leads us to the problem of the quality of teaching. As in the case of the public-health sector, since 1959 the nation's stock of skilled teachers and professors, particularly at the secondary and college levels has been seriously affected by emigration. In order to fill the gap, which was actually broader due to the revolutionary government's commitment to expand educational services substantially, the Ministry of Education has softened the requirements for teacher training, allowed bright students to teach even at the college level, and has recruited large contingents of youngsters with poor educational background for these careers. Another factor difficult to quantify is the well-known emphasis on political indoctrination at all levels. This may ultimately have a positive result in terms of ideological support by the new generation but, in addition to taking time away from teaching and studying, it could hamper scientific inquiry and initiative in the future.

Therefore, comparisons between educational services before and after 1959 should be made in the light of the possible deterioration of quality. On the other hand, the costs and distribution of said services as well as the composition of the student body seems to be better now than before, both in terms of equalization and economic development. Since 1961–62, practically all education is available free of charge and, in addition, a remarkable number of fellowships is granted to youngsters, especially from rural areas, in order to free them from work and permit them to study. A large number of facilities has been built in the countryside. Thus in 1959–61 the government expanded the number of schools and personnel in rural areas by more than twofold; yet the growth of these services has been practically stagnant since 1962–63. There is also more emphasis now on vocational and technological training, both at the secondary and college levels, corresponding with a decline in the study of humanities. These new tendencies favor the elimination of socioeconomic distinctions between urban and rural areas, and foster an increase in the supply of engineers, technicians, administrators, physicians and other skilled personnel so desperately needed for ambitious Cuban plans of socioeconomic development.

IV. GUIDELINES FOR A BETTER USE OF CUBAN STATISTICS

As this study has indicated there is no single and simple method to cope with the difficulties posed by Cuban statistics. This section provides a few

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TABLE 8

Education in Cuba: 1956/57 and 1958/59–1966/67

	56–57	58–59	59–60	60–61	61–62	62–63	63–64	64–65	65–66	66–67
Primary										
Schools	8046	7567[b]	10381[b]	12248	12843	13780	13845	13999	14141	14442
Staff	28421	17355[b]	24443[b]	29924	33916	36613	37843	38473	41922	43056
Enrollment	746880	717417[b]	1092264[b]	1136277	1166267	1207286	1280664	1323925	1321768	1353899
Secondary										
Schools	171	--------	214[b]	315	317	335	343	357	378	416
Staff	2029	2580[b]	3612[b]	5224	6500	7380	8064	8467	9584	10196
Enrollment	57401	63526[b]	59582[b]	89754	109324	123118	137930	136429	148991	170285
Vocational										
Schools	73	40[b]	31[b]	48[b]	54	108	126	128	122	127
Staff	2781[a]	1277[b]	1025[b]	1180[b]	1951	2774	3585	3153	3339	3770
Enrollment	21063[a]	15698[b]	20495[b]	23519[b]	41070	42502	55173	52667	40541	46376
Teacher-Training										
Schools	19	19	9	8	11	14	15	15	14	12
Staff	868	692	483	438	409	741	1123	1262	1429	1438
Enrollment	8860	8899	10115	7511	8399	18525	25026	25845	30640	25574
Higher										
Schools	8	6	6	6	3	3	3	3	3	3
Staff[c]	1332	1053	1046	992	1482	1987	2620	2835	3032	4151
Enrollment[d]	24273[a]	25514	19450	19822	16853	20537	23892	23901	24939	27523

[a] 1955–56
[b] Excludes private sector
[c] Includes staff for preparatory schools for workers and peasants; the sharp increase since 1962–63 is due to the creation of new schools for training secondary school teachers and peasants and workers.
[d] Excludes preparatory schools for workers and peasants; the sharp increase since 1962–63 is due to the creation of a new school for training secondary-school teachers.

Sources: *AEC 1957; CEC 1966; UNESCO, Statistical Yearbook, 1966* (Louvain, 1968).

practical recommendations or guidelines that have been useful to the author in his research on Cuba in the last seven years. These guidelines are not innovations in the methodology of statistical research, but are merely an application to Cuba of the classical cautions concerning the misuse of statistics. Said guidelines could be similarly applied to other developing countries which are characterized by strong politization. The combination of a primitive statistical system, autocratic government, state control of data and ideological bias may end up with coincident statistical distortions despite the philosophical or political coloration of the country in question. The case of the Dominican Republic under the conservative dictatorship of General Rafael L. Trujillo provides a good example.

