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A Study of the Contribution of Tourism
to the Antiguan Economy

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CURRENCY EQUIVALENTS

Exchange Rates Effective May, 1974

US\$1.00 = 2.00 BDS\$	(Barbados)
= 1.71 B\$	(Belize)
= 2.18 G\$	(Guyana)
= 0.91 J\$	(Jamaica)
= 2.00 TT\$	(Trinidad & Tobago)
= 2.00 EC\$	(Eastern Caribbean ^{1/})

1 BDS\$ = 0.50 US\$

1 B\$ = 0.58 US\$

1 G\$ = 0.46 US\$

1 J\$ = 1.10 US\$

1 TT\$ = 0.50 US\$

1 EC\$ = 0.50 US\$

Note: As of July 15, 1974, the currencies of Barbados, Belize, Eastern Caribbean, Guyana and Trinidad and Tobago were linked with sterling. Jamaica maintains a parity relationship with the US\$.

^{1/} Antigua, Dominica, Grenada, Montserrat, St. Kitts-Nevis-Anguilla, St. Lucia, and St. Vincent.

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SUMMARY AND CONCLUSIONS

1. Antigua is an island in the Caribbean with a population under 70,000, and a GNP probably under US\$30 million or about US\$400 per capita. It is, however, an independent political and economic unit.
2. In the early 1950's Antigua was heavily dependent on sugar and the standard of living was extremely low. Then the first significant tourism development on the island took place, a residential club for well-to-do Americans. At the same time, there was a boom in emigration which eased unemployment and provided a flow of remittance income, but raised consumption standards and may have deprived Antigua of some of its most enterprising citizens.
3. From the late fifties to late sixties there was a boom in hotel construction. The economy became geared to growth in tourism. Sugar production and export diminished rapidly and ceased completely in the seventies. Sea island cotton production also fell. Meanwhile, wages rose exceptionally fast. During this period Antigua attained effective internal self-government and indigenous political maturation was bound up with unionization.
4. The sixties also saw a considerable curtailment in emigration opportunities but until the late sixties the economic effects of this were offset by the boom in tourism and construction. At about the same time, Antigua was beset by various other problems. The expansion of tourism had put a severe strain on the infrastructure and there was now more competition for tourism from other Caribbean islands. In the general recession in tourism to the Caribbean, tourism to Antigua fell significantly, from 223,662 bednights in 1968 to 172,797 in 1971. The continuing recession in the tourist industry led to a sharp decline in hotel employment: at the same time, construction of new hotel rooms virtually ceased. For a while government infrastructure projects partially maintained overall employment in construction but by the early seventies infrastructure investment was tapering off. Meanwhile, emigration possibilities were further restricted and unemployment reached extremely high levels. At the same time, the government faced a chronic budgetary situation because of accumulated short-term debts in connection with various infrastructure projects and also the unsuccessful attempt to support the sugar industry. In view of its high level of unemployment and its fiscal problems, Antigua is at present in rather a difficult economic position.
5. During the course of its development in the island, tourism has been a considerable stimulus to entrepreneurship and the acquisition of skill. Apart from managers, the Antigua hotel industry now employs almost no expatriates. Taxis and car-rental businesses have offered scope for Antiguan entrepreneurs and so did the construction industry.
6. As regards the social impact of tourism, most of it has been very similar to that which would have been created by any other leading sector and the resultant general economic development. Granted the social and political structure of Antigua, unionization of such a sector would probably have been

inevitable with a sharp rise in wages and higher general living costs. Sugar would have been abandoned, the society would have become more urban and unemployment would have become a major social issue. Social effects specific to the intrinsic nature of tourism are probably of less significance, such as a minor health problem with non-indigenous strains of influenza. Tourism has not seriously exacerbated race relations, and although anti-white feeling can be encountered, the general situation is better than in most large U.S. cities. On the positive side, tourism has stimulated demand for locally-grown produce and for local entertainment groups and craft-work. The high pay available to mechanics and building workers in recent years has also helped to encourage these industries.

7. Hotels are the core of the Antigua tourist industry: in summer 1973 there were 33 hotels with 1,140 rooms on the island. A typical room rate for the 1972/73 season was about US\$70 per day for a double room, Modified American Plan. Bed occupancy rates averaged over the year well under 30%. Direct hotel employment reaches a maximum of about 1 job per room when a hotel is full. Direct government revenue from tourism includes a EC\$ 2.00 hotel tax per bednight and an embarkation tax of EC\$ 5.00. During 1973 a 3% tax on most of a guest's hotel bill was also imposed. In 1972 there were 72,328 tourist arrivals, the highest figure ever. However, bednights were only 177,962, as against 223,662 in 1968, the peak year. The number of cruise visitors has been rising rapidly and Antigua is also an important yachting center.

8. In the 1972/73 season, gross tourist expenditure in Antigua was between EC\$ 25 million and EC\$ 30 million. Directly and indirectly tourism probably contributes about half of the GDP. Antigua's balance of payments is now almost totally dependent on tourism; and although direct hotel employment is small, tourism directly or indirectly finances virtually all the high income employment on the island. Unemployment and under-employment are extremely high. Because of inappropriate governmental pricing and borrowing policies for infrastructure investment, the growth of tourism has in fact caused a serious budgetary crisis.

9. If present trends in Antigua continue, hotel occupancy rates will continue to be very low and the island will continue to offer mainly luxury or semi-luxury hotels. High wage rates and labor troubles are likely to prevent much increase in industrial investment. The employment and budgetary situation will remain quite difficult and may deteriorate. The result could be increasing social and political tensions and this could adversely affect tourism. Rather more probably, social, economic and political affairs may continue in an unsettled state but some tourism is likely to be sustained.

10. A major objective of this present study is to develop a methodology for estimating the contribution of tourism to the economy through the use of accounting prices. Estimating accounting prices for the Antiguan economy is easy for traded commodities, because the economy is very open and has no quantitative trade barriers. However, severe data problems arise in connection with nontraded goods. There are also serious difficulties in making the value judgments necessary to estimate shadow prices.

11. The object of the method is to reduce all costs and benefits to one numeraire which is taken to be foreign exchange in the hands of the Antiguan Government. Direct and indirect inflows and outflows of foreign exchange can therefore be taken at face value. But in order to arrive at these it is necessary in several cases to deduct government taxes and subsidies which, in general, are not real costs or benefits. Furthermore, the object of the method is not to calculate the impact of projects on the foreign balance but to calculate the impact on welfare. Therefore, it is necessary to value incomes created by the projects, e.g., for workers previously unemployed, in terms of the numeraire. Because of data problems, an iterative method was used to approximate the general equilibrium values of shadow prices.

12. Accounting prices for traded commodities were worked out on the basis of estimated accounting ratios for wholesale and retail margins. The accounting ratio for surplus labor was based upon unemployment and under-employment levels in Antigua, an estimate of leisure preference, and relative valuation of investment and consumption. It was assumed that the pay of professionals is adequately reflected in market prices. The accounting rate of interest is estimated to be the likely real rate of interest at which the Antigua Government could now obtain finance on world capital markets, taking into account the government's budgetary difficulties and the scarcity of savings. Because up-to-date cost breakdowns are not available, it is difficult to estimate accounting price ratios for nontraded goods and services. However, estimates were made on the basis of an inter-industry transaction matrix for the Antiguan economy in 1963.

13. Tourism has been estimated to generate 50% of GDP, taking full account of indirect benefits. A very substantial proportion of the indirect value added by tourism would be lost if tourism were to cease. The concept of a "tourist multiplier," however, probably has relevance in Antigua only in the off-peak season, when local industries are working below full capacity. At that time it is between 0.75 and 1.0, but falls to 0.2 for marginal tourism expenditures during peak season.

14. Even at low occupancy rates, tourism in Antigua is a socially profitable activity at the margin. The principal reason for this is that the capital investment in hotels is made by foreigners and as far as the economy is concerned, this direct capital has zero opportunity cost. The costs consist of the investment in infrastructure that the government makes for the purposes of supporting tourism, and repatriated profits; the benefits consist of the employment of underemployed labor and the net tax revenue accruing to the government. However, perhaps the most significant analytical conclusion is that the social profitability of increased occupancy rates would be very high in Antigua, especially during the off-season.

15. Antigua has no control over its exchange rate and being a monetary board economy cannot run a deficit on its foreign balance. Lack of international competitiveness therefore manifests itself in the low profitability of export industries and in widespread unemployment. Trade unions in Antigua

are powerful and exert upward pressure on money wage rates. Labor productivity in Antigua is low by international standards but is growing slowly. Seen against this background, the high rate of unemployment and the lack of diversity in the industrial structure are not really surprising.

16. Any sustained economic progress in Antigua is probably conditional upon some control over the growth of money incomes and this means some control over the activities of trade unions. During the off-season, prices charged by Antiguan hotels are patently too high. Antigua does not possess the monopoly power to be able to charge such prices. This applies not only to hotel rates, but also to the prices of other tourist services such as taxi-transport. The problem of hotel rates is not wholly the result of the pace of money wage increase but the latter is undoubtedly a major contributory factor. What is perhaps even more important is that the pace of money wage increases prevents the diversification of the productive structure in Antigua through the development of new, internationally competitive industries. Under present conditions, it is difficult to imagine a successful export drive in Antigua based on low-wage labor. The result is that excessive dependence on tourism becomes self-perpetuating.

17. An unfortunate side effect of tourism is that it prevents moderation of money wage increases because it sets the standards which other sectors follow. There is some truth in this though the same argument would apply to any leading sector. The problem in Antigua was not the advent of tourism but that the response to it was unplanned. The government should institute a more realistic incomes policy with correspondingly higher tax rates for the hotels.

18. Any reduction in Antigua's relative dependence on Tourism in the immediate future seems to be out of the question but possibilities exist for the longer-term future. If agriculture were better developed, there could be a fruitful symbiotic relationship with tourism. As for manufacturing industry, the problem for Antigua is one of skills and of wage levels, of which the latter is the more immediately relevant. Skills can only be developed over time in the process of work; if wages are too high relative to those elsewhere, new industries cannot get started.

19. Even with far-sighted planning, the expansion of tourism beyond a certain point would create problems. Diversification is not easy for reasons outlined earlier but it is extremely important that the government should make every effort to achieve it.

20. The immediate problem in tourism policy is how to improve occupancy rates. Part of the answer would be to control the rate of increase in money wages. Even if this is taken to be outside government control, there still exists the possibility of lowering off-season prices further. Promotion is equally important.

21. An important issue for future policy concerns the optimal size of hotels. Economies of scale certainly exist in hotel operation. On the other hand, small hotels can use family labor. They also offer social benefits.

They are generally less capital-intensive, have local ownership which saves repatriation of profits, create a class of people experienced in hotel management and involve the local people to a greater extent in the tourism business.

22. Another issue in tourism policy is whether to encourage luxury tourism or middle-income tourism. The tangible advantage of encouraging the middle-income tourist is the saving on infrastructure costs. Middle-income tourists might also make it easier to maintain high occupancy rates during the summer. On the other hand, with a few luxury tourists the sheer pressure of numbers would be smaller. On the whole, it may be desirable to move to some extent in the direction of middle-income tourists.

23. No rational decisions on tourism policy are possible without a calculation of the cost of infrastructure requirements. However, the data basis for such a calculation hardly exists at present. This situation must be remedied. There is also an urgent need for uniformity in tax incentive policy and for ensuring that profitable hotels contribute to the public purse. If and when the profitability of hotels can be increased, their contribution to the economy will hinge on whether a substantial proportion of these profits can be taxed.

24. The soundest basis for estimates of future infrastructure requirements in connection with tourism in Antigua would be a careful analysis of experience in the recent past. Unfortunately, this approach is severely hampered by the quality of the statistical data available.

25. It is interesting to note the different implications for infrastructure investment of luxury and middle-income tourism. For any given number of rooms, a modest hotel requires substantially less indirect infrastructure investment.

26. Very little information is available on the demands made by tourism on port and airport facilities, the costs to the economy of supplying these facilities and the revenue generated. However, it appears that the port makes a loss, while the airport is profitable. The sound financial position of the airport may be due to transit traffic as much as to local tourism, however.

I. ACCOUNTING PRICES FOR TOURISM PROJECTS IN ANTIGUA

1. Estimating accounting prices for the Antiguan economy is in some respects easy and in others extremely difficult. It is relatively easy to estimate the accounting prices for traded commodities because it is a very open economy with no quantitative controls on trade and a fairly uniform tariff and tax structure. The difficulties, however, are two-fold. There is the difficulty of obtaining information of the breakdowns, especially of nontraded goods, into cost components. Antigua has not had any national income data to speak of since 1968; the financial accounts for the public utilities are in a very poor state; there is no hard information on the employment situation and virtually no information on the size distribution of income. There are also difficulties of a more philosophical nature in estimating shadow wages and the accounting rate of interest in the economy in which the objectives of Government policy are difficult to discern.
2. The object of the analysis is to reduce all costs and benefits to one numeraire which is taken to be foreign exchange in the hands of the Antiguan Government. Movements of foreign exchange can, therefore, be taken at face value. But in order to arrive at these it is necessary in several cases to allow for the existence of Government taxes and subsidies which, in general, are not real costs or benefits. Furthermore, the purpose of the exercise is not to calculate the impact of projects on the foreign balance but to calculate the impact on welfare. So, it is necessary to value incomes created by the projects, say for workers previously unemployed, in terms of the numeraire. We now proceed to explain how accounting prices were derived for Antigua. The most acceptable way of doing so is to calculate a set of prices which is mutually consistent using a general equilibrium method of solution. The data, however, was unable to support this approach, so an approximation to equilibrium was derived by making successive iterations until a roughly consistent set of prices were produced.
3. The internal price of a traded commodity differs from its c.i.f. price by the extent of port handling charges, import duty, excise tax, wholesale and retail margins. To work out the accounting price of a traded commodity it is therefore necessary to know the value of wholesale and retail margins in terms of the numeraire. The mission was of the opinion that the only practicable way to proceed was to estimate the accounting ratios for wholesale and retail margins, to work out the accounting prices of traded commodities based on that and then to check the estimates by looking at the cost structure of distribution. If the estimates were not credible, it would be necessary to rework the calculations. As it turned out the estimates were roughly correct. We assumed, on the basis of such information as was available, that port-handling charges, wholesale and retail margins were 3%, 15% and 20% respectively and that their respective accounting ratios were 0.8, 0.8 and 0.7. Import duties were calculated by discussions with the Customs' authorities. When there were two rates, preferential and non-preferential, a weighted average of the two was used. Where the duty was specific, the ad valorem equivalent was calculated with the help of the Customs' authorities. We now demonstrate using imported Scotch whisky for illustrative purposes, how the accounting price for traded commodities was calculated.

Table 1

<u>Item</u>	<u>Value</u>	<u>Accounting Ratio</u>	<u>Accounting Value</u>
Scotch Whisky	179.4	x	136.53
Retail Margin	29.9	0.7	20.93
Wholesale Margin	19.5	0.8	15.6
Port Charges	3	0.8	2.4
Consumption tax	6	0	0
Import duty	24	0	0
Foreign Exchange Cost	100	1	100

Starting with the notional value of a bottle of whisky of 100 we add on additional costs to arrive at the final retail price. Using estimated accounting ratios for the various items, the accounting price of whisky was calculated.

The accounting ratio x for whisky is equal in the above example to $\frac{136.53}{179.4} = 0.8$.

In the following table we present the accounting prices for certain traded commodities, worked out in the manner explained above.

Table 2

Accounting Ratios for Commodities

Meat (fresh frozen)	0.924
Meat (canned)	0.92
Dairy products	0.84
Fresh fish	0.907
Canned fish	0.91
Fruits & vegetables	0.89
Cigarettes	0.62
Footwear	0.81
Clothing	0.75
Vehicles	0.73

4. In estimating the social cost of labor in Antigua the following elements are of crucial importance:

- (a) There is known to be a considerable amount of unemployment and underemployment, though there has been no survey of the employment situation since 1951. The alternative marginal product of labor is therefore certainly considerably below unionized wages.
- (b) On the other hand, the supply price of labor is very high. This is due to several factors. Though the marginal product of labor is low, incomes are higher than that even for the un- and underemployed because of remittances from relatives abroad and because of support from those who are employed. Antiguans would also appear to value leisure highly and to exhibit a marked disinclination to work at certain kinds of jobs. The question then arises whether the alternative marginal product of labor is the appropriate shadow price, if the supply price of labor happens to be much higher. This question cannot be answered without a prior value judgment concerning whether individual attitudes to work are to be respected in making decisions from a social or national point of view.
- (c) There is the further question of the relative valuation of investment and consumption. The use of a shadow wage rate lower than unionized wages would encourage employment. But given that the wages that in fact have to be paid are unionized wages, higher employment reduces investible surplus in that this exceeds marginal product. The link is quite obvious in the case of a publicly owned project; it is less obvious but nevertheless important even in a private project because the government can tax private profits and because capitalists' propensity to save and invest is, in general, higher than that of workers. Now, to the extent that investment is more valuable than present consumption, higher employment at unionized wages has undesirable effects. The optimum employment (and shadow wage) therefore depends on the trade-off between consumption and investment.

5. The formula given below brings in all these considerations.
Suppose W = the unionized wage rate

f is the "consumption conversion factor" to convert
consumption into foreign exchange

c is consumption out of w

m is the alternative marginal product of labor

l is the supply price of labor in consumption units

α is the valuation society puts on effort

s is the relative price of savings in terms of consumption

w* is the shadow wage rate

$$w^* = \frac{1}{f} \left[c - \left\{ \frac{(c-m) - \alpha(1-m)}{s} \right\} \right]$$

Thus the shadow wage rate is equal to consumption out of wages minus the benefit from the increased consumption plus the cost of the increased individual effort involved as valued by society. We can now put some rough numbers. w is about \$40 per week which is the minimum unionized wage for unskilled labor in Antigua. The marginal product of labor (m) is taken to be a quarter of w about \$10. To put m = 0 would be too extreme. There is a certain amount of part-time **work in agriculture; there is also household work** by women which has a value, even though national income statisticians choose to ignore it. c is consumption out of wages which is taken to be \$38, assuming a propensity to save of 5%. Though m is only \$10, the income of an unemployed Antiguan is likely to be more than that; it could be \$20 as a result of family support. Nevertheless, the employment of an extra man would increase total consumption by roughly c-m or \$28. The reason is that the newly employed man presumably loses his previous financial support. So his consumption goes up by \$18, the consumption of those previously supporting him (or those they now choose to support) goes up by \$20, but there is a product loss of \$10. So the net increase in consumption in the economy is c-m = \$28. The supply price of labor in Antigua (l) is much higher than m and should in our opinion be put as high as \$30 in consumption units. Discussions with informed people suggested that it was quite impossible to hire Antiguan for wage employment for anything lower than that.

6. This leaves the estimation of f, s and α . f is simply the factor required to convert the above quantities into our numeraire which is foreign exchange. We estimated it by using consumer budget data for 1959 given by Carleen O'Loughlin. ^{1/} No more recent figures were available and different classes of consumers were not distinguished. But we had to make do with what information there was. Table 3 gives our calculation of the conversion factor for consumers' expenditure is general. The accounting ratios for traded goods were calculated as explained above. For non-traded goods and labor services, we had to estimate and then recheck when the accounting ratios for these were calculated. We had to perform a couple of iterations to achieve rough consistency. Thus the accounting ratio for consumers' expenditure turns out to be about 0.84, somewhat below the typical accounting

^{1/} Carleen O'Loughlin, National Income Statistics 1954-64, Institute of Social and Economic Research (E. Caribbean), 1965.