The implementation of the following guidelines does not offer a complete guarantee of success in ascertaining the facts. Scholars should develop auxiliary techniques in agreement with the field of research and the chronological period with which they work.

1. Researchers on Cuba should make the laymen aware of the difficulties and defects of statistics produced by this country. Explanations of disparate definitions, faulty use of percentages, misleading time base, conscious or unconscious bias, comparability problems, improper measurements and other common misuses of Cuba's statistics are extremely important. If there is no way of checking the validity of data, at least a discussion on the various factors in favor of or against reliability should be included. Conclusions based on doubtful and/or incomplete data should always be tentative.

2. Due to poor reliability, quantitative data should be interpreted in the light of qualitative type of information. Complex research entirely based on figures may be useless or result in erroneous conclusions. Scholars should check additional material such as technical articles published in specialized journals and leaders' speeches on the subject. Historical antecedents should be traced as far as possible. A good approach is to collect available quantitative and qualitative data on a topic, then to follow new events for several months or even years. This could ultimately result in either contradictions or relative agreement on crucial aspects. In some cases a qualitative evaluation by a specialist may prove to be more valid than a set of official data.

3. Isolated statistics or data concerning a short interval could be misleading. An attempt should be made to gather additional data both prior to and following the period in question. A ten-year term, as in tables of this sudy, is an adequate period. This allows the analyst to develop a better perspective and to contrast alleged achievements in one year with previous performances. The socialist government of Cuba has shown a tendency to distort statistics for the pre-revolutionary period. Typical of this attitude is the inflation of mortality rates or unemployment figures prior to 1959, or the purposely reduced figures

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concerning GNP, output or employment. Estimates released by socialist officials or agencies concerning the 1950's should be contrasted to statistics published in the same period by the National Bank, the 1953 population census or the available statistical yearbooks.

4. Time is an important factor when evaluating the reliability of socialist statistics. The period 1959–61 was characterized by disorganization and a decline in the quantity of data collected. There was also some decline in quality but the main defect in this stage is the vacuum of information. Figures published between 1959–61 by the National Bank, the sugar statistical yearbook, foreign trade agencies, and some financial journals (e.g., *CEF*) are accurate. Other types of statistics should be accepted more cautiously. Statistics generated in 1962–63, the period of the preparation and implementation of planning, although abundant, are of poor quality. Since 1964, corrections of these statistics either by Cuban offices or by international agencies have been frequent. Studies published by foreign advisors visiting Cuba in 1962–63 are a valuable source which may be contrasted with official data. Planned goals should be carefully distinguished from actual performances; in several cases fulfillment of targets in 1962–63 fell far below the expected performance. There was a serious effort to point out the defects of statistics in 1964–65, and possibly the quality of statistics improved at that time. However, insufficient information impedes the determination of whether recommendations from Cuban statisticians were actually implemented, and if so, what degree of improvement was achieved. Self-criticism released during this period may be helpful in evaluating the accuracy of certain data.

5. Eagerness to obtain and utilize recent data often leads to incorrect inferences. Statistics in the two years preceding the research should be crosschecked with other sources, especially against figures published by international agencies. Usually statistical yearbooks of the UN, FAO and ECLA are two years behind the current year; hence, it is fair to say that a study made in 1969, for example, should not include post-1967 data. Contradictions between international agencies are frequent. FAO figures on agricultural output tend to be larger than similar data published by the UN or ECLA. Data on physical output and other matters published by ECLA's 1963 economic survey are substantially above the corrected figures published in the 1965 survey.