Table 3

Accounting Ratio for Consumers' Expenditure (f)

<u>Col.1</u> <u>Item</u>	<u>Col.2</u> <u>Weight(%)</u>	<u>Col. 3</u> <u>Accounting Ratio</u>	<u>Col.2 x Col.3</u> <u>Weighted A.R.</u>
Meat	.051	.92	.047
Dairy Products	.058	.84	.049
Fish	.050	.91	.046
Cereals	.105	.90	.094
Fruits & vegetables	.075	.89	.066
Sugar & confectionary	.039	.91	.035
Alcoholic beverages	.038	.80	.030
Tobacco & cigarettes	.017	.62	.011
Other foods	.032	.89	.028
Footwear	.033	.81	.027
Apparel	.089	.75	.067
Household goods	.058	.85	.049
Personal goods	.035	.85	.030
Personal & Prof.services	.060	.75	.045
Transport	.047	.8	.037
Rents	.129	.8	.103
Purchases from Govt.	.041	.8	.033
Purchases from overseas	.043	1	.043
	<hr/>		<hr/>
Total	1.000		0.84

ratio for traded goods, and somewhat above the typical ratio for non-traded goods. Incidentally, we may note here that the weighted ratio of c.i.f. prices to tax and tariff inclusive prices for imported goods in Antigua in 1967 was approximately 0.86, the weight being the proportion of the value of each category of import in the import bill. We now come to the estimation of the more ethereal parameters α and s . At one extreme, we could put $\alpha = 1$ which means that the Government regards each individual's supply price of labor as the social cost of employing him. This is an individualistic viewpoint. If an individual does not want to work for anything under \$30, that means that \$30 is required to compensate him for the various disutilities that he thinks attach to working. If so, then that is the welfare cost of employing him. At the other extreme we could put $\alpha = 0$ which would imply that the Government attaches zero weight to the individual's views regarding the cost of effort. It considers the material product lost to be a cost but chooses to ignore the extra effort which the individual dislikes. There are other reasons why it might choose to ignore the high supply price of labor. The unemployed may prefer to remain in that state; but the government may be concerned about developing work habits in the population; it might also be concerned about the social and political effects of having a large section of the population unemployed. If it gives some positive weight to the individual's supply price but less than the individual himself does, then $0 < \alpha < 1$. This is what we think is the most typical situation. We now come to s , the relative price of investment in terms of consumption. This is a complex question. The need for the government to raise more revenue is quite plain given the serious debt crisis that it now faces. There is another way of approaching the matter. Consumption per capita in Antigua has been growing at the order of approximately 1-1/2% p.a. over the last 15 years (though in the immediate past, there has been stagnation). It would not be too far-fetched to suppose that a 1% increase in per capita consumption reduces the marginal utility of consumption by 2%. Then, the consumption rate of interest (which equals the growth rate of per capita consumption times the elasticity of marginal utility of consumption) is about 3% even, ignoring pure time discount. Inclusive of a time discount, we could put it at 4%. If we think that projects can be found which can yield 8% of consumption in perpetuity then the value of investment in terms of consumption is 2. Whether such opportunities exist is difficult to say. Our own position would be that if hotel occupancy rates could be increased by suitable promotion and price policies, such projects could certainly be found in the tourist sector. There is good reason to suppose that even in agriculture if the government invested wisely in infrastructure and research, there are suitable prospects for livestock and vegetables. As for industry, there seems no reason why Antigua should not be able to have labor-intensive international sub-contracting if the rate of growth of money wages can be controlled. All these are big "ifs" but planning for development must assume that the government will try to pursue productive policies. The case for putting $s = 2$ is quite overwhelming in the short-run, as a simple logical consequence of the government's budgetary difficulties, and the drying up of foreign investment. The case for having s considerably above 1 for a substantial length of time is based on the idea that not only does the Antigua Government want to ride out its debt crisis but is also interested in the growth of the Antiguan economy.

7. Using these figures, we have calculated $\frac{w^*}{w}$ for different assumptions concerning s and α using the formula given above.

Table 4

	<u>$\alpha = 0$</u>	<u>$\alpha = 1/2$</u>	<u>$\alpha = 1$</u>
$s = 1$	0.21	0.42	0.63
$s = 2$	0.5	0.61	0.71
$s = 3$	0.6	0.67	0.74

We think it would be unwise to choose an accounting ratio for unskilled labor of less than 0.75 in the short-run and even in the long-run, of less than 0.6. In fact, in our calculation we have used 0.6 as the ratio, to be as favorable to employment as is possible without being irresponsible and implying too low a shadow wage. More subtle questions may be considered. It can be argued that $\frac{w^*}{w}$ should rise with w because the higher w is, the greater is the increment in consumption as a result of the employment of an extra man; since the marginal utility of consumption declines with increasing income, the higher the unionized wage in an industry the greater should be the discouragement to the employment of this extra man because the Government could redistribute the money to a large number of poor people which would result in a larger increase in social welfare. This point can we think be ignored in Antigua because the employed are quite efficient redistributors of income. Another point which might be brought up is that shadow wages should be set low because increased employment simply implies less repatriation of profits. At the moment, repatriation of profits is not significant in Antigua because tourism is not particularly profitable. Even if it became profitable, there are possibilities of taxing profits. And some repatriation of profit is after all necessary so that foreign investment may continue - otherwise, saving and investment would become even scarcer than they are. We see, therefore, no reason to change our estimates of shadow wage rates made above.

8. We assume that the pay of professionals and managers adequately reflects their marginal products at market prices; indeed their marginal products might be higher than their pay would suggest. Since the latter statement might well be true, we think it approximately correct to use an accounting ratio of 0.84 for their salaries which is the same as the accounting ratio for consumption expenditure, even though they no doubt save more than unskilled workers and are also taxed more. As for skilled labor, the assumption is that the employment of an extra skilled man, involves (though possibly at several removes) the employment of an unskilled man from the ranks of the underemployed. But the latter would have to be trained and that has a cost which the employer can usually not fully recover by paying lower wages. Hence, for skilled and semi-skilled labor was use an accounting ratio of 0.75 (which lies between 0.6 and 0.84). If the wage and salary bill cannot be divided between that of professionals and skilled workers we use an accounting ratio for the two together of 0.8.

9. For a country that relies heavily on foreign borrowing, it stands to reason that rates of return on projects should equal the marginal rate at which foreign funds can be borrowed. Even if we are thinking of foreign venture capital, a project should be capable of earning some minimum rate of return below which the supply of foreign capital would dry up. In the past, given world inflation, Antigua has been able to borrow at real rates around 3-4%. The situation now is more complicated. As already noted, the Antiguan debt situation is quite difficult and interest rates are in any case rising sharply on world capital markets. It is most unlikely that Antigua could now obtain any finance at all below real rates of 6-8% p.a. In the short-term, the situation could be even worse if any substantial sums of money are involved because the more attractive sources of credit would dry up and Antigua would have to turn to other suppliers. There is another approach to the accounting rate of interest. We have already suggested that the consumption rate of interest is in the region of 4%. We have also suggested that the value of savings and of government money in Antigua is high in relation to consumption, particularly at the moment when budgetary difficulties are considerable. Assuming that these will disappear in due course and that the economy will grow faster, we can expect the scarcity of savings and government money to decline over time. Since our numeraire is government money, the accounting rate of interest must be above the consumption rate of interest by the extent of the rate at which s is expected to decline.

$$\text{i.e. } \text{ARI} = \text{CRI} + \frac{s}{s} .$$

Assuming that it will take 20-40 years for the scarcity of savings to disappear, the ARI should be 2-4% above the CRI. i.e. it should be 6-8%. In the short-run, assuming that the present budgetary crisis disappears, s could fall faster and the ARI should perhaps be set even higher than 8% to favor projects yielding quick returns. But we assume conservatively that the ARI should be 6-8% in real terms.

10. Estimating accounting price ratios for nontraded goods and services in Antigua is a task of some difficulty. Cost breakdowns are not available, though it must be admitted that a few more man-weeks would probably have resulted in improved estimates. We therefore had to make do with what information there was in the shape of an inter-industry transaction matrix for the Antiguan economy in 1963 compiled by Carleen O'Loughlin. The matrix showed the gross output* of ten sectors and the division of the gross output of each sector into payments to the other sectors and to four "primary inputs": households, profits, government and the rest of the world (i.e. foreign exchange). The commodity coefficients matrix was inverted and by standard techniques the direct and indirect primary input requirements of each sector were worked out. We present below the total primary input requirements of those sectors which are non-traded.

Table 5

	<u>Construction & Engineering</u>	<u>Distri- bution</u>	<u>Transport</u>	<u>Finance & Insurance</u>	<u>Other Services & Entertainment</u>	<u>Rent of Dwellings</u>
<u>Primary Input</u>						
Households	.32600	.12432	.22158	.61802	.40179	.07606
Profits	.08687	.06880	.37467	.25269	.51729	.81172
Government	.03620	.13402	.14909	.03777	.03128	.05355
Foreign Exchange	.55087	.67561	.25462	.09148	.04961	.05865

11. Some comments are required on the shadow pricing of each of these primary inputs to arrive at the accounting ratios for the non-traded goods.

Households: In each case, we estimated the proportion of the wage and salary bill going to skilled labor and managers and that going to unskilled labor and applied the accounting prices for these categories worked out above. The proportions had to be based on conversations with informed people who had some knowledge of the sector and in some cases on pure guesswork. In general, the bias, if any, was such as to overestimate the proportion of the payment to households going to unskilled labor. The highest proportion going to unskilled labor was 50% in transport, the lowest was 10% in finance and insurance.

Profits: When a project demands a nontraded input and if there is full capacity in the industry producing the input, it is assumed that its supply will increase. One can then either include the capital cost of increasing the supply of the nontraded input in the capital cost of the project itself or one can charge the project an "appropriate" price for the input which means a price inclusive of a capital charge. This is the course pursued here. If the profit element is no more than such as to cover "normal profit" on the capital stock at the accounting rate of interest and to cover replacement costs required to maintain capital intact (insofar as these are not already included in the operating costs) then the whole of it is a cost, though multiplied as usual by the standard conversion factor of 0.84. If the profit element is greater than that, the "surplus profit" which accrues to the entrepreneur has to be valued in terms of our numeraire. It has been assumed, on the basis of data given in Carleen O'Loughlin's monograph, that 20% of the profit is saved. The 80% which is consumed is counted entirely as a cost because it accrues to rich people. Of the 20% which is saved, only 20% is counted as a cost (In other words, it is assumed that private saving and investment is worth 0.8 times government saving). In short out of surplus profits

(20%)0.8 = 16% is a benefit and 84% is a cost. Thus the accounting ratio for surplus profits is 0.84. The only sector in which this procedure was not followed was transport where it can reasonably be assumed that the surplus profit accrues to tax-drivers and the like who are not very rich. In that case, it was assumed that only half of the surplus profit is a cost.

Government: Normally in cost-benefit analysis government receipts are not treated as costs. In this case, however, a different procedure had to be followed. The reason was that in the 1963 inter-industry table, public utilities were unfortunately lumped in with the government sector. So part of government receipts are simply a return to investment in public utilities. Inspection of the government sector in the inter-industry matrix revealed that roughly 50% of government receipts consisted of import and excise duties and company tax and the remainder was public utility income. Therefore, half the government receipts were counted as a benefit and the rest multiplied by the standard conversion factor of 0.84 as a "normal" return to public utility investment and hence as a cost. This was done because it is perfectly clear that there are no "surplus profits" in public utilities; on the contrary public utilities almost certainly do not break even at accounting prices.