6. The quality and reliability of Cuban statistics vary largely according to the subject matter. The following subjective judgements are made on a relative scale. Foreign trade statistics are possibly the best in terms of accuracy, sophistication and continuity. The quality of demographic statistics, at least those published by JUCEPLAN, has recently improved, and available data on this matter is adequate. Statistics on education and public health are accurate but need some clarification. Quantitative data in these fields do not reflect the sharp decline in

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the quality of services. Labor and industrial statistics are very incomplete, contradictory, highly aggregative and imprecise, and therefore should be submitted to careful analysis. National account and agricultural statistics are among the worst, there being the following connection between them: that GNP is essentially generated by the agricultural sector and these data are poor and inaccurate.

Reasons behind the divergent quality of sectorial statistics are multiple. Technical aid from international agencies, such as UNESCO and WHO, has been crucial in improving the quality of data in education, public health and demography. Besides, these sectors are those in which the Cuban government can show true improvement and hence the availability and detail of data are much better than in other sectors. Exogenous factors have played a significant role also; thus, the need for precision in planning Cuban foreign trade with other planned economies of East Europe (together with a concentration of specialists both foreign and domestic in this sector) has resulted in the high quality of foreign trade data.

7. Cross-checks for internal consistency may reveal significant contradictions or give proof of cohesion. For example, population and GNP data may be contrasted in order to check statistics on per capita GNP. In turn, figures on private consumption, government expenditures, investment, and foreign trade may be compared to aggregated GNP figures. Finally, data on birth, mortality and migration may be checked against population growth figures. The main obstacle is the lack of sufficient statistics to make these cross checks. Reliability usually increases in proportion to availability hence the shortage of published Cuban statistics is a symptom of poor reliability. The announced publication of the internal set of JUCEPLAN statistics for the period 1962–67 may provide a basis for better cross-checks and evaluation of Cuban data.

8. Significant factors such as inflation cannot be evaluated in Cuba due to the absence of data. Cuban GNP series are given at market prices because the lack of price indices impedes the use of a GNP deflator. When making calculation of GNP growth or when computing indices of agricultural or industrial output, inflationary tendencies will distort the resulting rates in an upwardly biased direction.

9. Index numbers should be analyzed with extreme care to avoid distortion induced by a misleading time base. It is suggested that conditions in the base year be carefully studied to determine whether it was "normal" or "abnormal." Indices of agricultural output published both by the Cuban government and some international agencies are often based on 1962–63, the worst agricultural year since the revolutionary takeover. Therefore, great increases are shown in the index, although production could actually have been below 1958–61 levels. Concerning morbidity rates, the use of the year 1962 as

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a starting point to show the decrease of infectious diseases in Cuba is misleading because this was the peak year in terms of high morbidity rates in the 1957–66 period.

Early in 1968, in his speech commemorating the ninth anniversary of the revolution, Premier Castro evaluated Cuba's achievement in the previous years and stated: "Those who thought that Cuba was giving socialism a bad reputation because it did not publish figures and more figures will have the opportunity to feel comfortably calm, to free their minds of these doubts . . ." (*GWR*, January 14, 1968). One might hope that measures implemented in the near future might make this statement a true one.

ABBREVIATIONS

Anuario Estadístico de Cuba	*AEC*
Anuario Azucarero de Cuba	*AAC*
Compendio Estadístico de Cuba	*CEC*
Comercio Exterior	*CE*
Cuba Económica y Financiera	*CEF*
Cuba en Cifras	*CC*
Cuba Socialista	*CS*
ECLA, *Economic Survey of Latin America*	*ECLA-S*
ECLA, *Statistical Bulletin*	*ECLA-B*
FAO, *Yearbook of Agricultural Output*	*FAO*
Gramma (Revista Semanal)	*GRS*
Granma (Weekly Review)	*GWR*
Nuestra Industria	*NI*
Nuestra Industria, Revista Económica	*NIRE*
Obra Revolucionaria	*OR*
Pan American Union, *América en Cifras*	*PAU*
Panorama Económico Latinoamericano	*PEL*
Revista del Banco Nacional de Cuba	*RBNC*
Memoria del Banco Nacional de Cuba	*Memoria*
Trimestre de Finanzas al Día	*TFD*
UN, *Demographic Yearbook*	*UN-DY*
UN, *Monthly Bulletin of Statistics*	*UN-MBS*
UN, *Statistical Yearbook*	*UN-SY*

NOTES

156. Castro, "Speech on the Anniversary of the Revolution," *GWR*, 10, January 8, 1967.

157. *Reporte del Ministerio de Hacienda de Cuba* (Mimeographed, La Habana, 1959), quoted by José Illán, former Under-Secretary of Finance of Cuba in 1959–60, *Cuba: Facts and Figures*, 17; Unión Panamericana, *Indices de precios al consumidor (costo de vida) de las*

naciones americanas (Washington, D. C., 1959); ILO, *Yearbook of Labour Statistics, 1960,* 402–434 (Geneva, 1960); and UN, *Compendium of Social Statistics, 1963,* 447 (New York, 1963).