Foreign Exchange: This item was of course taken to be a pure cost. Using these methods, the following accounting ratios were obtained for the above nontraded goods and services:

Table 6

<u>Sector</u>	<u>Accounting Ratio</u>
Construction and Engineering	0.87
Distribution	0.83
Transport	0.73
Finance and Insurance	0.865
Other services and entertainment	0.78
Rent of Dwellings	0.8

Perhaps a comment is in order on the accounting ratio for construction which might be thought to be rather high. The reason for its high accounting ratio is that a great deal of construction was connected with the hotel industry so that it benefitted from import duty relief.

12. This brings to an end our calculations on accounting prices. Some remarks are in order. The method used above to calculate accounting prices for the nontraded goods is most unsatisfactory and had to be used only as a matter of last resort because cost breakdowns were not available. It is particularly important in evaluating tourism projects to calculate accounting

ratios for public utilities as accurately as possible and we have very little information on them. Another point that the reader may notice, is the discrepancy between the accounting prices of nontraded goods worked out above and those used for the same goods in calculating the conversion factor for consumption expenditure. Complete consistency could only have been assured by a simultaneous solution. After one or two manual iterations, the remaining discrepancies were too minor to affect any results and were therefore ignored.

II. ANALYSIS OF THE IMPACT OF THE TOURISM
SECTOR ON THE ANTIGUAN ECONOMY

13. Sectoral analysis is generally restricted to describing the structure of the industry in question and making various policy suggestions on the basis of an educated judgment. This function is, of course, extremely important and our report does concern itself with this task. Is there anything further that can be attempted, especially at a quantitative level? Such quantitative analysis at the sectoral level is difficult in the best of circumstances but no progress at all can be made without sorting out rather carefully the questions that should be answered. Some of these questions are tractable, others are extremely intractable especially if the sector in question is large in relation to the national income. In this chapter, we propose to clarify some of the issues involved in the context of the economy of Antigua. Consider the following questions, all of them related to each other but nevertheless distinct:

- A. What is the contribution made by tourism to GDP and GNP in Antigua?
- B. What would be the effect of an autonomous increase in tourist expenditure on GNP in Antigua? What, in other words, is the size of the "tourist multiplier"?
- C. Would increasing the size of the hotel sector be justified at the margin, taking into account the costs involved? Here one might want to distinguish between hotels owned and financed by private foreign investors and hotels owned by the government with the capital being borrowed from abroad.
- D. Does some proposed plan for a large expansion of the tourism sector - say the kind of plan contained in the Zinder Report ^{1/} make economic sense? We shall consider each of these questions in turn.

What is the contribution made by tourism to GDP and GNP in Antigua?

14. In 1964, the direct value added by the hotels sector constituted about 9% of GDP. But this is clearly an understatement of the contribution of the tourism sector to GDP for two reasons:

- (a) Tourists spend money outside hotels and thereby contribute directly to value added in other sectors.

^{1/} H. Zinder and Associates, The Future of Tourism in the Eastern Caribbean, Washington, D.C. 1969.

- (b) The sectors in which tourists spend their money directly, themselves make payments to other sectors because they purchase inputs from them. For example, tourists spend money on food and drink in hotels. This does not create value added in the hotel sector but it creates some value added in the distributive trades sector. The same argument applies to the payments by any sector to another which can be attributed to tourist expenditure.

15. For 1964, Carleen O'Loughlin furnishes us with the following data: 1/

- (i) the sectoral composition of direct tourist expenditure,
- (ii) an inter-industry transactions matrix which tells us the value of sales and payments by each sector to every other sector.

From (ii) it is possible to work out by standard input-output techniques, the direct and indirect value added by every sector. On the not unreasonable assumption that the proportion of the total value added by each sector which can be attributed to tourism is the same as the proportion of its sales which can be attributed to tourists, we have calculated that the direct and indirect contribution of tourism to GDP in Antigua in 1963 was 22.5%. In 1968, direct value added in the hotels sector went up to 14% of GDP. If we make the further assumption that direct value added by the hotels sector as a proportion of total value added by tourism remained constant over the period then total value added by tourism would have been around 33.6% of GDP in 1968. Even this is an underestimate of the contribution of tourism to GDP for the following two reasons. Firstly, in the above calculations, value added in the construction and engineering sector attributed to tourism was taken to be simply that arising from the current expenditures by other sectors on the output of the construction sector (i.e. expenditures for maintenance and replacement). In actual fact, much of the value added in the construction and engineering sector is the result of new investment in hotel building and related activities. In 1968, value added in the construction sector was 30% of GDP and that attributable to investment in tourist facilities was, at least, 15% of GDP. This gives us a total of 48.6% of GDP attributable to tourism secondly, the above calculations have excluded the contribution that tourism makes to GDP by increasing the tax revenue of the government and permitting it to sustain a higher level of expenditure. This could easily add another 5% to its contribution to GDP. All these figures are rather rough. More recently, the importance of tourism-induced construction has declined which would reduce our figure; on the other hand, export agriculture has totally collapsed, raising the proportionate contribution of tourism. All in all it is very unlikely that tourism generates

1/ See Carleen O'Loughlin, National Income Statistics, Antigua 1954-64, Institute of Social and Economic Research (E. Caribbean) 1965.

less than 40% to 50% of GDP. There is no reason to believe that it is any different as a proportion of GNP - repatriation of profits is insignificant. The contribution of tourism to GNP at market prices might be even higher because tourists pay more in taxes than they receive in subsidies.

16. One might, however, be interested in a somewhat different question. One might ask what is the net contribution of the tourism sector to GNP, net in the sense of over and above what the relevant factors of production would have produced anyway in the absence of the tourism sector. Frank Mitchell asked this kind of question in Kenya and in the Kenyan economy where the tourism sector is much smaller. 1/ In Kenya, if there were no tourism, the relevant factors of production could be absorbed in other sectors, albeit at somewhat lower rates of remuneration. It is possible to make an educated guess to allow for the intra-marginal increases in factor prices resulting from tourism itself and to estimate the true opportunity costs of the factors of production employed in tourism. The net contribution of tourism then is the value added minus the true opportunity costs of the factors. In Antigua, it would be almost a nonsense question. If the tourism ceased tomorrow, the effects would be so large that it is almost impossible to put any value on "what the factors of production concerned would earn anyway." All one can say is that a very substantial proportion of the direct and indirect value added by tourism would be lost if tourism were to cease.

The "Tourist Multiplier"

17. The multiplier effect of tourist expenditures has been the subject of wild assertions. The Zinder Report, 2/ for example, claims that the tourist multiplier in the Eastern Caribbean is 2.3 i.e. that \$1 of additional tourist expenditure would generate \$2.3 of extra national income. This estimate is based on a major analytical error. What the Zinder Report has estimated is the increased local turnover resulting from increased tourist expenditure. In other words, the value of all the transactions resulting from an extra tourist dollar have been estimated. But the impact on national income is measured by the value added during the transactions, not by the total value of the transactions themselves. 3/

18. Estimating the impact of an additional dollar of tourist expenditure requires - first that we estimate the primary impact on value added, in other words the first round effect on domestic income and second, that we then proceed to estimate the secondary impact on value added, in other words, the

1/ F. Mitchell, "The Value of Tourism in East Africa," East African Economic Review, 1970.

2/ The Zinder Report, op. cit.

3/ The Zinder Report follows up with further erroneous estimates on this basis.

increase in incomes resulting from spending and respending of the primary increase in income, taking due account of leakages from income flow along the way. For any accurate estimation, we have to make realistic assumptions concerning the opportunity cost of the domestic factors employed, the extent of excess capacity in local industries and the magnitude of the leakages from the income flow. We begin by making the most generous assumptions possible for obtaining a high multiplier. Assume (i) that newly employed local factors have zero opportunity cost, (ii) that there is underutilized capacity in all local industries and (iii) that the only leakages from the income arise from imports - in other words that any increase in government revenue and in savings is spent as public consumption or investment expenditure. These are clearly optimistic assumptions. If (i) and (ii) have any relevance at all, it would be during the off-season.

19. To work out the primary impact of increased tourist expenditure, we need to know (a) the sectoral composition of tourist expenditures and (b) the direct and indirect import content of the activities toward which the increased tourist expenditure is directed. Carleen O'Loughlin provides us estimates for both these for the year 1963. ^{1/} The sectoral composition of tourist expenditures is given in the following table:

Table 7

Expenditure by Non-Residents per Dollar Spent

	<u>1963</u>
Purchases	28 cents
Taxis	8 cents
Finance, Insurance	2 cents
Hotels	43 cents
Bars and extra meals	5 cents
Entertainment & professional services	2 cents
Direct rent	2 cents
Direct wages	<u>10 cents</u>
	\$1.00

^{1/} Carleen O'Loughlin, op. cit.

We also need an estimate for the direct and indirect import-content of each of the items in Table 7. This can be obtained by inverting the input-output matrix for 1963. For any sector, the direct and indirect import content is given by multiplying the column vector of inverse coefficients by the row vector of direct import coefficients. (We have already made use of such a calculation in the last chapter for deriving shadow prices). For 1963, Carleen O'Loughlin has, conveniently enough, done this calculation and the results are as follows: 1/

Table 8

Allocation of each \$ Spent to Local Incomes, Government and Imports

<u>Each \$ spent on</u>	<u>Local Incomes</u> (cents)	<u>Government</u> (cents)	<u>Imports</u> (cents)
Purchases	19	13	68
Taxis	55	15	30
Hotels	51	10	39
Services & Entertainment	75	10	15
Rent wages	1.00	-	-
Licenses, fees, etc.	-	1.00	-

If we weight the breakdown of tourist expenditure given in Table 7 by the proportions of local and import coefficients given in Table 8 we arrive at the result that the non-resident dollar is allocated according to the following breakdown: Local income 49%, Government 10%, Imports 41%.

20. For our purposes we can conclude from this that the primary impact of the additional tourist dollar on local incomes (including government revenue) is \$0.59. We must now consider the impact of the spending and respending of these incomes. Carleen O'Loughlin provides us with a breakdown by final use of household expenditure in 1963. Using this data, along with the inter-industry transaction matrix, it is apparent that the direct import content of household expenditure is 46%, assuming all saving to be invested. The proportion going to government is 19% and the rest goes to local incomes and other local industries. 2/ If Government revenue is assumed to be re-spent and its import-content worked out as also that of expenditure going to local industries, we end up with a final share-out of 42% of household expenditure ending up as local value-added and 58% as imports. Since, we are assuming

1/ See Carleen O'Loughlin, op. cit.