158. "El desarrollo industrial de Cuba," 150.

159. Guevara, "La planificación y sus problemas en lucha contra el imperialismo," *TFD,* 6:24–25 (1963), *Hoy,* 5, August 21, 1963, and *El Mundo,* November 14, 1964.

160. Raúl Cepero Bonilla, "Los problemas de la agricultura en América Latina y la reforma agraria cubana," *CS,* 3:17:89 (1963).

161. See my article "Ideological Radicalization and Economic Policy in Cuba," *Studies in Comparative International Development,* 5:60 (1969–1970), table 4.

162. Castro, "Discurso en el sexto aniversario de la revolución," *Granma,* January 2, 1965.

163. *AAC,* 22 (1962); and International Sugar Council, *Statistical Bulletin* (January 1966).

164. C. Czarnikow Ltd., "Cuban Statistics for 1966," *Sugar Review,* 825:140 (1967), and "An Evaluation of Cuban Sugar Production," *Special Bulletin* (November 2, 1967).

165. C. Czarnikow Ltd., "Cuban Annual Statistics," *Sugar Review,* 826:105–106 (1968).

166. Merrill Lynch, *Sugar Weekly Letter,* 2 (November 10, 1967); and Economic Research Bureau, Inc., *Economic Intelligence Report Cuba,* 1:1:2–3 (1967).

167. Castro, "Discurso en el octavo aniversario de la Revolución," *Granma,* January 2, 1967.

168. "La programación de la zafra . . . ," *Granma,* 3, November 17, 1966.

169. Quoted by Pelegrín Torrás, "La Conferencia de Punta del Este," *CS,* 1:2:53ff (1961).

170. Orlando Borrego, "Informe sobre el plan perspectivo azucarero," *Hoy,* October 14, 1964.

171. Castro, *GWR,* 4, March 24, 1968; and Borrego, "Radio Havana-Cuba," May 22, 1968.

172. There is general agreement about this figure. See *UN-SY* (1960–66) and "Problemas de la producción tabacalera," *CS,* 5:43:19ff (1965).

173. *Ibid.*

174. Adelfo Martín, "La producción tabacalera y los pequeños agricultores," *CS,* 7:66:57 (1966); Pedro Santalla, Plenaria Provincial Tabacalera de Pinar del Río, "Radio Havana-Cuba," October 31, 1966; and U. S. Department of Agriculture, *Agricultural Production in Latin America* (Washington, D. C., January 1967).

175. Mario García Incháustegui, "Informe ante la XIII Conferencia General de la FAO," *PEL,* 307 (1967).

176. *FAO* 70 (1966); and García Valls, "Informe de la delegación Cubana al XI período de sesiones de CEPAL," *NIRE,* 3:15:9 (1965).

177. Castro, "Speech on the Eleventh Anniversary . . . ," 4; and García Valls, 9.

178. *FAO* 98, 121 (1966); and Rodríguez, "Four Years of Agrarian Reform," 217–218.

179. Rodríguez, 217; Cepero Bonilla, 76; and *ECLA,* 270 (1963).

180. Cepero Bonilla, 91; Rodríguez "Cuba en la Conferencia de la FAO," 22.

181. "El desarrollo industrial de Cuba," 173; and Castro, "Speech at the Ninth Anniversary of the Revolution," 3.

182. *FAO,* 33–342, 390 (1966); *ECLA* (1963); *CC* (1962); and Rodríguez, "Cuba en la Conferencia de la FAO," 25.

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183. Juan F. Noyola, "La Revolución Cubana y sus efectos en el desarrollo económico," *El Trimestre Económico* 28:111:418 (1961).

184. Boti, "Primera Reunión Nacional de Producción," and "El Plan de Desarrollo Económico de 1962," 32.

185. Guevara, *Revolución,* February 27, 1961.

186. Bettelheim, "Modelo esquemático del plan 1962–65 . . . ," quoted by Seers, 328–329.

187. Radoslav Selucki, *Literarni noviny,* August 8, 1964, translated by *East Europe,* 13:10:22 (1964).

188. Prerevolutionary figures from *RBNC* (1959) and *Memoria* (1958). Statistics since 1959 are fairly consistent. See *UN-SY* 144 (1966), *ECLA* 286 (1963), 344 (1965); and "Electrificación y desarrollo económico," 126.

189. Pernas, "Bagazo: linea potencial de desarrollo," 67–70.

190. Banco Nacional de Cuba, 25, *Programa de desarrollo económico* (La Habana, undated). See also CERP, *Study on Cuba,* 565–566, and Newman, 72–74.

191. *CEF* (1959), as quoted by CERP, *Study on Cuba,* 567; Martínez, "El plan de la economía nacional para 1964," 17 and *UN-SY,* 275 (1966).

192. "CMQ Radio," January 31, 1963, and "Hacia una mejor calidad de los artículos de consumo," 127.

193. "Problemas de la producción tabacalera," 119–120; Lugo, "La industria del tabaco torcido y sus perspectivas," 58, 65.

194. Lower figures for imports and the negative trade balance than those shown in Table 5 for 1960–62 were given in "La experiencia de Cuba en comercio exterior," 110, and reproduced by Boorstein, 130. *PEL* (1966–1967) corrected previous figures.

195. Valtr Komarek, *Hospodarske noviny* (Prague), 33:10 (1967).

196. For a detailed study of this matter see the author's *Unemployment in Socialist Countries,* 345–480.

197. "La historia me absolverá," *Pensamiento político, económico y social de Fidel Castro,* 38 (La Habana: 1959).

198. Roca, "El camino del socialismo," *CS,* 1:1:7ff (1961); Dorticós, *Revolución,* December 30, 1961, and *Hispanic American Report,* 16:1:35 (1963); Ministerio del Trabajo, *Primer estudio provisional del balance de recursos de trabajo*; and Ministry of Foreign Relations, *Profile of Cuba.*

199. The survey on social attitudes conducted in Cuba by Hadley Cantrill (1965: 123–130) at the time of the labor census indicated that unemployment was a serious worry of the Cuban population. According to the survey, 23 per cent of the people cited employment as the most impelling personal urge, and 22 per cent showed personal worries about unemployment. Almost one-third of the respondents named full employment as the first aspiration of the country.

200. *El Mundo,* May 5, 1962.

201. "CMQ Radio," December 20, 1962.

202. José Machado Ventura, Informe sobre la salud pública en Cuba, "Radio Havana-Cuba," December 30, 1962; and Dorticós, "Discurso en la inauguración del Décimo Congreso Médico Nacional," *El Mundo,* February 19, 1963.

203. Gregorio Ortega, "La 47ma. Reunión de la Organización Internacional del Trabajo," *Trabajo,* 1:12:13 (1963).

204. Daniel Alonso, *Hoy,* September 4, 1964; "La salud pública a los seis años de la Revolución," *Hoy,* January 2, 1965; and Eliodoro Martínez Junco, "The Minister of Public Health Speaks . . . ," *GWR,* 6, June 30, 1968.

205. Juan Marinello, *El Mundo,* August 19, 1962; and Machado Ventura, *El Mundo,* September 7, 1962.

206. "Sabin Impressed by Cuba's Gains in Education and Health," *GWR,* 8, December 24, 1967.

207. "Radio Progreso" and "CMQ Radio," March 18, 1963.

208. Castro, Discurso de clausura del Congreso Nacional de Constructores, "Radio Havana-Cuba," October 26, 1964.

209. Castro, Discurso en el quinto aniversario de la fundación de los CDR, "Radio Havana-Cuba," September 28, 1965.

210. Castro, "Speech at the Inauguration of a New Community of 120 Homes," *GWR,* 2, January 14, 1968.