2/ See Carleen O'Loughlin, op. cit., p. 14.

that imports are the only leakage from the income flow, simple national income analysis tells us that the primary impact on value added must be divided by 0.58 to get the total impact on national income of additional expenditure. In other words, the multiplier is $\frac{1}{0.58} = 1.725$. But this, of course, is not the "tourist multiplier" for when tourist expenditure increases by \$1, the multiplicand in working out the increase in national income is the primary impact on local incomes which is 0.59, as argued above. Hence the "tourist multiplier" = $0.59 \left(\frac{1}{0.58} \right)$ which is approximately equal to one. It should be noted that this multiplier applies to expenditure by all tourists which includes those who stay in apartments, villas, etc. The multiplier for those who stay in resort hotels is lower because their expenditure has a higher import-content. Table 9 below gives the composition of expenditure by tourists staying in resort hotels in 1963; the data is once again from Carleen O'Loughlin. 1/

Table 9

Expenditure by non-residents staying in resort hotels
per dollar spent

	<u>1963</u> (cents)
<u>Expenditure outside hotels</u>	
Purchases	26
Taxis	12
Finance, Insurance	2
Entertainment & professional services	2
<u>Expenditure in Hotels</u>	
Bills	51
Bar and extra meals	<u>7</u>
	\$1.00

Weighting this expenditure by the import-contents worked out from Table 8 we get a primary impact on local incomes from an additional dollar of expenditure by tourists staying in resort hotels of \$0.555 and a multiplier therefore of $0.555 \left(\frac{1}{0.58} \right)$ which is slightly less than one.

21. One of the assumptions on which the multiplier given above was based was that imports are the only leakage; government expenditure and

1/ Carleen O'Loughlin, op. cit.

investment by residents were taken to be endogenous, the only exogenous items being investment by foreigners and exports, visible and invisible. This is not a particularly natural Keynesian assumption. The normal Keynesian assumption is that government expenditure and investment are autonomous and taxes, savings and imports are leakages. If we operate on the normal Keynesian assumption, the multiplier would be lower. Consider the case of an increased spending of \$1 by tourists in general. From Table 7 and Table 8 we know that the primary impact on local incomes would be \$0.49. (In fact the primary impact would be 0.47 if we exclude direct taxation on local incomes.) To get the tourist multiplier, we must multiply this by $\frac{1}{s + t + m}$ where s, t and m are the proportions of local incomes going in savings, taxes and imports respectively. (We assume that average and marginal proportions are equal.) Data from Carleen O'Loughlin suggest that savings and taxes together account for 18% of household income-use and that the direct and indirect imports by households (this time leaving out the effects of the respending of government revenue and the re-investment of household savings) account for about 46% of income-use. So the tourist multiplier is equal to $0.47 \left(\frac{1}{.18 + .46} \right) = 0.75$. The assumption concerning the endogeneity of government expenditure and investment is not, however, the most critical one made above and could in any case be defended as being fairly realistic in a less developed economy.

22. The more critical assumptions concern the complete unemployment of the additional local factors employed and the presence of substantial excess capacity in local industries. These assumptions could be seriously misleading. It has already been argued in Section B that even local labor has some positive opportunity cost. For unskilled labor we have put it at a quarter of the wages paid in the unionized sector, for skilled labor it would normally be even higher. In so far as there is an opportunity cost to the employment of extra labor, the primary and secondary increase in wage incomes cannot be counted entirely as an addition to national income. And in some sectors this extra employment would be negligible unless there is underutilized capital. For example, even if there exists underutilized capacity in hotels, purchases by hotels from local sources may spill over directly into imports in the case of traded goods. In the case of **nontraded** goods, such as electricity or water, if there is no unutilized capacity, then either capacity must be added to or some other consumer must be deprived at the margin. In either case, the effect on imports is likely to be much greater than the fixed input-output model would suggest. Or to put it in different words, marginal import coefficients are likely to be much greater than average import coefficients. Furthermore, in so far as profits increase, we must consider the repatriated part as a leakage.

23. All this suggests that the concept of a "tourist multiplier" has relevance in Antigua only in the tourist off-peak season which is also likely to be the time when local industries are working below full capacity. Even in this situation, taking account of repatriation of profits and putting some positive opportunity cost on local labor the tourist multiplier is very unlikely to be higher than 0.7 or 0.8, even if we consider imports to be the sole leakage from the income flow. During the peak season, the primary value

added from an extra dollar of tourist expenditure could be as low as 0.2 because of full capacity in domestic industries and the marginal propensity to import out of increased incomes could be as high as 0.8 which would give a multiplier of $0.2 \left(\frac{1}{0.8} \right) = 0.25$. We have already begun to put more weight on the multiplier concept than it can bear. The idea of tourist expenditure on goods and services being met by an expansion of domestic capacity takes us into a long-run situation which the multiplier cannot satisfactorily handle. Another point, which it can even less satisfactorily, is the extra private foreign investment which might be induced by the rising activity. Such induced effects might be important in some cases, but they take us very far from the multiplier idea. 1/

Social Cost-Benefit Analysis of a Small Increase in the Size of the Hotel Sector

24. We now consider the question of whether a small increase in the size of the hotel sector is desirable from the national point of view. This is a somewhat different exercise from the evaluation of a marginal project. Projects might be very different from each other. A particular kind of project might be socially profitable, another might not be. What we seek to examine here is whether a project which has the average coefficients of the hotel sector would be socially profitable. It is, in effect, a shortcut way of assessing the desirability of expanding the hotel sector.

25. The methodology we adopt is to examine the cost structure of the hotel sector in a particular year and to use that to determine the social average cost of operating the sector. We then look at the social average revenue earned by the sector. This enables us to determine the current social average profit being earned by the sector. These calculations provide a basis from which the social marginal revenue and social marginal cost of expanding the sector can be estimated, thus giving some clue as to the social marginal profitability of doing so. The most recent year for available data was 1967, so we had to be content with using that. Not only will it serve well enough as an illustration of the methodology but we also believe that the calculation continues to have some relevance. Occupancy rates in the hotel sector have not improved since 1967 when the average annual bed occupancy rate was 32.7%; in fact, occupancy rates in later years have been rather worse. Such evidence as there is indicates that in real terms, tourist expenditure has not increased significantly. Since supply of hotel beds has gone up, average revenue must now be lower than in 1967. Lower occupancy does reduce average costs though less than proportionately; overall performance would be worse than the 1967 figures suggest.

1/ The question of the "tourist multiplier" has been ably dismissed in J.M. Bryden, Tourism and Development, A Case Study of the Commonwealth Caribbean, C.U.P., 1973. His conclusions are along the same lines as ours. He does not however distinguish between the multiplier in the peak season and the multiplier in the off-season, a distinction which we think is crucial.

26. We begin on the revenue side. Total tourist expenditure in 1967 was estimated by the British Development Division to be about \$18 million split up as follows: 1/

Table 10

<u>Total Tourist Expenditure 1967: EC\$'000</u>	
Hotels and Guest Houses	11,066.9
Transportation (taxis, charters, etc.)	669.2
Finance and insurance	461.5
Services - yachts	1,019.4
other	494.2
Rent of dwellings	346.0
Direct wages paid	800.0
Embarkation tax	67.0
Distribution: direct visitor purchases	<u>3,239.2</u>
Total	<u>18,052.9</u>

For our purposes, we need an estimate of the revenue which can, directly and indirectly be attributed to the hotel sector, because it is the social profitability of that sector that we propose to examine. We have assumed that out of the above, the following tourist revenues can be attributed to the presence of the hotel sector as such. Our estimates are definitely on the generous side. We have excluded those items clearly not connected with the presence of hotels viz. rent (which consists of actual rent of rented accomodation and imputed rent for those non-residents who maintain villas, etc.) and direct wages, (which are paid to their staff by those non-residents who live outside hotels). We have also excluded only half the revenue from yacht-chartering. This is probably being unduly generous to the hotel sector. In addition, we have excluded minor amounts from the other items, which can be attributed to spending by cruise-ship visitors and by tourists who live outside hotels and guest-houses. The item for hotels and guest houses is somewhat larger than in Table 10 because we have included revenues derived from spending by Antiguan residents. The reason is simply that since the item is so small, the trouble of sorting out the costs attributable to tourists as opposed to residents would have hardly been worth it. This leads us to the estimates in Table 11.

1/ British Development in the Caribbean, Economic Survey and Projections: Antigua, 1969.

Table 11

Direct and Indirect Hotel Revenues 1967
EC\$ '000

Hotels and Gust Houses	11,408.9
Transport	600.0
Finance and Insurance	450.0
Yacht	500.0
Other Services (entertainment etc.)	400.0
Embarkation Tax	40.0
Purchases	<u>3,000.0</u>
Total	<u>16,398.0</u>

27. We now turn to the cost side. The British Development Division supplies us with the consolidated accounts of the hotel sector showing the various payments made. 1/ We convert the market value of the various cost items into their accounting price equivalents by using the accounting ratios already worked out. Table 12 below presents the data for the hotels and the notes to the Table give comments where necessary.

1/ British Development Division, op. cit.

Table 12

Social Cost of Running the Hotel Sector, 1967 E.C.\$000

<u>Item</u>	<u>Cost</u> (Market Prices)	<u>Accounting</u> <u>Ratio</u>	<u>Accounting or Social</u> <u>Cost</u>
1. Agriculture	125	0.85	106.25
2. Construction & Engineering(Maintenance)	774.8	0.84	650.83
3. Distribution	3,430.0	0.84	2,861.2
4. Transport	171.5	0.74	126.910
5. Services(Bands etc.)	220.0	0.75	165.0
6. Skilled and Managerial Wages and Salaries	2,510.0	0.8	2,008.0
7. Unskilled Wages	835.9	0.6	502.14
8. Gratuities(skilled workers)	565.68	0.75	424.15
9. Gratuities(unskilled workers)	377.12	0.6	226.272
10. Free Meals(skilled workers)	57.86	0.8	46.288
11. Free meals(unskilled workers)	217.64	0.6	130.584
12. Taxes(Hotel Tax etc.)	201.5	0	0
13. Govt. services(stamps etc.)	48	1	48
14. Electricity	190	1	190
15. Water	160	1	160
16. Other public utilities	10.9	1	10.9
17. Direct imports	240	0.9	216
18. Commissions	827	1	827
19. Insurance Premiums	118.2	1	118.2
20. Repatriated Profits	246.6	1	246.6
Total	11,407.7		9,084.334

1/ British Development Division, op.cit.

Notes to Table 12

1. An accounting ratio somewhat lower than that typical of traded goods is used in order to allow for the possibility that some local supplies could be produced below c.i.f. price if there were extra demand for them.

2. It is assumed that the maintenance expenditure recorded in the hotel sector accounts is adequate and appropriate to keep the capital stock intact.

6 & 7. The consolidated accounts did not separate skilled and managerial wages from unskilled wages. On the basis of information obtained in Antigua, we attributed 75% of the total wage-bill to the former and 25% to the latter category.

8 & 9. Gratuities were divided between skilled and unskilled in the proportion 60:40, again on the basis of information obtained in Antigua.

10 & 11. The cost of free meals was divided between skilled and unskilled workers in the proportion 25:75.

13,14,15 & 16. We used a conversion factor of 1 because of the near-certainty that the relevant public utilities were not covering their operating plus capital charges at accounting prices.

19 & 20. Payments of insurance premia by hotel owners and repatriated profits were treated fully as a cost the assumption being that these all went abroad.

28. So far we have only looked at the hotel sector. We must now consider the indirect net social benefit from the hotel sector. We have already estimated in Table 11 the indirect benefits. In Table 13 below we consider the social costs of earning this revenue.

Table 13

Social Cost of earning Indirect Revenue from Tourists EC\$ '000

<u>Item</u>	<u>Revenue</u>	<u>Accounting Ratio</u>	<u>Accounting Cost</u>
1. Transport	600	0.74	444
2. Finance and Insurance	450	0.87	391.5
3. Yachts	500	0.8	400
4. Other services	400	0.75	300
5. Embarkation Tax	40	0	0
6. Purchases	<u>3,000</u>	<u>0.84</u>	
	4,990		4,055.5

The accounting ratio of 0.8 for yachts probably takes an unduly generous view of the social profitability of the yachting business. In addition to all of the above, we must also include on the cost side any government expenditure which is connected with tourism which is not already in the items given above. Promotion expenditure by the Government is an obvious candidate. In 1967, this was very low and it has since been considerably stepped up. However, even a conservative estimate would suggest that it would not be possible to continue to achieve a 30% occupancy rate without government promotion expenditure of at least \$500,000 per year. There are other government expenditures connected with the presence of tourism which have not gone into the calculation above in any direct way. We have tried to take account of the costs of supplying electricity and water by not deflating the prices that hotels are charged for these services. But what about road maintenance, expenditure on fire and police services, airport and port maintenance, etc. Some of these have come in indirectly e.g. through the accounting price for transport and the fact that the accounting prices of traded goods do make an allowance for port charges. The airport, again, is a difficult matter. It certainly pays for itself but most of its revenue comes from landing charges for aircraft which do not bring tourists directly to Antigua. Whether tourists pay their proper share of airport costs is not clear. What we do here is to increase the costs enumerated above arbitrarily by \$1 million in terms of our numeraire of foreign exchange to allow for net government expenditures on account of tourism which are not already included through the accounting prices charged. ^{1/} Table 14 below summarizes our calculations so far.

^{1/} Evidence given in Appendix I indicates that this figure is, if anything, on the low side.

Table 14

Current Direct and Indirect Social Benefits and Costs
of Hotels 1967: EC\$ '000

	<u>Benefits</u>	<u>Costs</u>
Direct	11,407.7	9,084.334
Indirect	4,990	4,055.5
Government Promotion	--	500
Other Government Expenditures	<u>--</u>	<u>1,000</u>
	\$16,397.7	\$14,639.8

29. It would be misleading to subtract the costs from the benefits and say that this is the contribution of the hotel sector as a whole. The reason is obvious: The calculation above is strictly speaking accurate only at the "margin". In considering the contribution sector as a whole, one could not continue to use the accounting prices given above, especially that for labor since the price of labor includes an intro-marginal rent which is the result of the presence of the hotel sector. A more meaningful way to present the results above is to calculate the average revenue per room-night and average cost per room-night. Dividing the benefits and costs by the number of room-night available in 1967 (850x365), we get social average revenue of \$52.853, social average cost of \$47.187 and therefore social average profit of \$5,866. Now what can we conclude from these calculations?

30. It is clear that if we can assume that, at the margin, expanding the hotel sector would not reduce average benefits nor raise average costs then a small increase in the size of the hotel sector would be socially profitable. Suppose, for example, we were sure that at present Antiguan prices (in real terms) demand for Antiguan tourist facilities would expand for exogenous reasons (e.g. rising incomes in advanced countries) at such a rate as to permit a certain increase in hotel capacity without lowering the overall occupancy rate. Then, prima facie, we have some ground for saying that increasing hotel capacity at that occupancy rate would be socially profitable - unless we have some reason for believing that social average costs will rise even if the occupancy rate remains constant. In Antigua, for traded inputs we can undoubtedly make the "small country" assumption; Antigua is too small to affect the prices of the goods it buys. As for non-traded goods, their traded components are also available at prices unaffected by the quantity purchased; the shadow wage might be expected to remain constant for small increases in the hotel sector; land is not yet a serious constraint; there is as much possibility of economies of scale as of dis-economies of scale in public utilities at least over the medium run; and

tourism while it makes a very sizeable contribution of GNP is not yet so large in absolute terms as to cause significant external diseconomies. (Some of these statements could be disputed.) But in any case if it is true that a small increase in the hotel sector at the occupancy rate of 1967 would leave average costs roughly constant then it would appear to be socially profitable to expand the hotel sector. This is a statement of some importance. It is often alleged that if a proper balance-sheet is constructed for the tourism sector one would find that "more goes out of the economy than comes in." We have, in effect, shown that even at the low occupancy rate of 1967, tourism was a socially profitable activity at the margin. If one thinks about it, this result is not really very surprising in the context of Antigua. The principal reason for this is that the capital investment in hotels is done by foreigners and as far as the economy is concerned this capital has zero opportunity cost. The costs consist of the investment in infrastructure that the government makes for the purposes of supporting tourism and of repatriated profits; the benefits consist of the employment of underemployed labor and the net tax revenue accruing to the government. This is precisely what our balance-sheet for 1967 shows. Our accounting ratios attempt to measure the social cost to the economy of various inputs, taking account of the benefits from increased employment and consumption and tax revenue. As for infrastructure, we have so far as is possible, charged the hotel sector prices which ensure an adequate return to capital; we have also included on the cost side an item of \$1m to catch any costs which might have escaped attention. Social profit so worked out represents therefore a pure gain to the economy.

31. We have shown above that a small expansion of the hotel sector in 1967 would have been socially profitable if average revenue and average cost had remained the same. Now, the average cost included average repatriated profit in 1967. So implicitly what we have said is that if foreigners were willing to build hotels at the same rate of profit as was available to them in 1967 then it would have been socially beneficial from the economy's point of view. This is a rather large "if". Total profits in the hotels sector in 1967 were only \$246,000. ^{1/} This represents a return of only 2% on sales. If the capital - gross output ratio in the hotel sector is 3 (this is the figure given by C. O'Laughlin for 1963) then clearly the private rate of profit on capital is less than 1%. So, saying that the hotel sector socially profitable both in total and at the margin is not necessarily the same thing as saying that it is a viable sector in the long-run. Since investment in hotel sector comes entirely from foreigners, whether they will continue to invest in it depends on the private return they obtain. Certainly 1% looks very low. In fact, the matter is more complex. Though, ostensibly the private return is low, it might in fact be higher, because of the possibility of making capital gains, the possibility of reducing the tax burden in the countries in which their wealth is principally situated and in some cases because of the "psychic" return from owning a hotel in the Caribbean. We have not in fact gone into this question in any detail but we suspect that the perceived private return is

^{1/} British Development Division, op. cit.

substantially higher than appears at first sight. So, it is possible that there will be new investment in spite of a low apparent private return and our analysis then tells us that it is in the social interest to allow it at the margin.

32. Let us consider two scenarios which consider the question of direct public investment in tourism. First, suppose foreigners are not willing to continue investing. Would it be in the government's interest to invest in hotels itself, assuming that the government can run them just as efficiently? Suppose that a government hotel showed the same average revenue and average operating cost as the sector, then a room-night sold by the government would earn \$52.9. Average cost would be less than \$47.2 by the extent of average current repatriated profit per room-night but greater than it by the extent of a capital charge. The average repatriated profit is $\frac{\$246,600}{850 \times 365} = \0.79 .

The capital charge using an accounting rate of interest would be 6% of the capital required to supply a room-night. Using a capital-output ratio of 3, the capital stock per room-night is $\frac{(11407700}{850 \times 365} \times 3) = \110.3 and the

capital charge is 6.618. Average cost therefore is $(47.2 + 6.618 - 0.79) = \53.028 . This average cost would be greater than average revenue. At the occupancy rate of 1967, it would not make sense for the government to invest in hotels if we use an interest rate of 6%. Second, suppose foreigners are willing to continue investing. Should the government nevertheless prevent them and go ahead itself? This would not be economic even assuming that government run hotels would be equally efficient. The economy can obtain the benefits from taxes and employment without such an investment. The only extra benefit of nationalization would be that repatriated profits would stay in the country, but the extra cost would be that the government would have to put in the capital (which foreigners are willing to put in). Such an act would make sense only if the private rate of profit earned and repatriated by foreigners is greater than the accounting rate of interest. This is of course far from being the case.

33. Can we use the above estimates to say anything about the hotel sector in 1973? We can make some plausible guesses. We know that though the number of visitors has increased somewhat since 1967, the actual number of bednights sold has been falling as a result of a declining average length of stay. In the meantime, the number of hotel rooms has gone up by about 300. Occupancy rates have clearly been declining. Room rates have been going up but so have costs of both imported goods and of labor. It is overwhelmingly likely that if a similar quantitative analysis could be conducted for the year 1972, the gap between social average revenue and social average cost will be found to have narrowed, if not closed altogether. In other words, an expansion of the hotel sector is not likely to be socially profitable at an occupancy rate much below that prevailing in 1967.

34. This brings us to what we think is an extremely important question in the context of Antigua viz. the relationship between occupancy rates and social profitability. Our quantitative analysis concentrated on the relationship between average revenue and the average cost per room-night to throw light on the question of whether an expansion of the hotels sector at a given occupancy rate was socially desirable. But there is a different question which may be more important viz. is the existing hotel sector capacity being used so as to maximize social profitability. Common-sense would suggest that it is not and if occupancy rates could be increased by suitable price and promotion policies, social profitability would be greatly increased. The imponderables here concern the responsiveness of demand to price and advertising. Prices in Antigua are extremely high even by Caribbean standards. On the other hand, the climate in the summer is excellent and we believe that if prices could be lowered further in the off-season and if this were combined with more aggressive advertising, it would be possible to double off-season occupancy rates. The social average cost would decline for two distinct reasons:

- (i) Costs at market prices would in several cases increase less than pro-rata. Many so-called "variable costs" contain a large fixed element. Labor is the most important case. Managerial staff and a very high proportion of skilled labor have to be maintained all year round. Information we obtained in Antigua showed that if off-season occupancy rates were doubled from 20% to 40%, the annual wage and salary bill, inclusive of gratuities, would not increase by more than 20%. (It is assumed here that the peak season occupancy rate is 60% and that the peak season is 3 months long). Many other expenses do not increase pro-rata e.g. water requirements, maintenance expenditures. Also the possibility of reducing costs by slightly lowering the quality of the product during the off-season must be borne in mind.
- (ii) It must be remembered that in an economy in which tourism is so important, the hotel off-season would be a time when there was excess capacity present in many other sectors. This would be the case in public utilities, transportation, distribution. From the economy's point of view, fuller utilization of existing capacity in these activities is much less expensive than adding to capacity. What this means for shadow pricing is that in calculating the social profitability of increasing occupancy rates we should use lower accounting prices for nontraded goods during the off-season than we do during the peak-season. There would even be a case for using a lower shadow price for unskilled labor.

What all this amounts to is that the social profitability of increasing occupancy rates would be very high in Antigua.

35. Evaluating a large increase in the size of the hotel sector when it is already very large in relation to the economy presents severe problems. There is a difficulty simply in specifying the problem. In any evaluation

we have to compare alternatives. What we need to do in this case is to compare the course of the economy with and without the proposed expansion of the hotel sector. It is not at all easy to specify how the economy will develop over time in the absence of the proposed expansion. Undertaking the proposed expansion, if it constitutes a large change, may change relative prices. For example, the relative price of labor may rise. The question then is how do we price labor when we evaluate the program? The answer to this depends on what would have happened to the price of labor in the absence of the program. If it would have gone up anyway, it is correct to use a rising price. But if the increase in the price of labor is the result of the proposed plan and would not have occurred in its absence, it would be a mistake to treat the increase in price as a cost. (However, projects outside the hotel sector should be evaluated using a rising price of labor). It is important to be careful in specifying the exact timing of the expected benefits and costs. This is particularly important in the case of large, indivisible investments in nontraded goods like water, electricity and airports. The program can be significantly affected by the exact timing of expansion in these facilities.

36. The problem of predicting future changes in relative prices, while theoretically thorny, is not in practice, the most difficult problem in planning for the tourism sector in Antigua. It would not be far off the mark to assume that prices of traded goods are beyond the control of the economy and the long-run prices of nontraded goods are also constant, on the assumption of constant costs. What is more difficult is simply to obtain data on the infrastructure requirements of the tourism sector, of how much of the infrastructure costs are to be "allocated" to tourism and of the timing of the required increases in infrastructure. The information we have on infrastructure requirements is set out in Appendix I.

D. ECONOMIC POLICY IN ANTIGUA WITH PARTICULAR REFERENCE TO TOURISM

37. In this concluding chapter we shall consider the problems and issues facing economic policymakers in Antigua. In an economy which is so dominated by tourism, it would be artificial to consider policies toward tourism in abstraction from general economic policies. Accordingly we begin with an analysis of what appears to us to be the central economic problem facing Antigua - its lack of international competitiveness resulting from over-rapid increases in domestic money incomes and costs. If the Antiguan economy, including the tourism sector, is to prosper, this problem will have to be decisively tackled. We pass on to consider, at a rather general level, whether the dependence of Antigua on tourism is "excessive". We then proceed to discuss certain questions more narrowly concerned with the future development of the tourism sector. Obviously, this separation of topics is for convenience only and they are closely inter-related.

38. Antigua has no control over its exchange rate and being a colonial monetary economy cannot run a deficit on its foreign balance. So, lack of international competitiveness manifests itself in the low profitability of export industries and in widespread unemployment. Money wages have been growing since 1960 at an average rate of about 10% a year, and in certain years - e.g. in 1968 - they have grown very much faster. Labor productivity in Antigua is low by international standards and is growing slowly. Seen against this background, the high rate of unemployment and the lack of diversity in the industrial structure are not really surprising. The presence of unemployed labor on a significant scale suggests the potential for labor-intensive industries. Some developing countries have made a great success of exporting labor-intensive goods. There is also increasing scope for international sub-contracting. But for Antigua, the prospects in this respect are not very encouraging. Money wages are set in the "leading sectors" where private foreign enterprise is important - banks, hotels, oil refining - and in some other "essential industries" such as airlines and telecommunications. They set the standards and the expectations for wage-earners in other sectors as well. The result is that unskilled unionized workers receive money wages which are higher than those prevailing even in countries where labor productivity is much higher than in Antigua. And it is certain that the labor force in any new enterprise would be very rapidly unionized. So it is very difficult to imagine a successful export drive in Antigua based on low-wage labor in present conditions.

39. This problem is so basic that certain related points deserve elaboration. It would be quite wrong to think that the problem could be solved by Antigua having its separate currency and an independent Central Bank with power to vary the money supply and to alter the exchange rate. There is indeed a perfectly understandable sense in which the Antiguan exchange rate is "over-valued". But a devaluation could correct this overvaluation only if it is not fully and rapidly nullified by the upward march of money incomes and this is

precisely what would happen in Antigua. Being a highly open economy, the prices of traded goods in home currency are very important for the cost of living; the rise in the cost of living would make it almost impossible for a devaluation to stick. What this means is that any sustained economic progress in Antigua is probably conditional upon some control over the growth of money incomes and this means some control over the activities of trade unions. Under certain circumstances, trade unions may be good. For example, a colony in which the government is unwilling to tax private foreign enterprise, raising money wages may simply mean less repatriation of profits. But this point is not particularly important when foreign enterprise can be taxed. At a more subtle level it might be argued that, under certain conditions, trade unions can reduce the share of profits in the national income. (The condition under which rising money wages will do this is if the price elasticity of demand for labor is less than one and rising wage cannot be fully passed on in increased prices of final goods). If supplemented by the further condition that the employed who thereby benefit redistribute towards the unemployed, it can be argued that militant trade unionism is very desirable.

40. There are at least three reasons why militancy among trade unions is inhibiting growth in Antigua. Rising real wages reduce the government's budget surplus either directly through reduction in the profits of government enterprises or indirectly through a reduction in the tax revenue which can be squeezed out of private profits. The government might be a more efficient redistributor of this surplus than the employed workers, particularly toward future generations via investment. The reduction in the surplus of output over wages means a reduction in saving and investment either through a reduction in the government's budget surplus or through a reduction in private profits (on the reasonable assumption that profit earners save more than workers at the margin). This means a reduction in the rate of growth of the economy. The increase in money wages, through which the increase in real wages is sought to be achieved, is disastrous in such a highly open economy because it leads to a decline in international competitiveness and a slowing down of export growth.

41. High and rising money incomes and militant trade-unionism are problems not only for nascent industries but also for the development of well established industries such as tourism. Under certain circumstances there exists a cogent argument for raising the prices of tourist facilities above what free competition would lead to. This is simply the application of the optimum tariff argument applied to invisible exports. If a country possesses some monopoly power in international trade, then from the national point of view, it makes sense to "tax the foreigner". But this argument has very little relevance in Antigua at present. It may be applicable to some extent during the tourist season when Antigua taps an upper-income tourist demand which is relatively inelastic with respect to price. But during the off-season, prices charged by Antiguan hotels are patently too high. In the fiercely competitive tourist business, Antigua does not possess the monopoly power to be able to charge such prices and get away with it. This applies not only to hotel rates, but also to the prices of other tourist services such as taxi-transport. Taxi fares in Antigua are higher than those in New York and the taxi drivers' union prevent the organization of any cheaper transport arrangements for tourists. Even during the peak season, the present price structure really means that only

three or four hotels do very well - those that cater to a clientele which is insensitive to prices in the relevant range. Others have occupancy rates of 50% to 60% which are no better than passable. Furthermore, long-run elasticities for most of these hotels would be quite high with the increasing competition from cut-price charters to other parts of the world. The problem of hotel rates is not wholly the result of the pace of money wage increase but the latter is undoubtedly a major contributory factor. What is perhaps even more important is that the pace of money wage increases prevents the diversification of the productive structure in Antigua through the development of new, internationally competitive industries. The result is that excessive dependence on tourism becomes self-perpetuating. 1/

42. The importance of tourism in Antigua leads quite naturally to the question of whether the dependence is "excessive". We have estimated in an earlier chapter that 40% - 50% of GNP is generated directly and indirectly by tourism. This is certainly a very high figure and makes the economy heavily dependent on one export product, in the same way as in earlier days when the dependence was on sugar. The income elasticity of demand for tourism is fairly high in developed countries and Antiguan tourists are drawn very heavily from North America. So cyclical trends in North America undoubtedly have a direct impact on Antigua as illustrated by the effects of the recent recession in the U.S. One can exaggerate the variability of receipts from tourism. There is lack of and need for studies which systematically compare the fluctuations in earnings from tourism as against fluctuations in earnings from other exports - we suspect that the difference is unlikely to be significant. A quite separate and legitimate point is that even if fluctuations in tourism are no greater than in commodities, this matters in Antigua because its exports are so concentrated. (Earnings from tourism were more than 200% of visible exports in 1968.) In other words, there is a quite legitimate argument for diversification - the more diversified the exports the smaller the effect of a fluctuation in any one of them. Obviously there are also costs to diversification - costs of investing capital and in learning the skills for developing new industries from scratch. And diversification can obviously go too far: the potential benefits from tourism exports may outweigh those from other exports even after taking account of the fluctuations and the instability.

43. Any reduction in Antigua's relative dependence on tourism in the immediate future seems quite out of the question but possibilities are not lacking in the future. Sugar was always marginal in Antigua and has now totally collapsed. Even at the high prevailing world prices, sugar production would not be viable. Any other agricultural alternatives such as livestock, sea island cotton or vegetables would require a decisive and imaginative approach to the water and irrigation problem and in addition greater willingness on the part of the local population to engage in such activities. An important

1/ So far, for obvious reasons, the Government has not taxed unskilled workers. This option should be seriously considered though it would be useless if trade unions succeeded in raising the wages employers have to pay sufficiently to keep workers' disposable incomes constant.

difficulty with livestock development is the high cost of imported feed; so the development of alternative feeds - e.g. those based on sugarcane - is vital. If agriculture were better developed, there could be a fruitful symbiotic relationship with tourism. At the moment, tourism has many of the characteristics of an enclave industry. Tourists generate business mainly for the fruit growers of Florida and the ranchers of Texas. At the moment the amounts that domestic agricultural and fishing activities can supply are small and irregular and the quality is variable. But these problems could be overcome by an active government program to overcome the production and marketing problems. As for manufacturing industry, the local market is clearly too small to support it and the situation would not be much improved, at least as far as Antigua is concerned, by the formation of the Caribbean Common Market. It is the world market that Antigua must aim for and there are precedents of small countries following such an industrialization strategy very successfully. The problem for Antigua is one of skills and of wage-levels, of which the latter is the more immediately relevant. Skills can only be developed over time in the process of work; if wages are too high relative to those elsewhere, new industries cannot get started.

44. An important criticism of tourism is that it prevents moderation of money wage increases because it sets the standards which other sectors follow. There is some truth in this though the same argument would apply to any leading sector. It is certainly easier for trade unions to demand higher money wages from foreign enterprises on the ground that they are simply reducing repatriation of profits and foreign enterprises, generally on the defensive nowadays, are willing to give in. On the other hand, it would probably be better for wages to be kept low and for government to tax the profits and use the revenue for investment or for redistribution in a systematic way. The mistake in Antigua was not the advent of tourism but the fact that it came unawares and that the response to it was unplanned. The government should have been tougher on wage increases and correspondingly tougher about taxing hotels. The substantial tax incentives enjoyed by hotels are not at the moment a major cost to the economy because the hotels sector is not particularly profitable. But if and when profitability is increased, (for example by better off-season occupancy rates), it would be essential to eliminate excessive tax incentives. At present, hotel investors are not only exempt from import duty on hotel construction, they are also exempt from income tax on distributed and undistributed profits for five years after completion of construction; thereafter in any five of the following eight years they are allowed to set off one-fifth of the capital expenditure against the profits earned from the hotel operation. The concessions also apply to any additions or extensions made to the hotel but the law is ambiguous on whether in the case of an extension, the concessions apply only to the profits arising from the extension (as would seem natural) or whether they apply once again to the entire operation. At least one very successful hotel has not paid any taxes at all for the last twenty years, according to the Income Tax Commissioner. This degree of concession would appear to be excessive.

45. It does not seem particularly realistic to blame tourism as such for the ills of the Antiguan economy. There was always substantial in and out migration from Antigua and the sight of a few tourists is not enough to twist the wage-structure. As for the unwillingness to cut cane and to work in agriculture generally, this has been prevalent since before the tourist boom. We think a boom generated by anything would have had the same effect on the wage-structure. Nevertheless, the arguments against an indefinite expansion of tourism are strong. Not only does prudence dictate diversification to prevent excessive swings in economic activity, it also dictates limits to having too many tourists in such a small physical space. No doubt many of the often-mentioned ill-effects of tourism can be reduced by careful planning. It would be unwise for the government to allow access to beaches to be closed off to the local populace, to permit large-scale alienation of land or to let residents be deprived of essential public utilities in favor of tourists. To some extent this is a question of using the price system but it will, in general, also involve legal measures. If the setting up of a few more hotels is going to worsen the sewage situation, then the cost of expanding sewage plants must be included in the capital costs of the hotels. Hotel-building must show positive benefits taking these costs into account, otherwise it is not justified. The prevention of pollution of beaches and the preservation of local styles of architecture are again questions where government can influence private action. So far governments in developing countries have not been active in this respect. But there is no reason why they should not be. However, even with far-sighted planning, the expansion of tourism beyond a point would create problems. The problems mentioned above become more difficult to handle the more tourists there are. And there may be something distasteful about the majority of the population earning their living by providing their services to tourists. The argument against the cultural influence of tourism is really concerned with the speed of change for change will probably come anyway. To concentrate exclusively on rapid development of tourism is therefore not a wise strategy. Diversification is not easy for reasons outlined earlier but it is extremely important that the government should make every effort to achieve it.

46. The immediate problem facing tourism policy which is also of vital importance for the health of the economy as a whole is how to improve occupancy rates. The reasons for the low occupancy rates, especially during the off peak season are uncompetitive prices, inadequate promotion, over-capitalization and lack of drive on the part of the hoteliers. The problem concerning hotel rates has already been mentioned. there is little doubt that from an individual tourist's point of view, a holiday in Antigua is an extremely expensive proposition. Part of the answer must lie in controlling the rate of increase in money wages. Even if this is taken to be outside government control, there still exists the possibility of lowering off-season prices further. The degree to which this can be done depends on the elasticity of demand, and of the variation in unit costs with occupancy rates. These can be tested pragmatically.

47. Promotion is equally important. The summer climate in Antigua is exceptionally good, even compared to the rest of the Caribbean, but very few people know about this. The European market needs to be cultivated because

Europeans, unlike Americans, almost uniformly take summer holidays. This will involve some initial effort. (At the moment it is a fair guess that very few Englishmen know what M.A.P. means). Diversifying the market will also reduce the chances of swings from an economic recession in any one country. Lower prices and aggressive promotion are not enough. Entertainment on the island is extremely limited and transport is prohibitively expensive. The government will have to take measures to improve the facilities for tourists outside the hotels and they have to be bold in dealing with the taxi-drivers' union. Other concrete steps the government could take would be to reduce the bed-tax, the hotel sales-tax and the embarkation tax during the off-season. A further problem, we think, is the apparent lack of desire to maximize profits on the part of hoteliers. In some cases hotels were owned by people whose wealth was mainly elsewhere, the Caribbean venture being for show and for entertainment. The government will have to find a way of persuading hoteliers to behave more like businessmen. The social benefits from increasing occupancy rates are very large because the off-season is a time when there is some slack in many activities in Antigua. Since capacity in these activities is tailored to meet peak season demands, increasing off-season tourism does not involve any increase in fixed costs. Finally, it should be mentioned that while increasing occupancy rates is a feasible policy in many cases, there probably are some cases of hotels which are genuinely over-capitalized i.e. where fixed costs are so high that it is cheaper for them to close down than to reduce rates (given any feasible increase in occupancy achieved thereby). 1/ Nothing can be done about these for the present.

48. An important issue for future policy concerns the optimal size of hotels. Remarkably little quantitative work has been done on the extent of economies of scale in hotel operation. Economies of scale undoubtedly exist at the managerial level - a 200 room hotel would not require 4 times the staff of a 50 room hotel. There are probably some economies of scale in airconditioning and other types of equipment because of the indivisibilities in the physical plant. (It does not follow from this that one should have large, air-conditioned hotels.) There are clearly economies of scale in the provision of entertainment services. This is a point of some significance since the provision of entertainment is necessary to persuade guests to use the hotel dining-room and not dine out. There are some economies of scale in certain categories of hotel staff. At least one barman is required whatever the size of the bar; one skilled chef is necessary even with few guests. However, small family enterprise hotels have their own advantages. Family members rather than wage labor can look after guests, and the supply price of family members is generally much lower since they share in the profits. It may well be the case that hotels in Antigua are neither large enough to reap significant economies of scale nor small enough to reap the advantages of family enterprises. Recently, the fashion has been in favor of very large hotels. The principal argument in their favor would

1/ In theory, it is conceivable that while increasing occupancy rates in this way is privately unprofitable, it is socially profitable. This would mean that the government should subsidize their operations. This is not a practical suggestion, but the existence of such overcapitalized hotels does raise important questions for the future development of the industry.

seem to be economies of marketing. Large hotels make block bookings easier and from the point of view of tour operators this is an important advantage. It should be noticed, however, that package tourism is very well developed in Europe in spite of the existence of small hotels. It obviously requires more sophisticated marketing but in principle, with adequate coordination, it should not be much more difficult to distribute a Jumbo-load of tourists over several small hotels than to pack them into a single hotel. The problem is one of ensuring that all the small hotels maintain certain standards of quality. It has to be admitted that this is not easy but it is an alternative worthy of serious consideration because of the compensating benefits of very small hotels. They are generally less capital-intensive, they have local ownership which saves a repatriation of profits, they create a class of people experienced in hotel management and they involve the local people to a greater extent in the tourism business. On the other hand, capital has to be found for the initial investment.

49. Another issue in tourism policy is whether to encourage luxury tourism or middle-income tourism. This is not quite the same distinction as large versus small hotels. There are many small luxury hotels, though very small family hotels are likely to be modest in the comforts they provide. Large hotels can be designed for luxury or middle-income tourists. The tangible advantage of encouraging middle-income tourist is the saving on infrastructure costs. Fewer telephone lines would be required; there would be very considerable saving on electricity if air-conditioning can be eliminated; less water would be needed if there are showers instead of baths. Middle-income tourists might also make it easier to maintain high occupancy rates during summer. The employment implications of luxury versus middle-income tourism are not totally clear. Middle-income tourists need less in the way of capital-intensive equipment; on the other hand, luxury tourists demand a lot of personal service which is labor-using. Again, there has been very little quantitative work on this important issue. The social implications might also be different. If the choice is that between small numbers of luxury tourists and large number of middle-income tourists (total capital investment being the same), there is a genuine question. So far Antigua has catered for upper-income tourists. It may be desirable, we think, to move to some extent in the direction of middle-income tourists. There is no reason why there should not be some large hotels, 200-300 rooms in size and also some small family-run hotels with a somewhat different market. 1/

50. Two other problems in Government policy towards tourism deserve some discussion. The first concerns the calculation of infrastructure requirements. We have found that this is the most important estimate that is required and the one that Antigua is most difficult to make. To construct a proper balance sheet of tourism one needs to know with some precision the demands that tourist facilities of different kinds would make on public utilities and the timing of the increases in capacity that would be required. Of course, public

1/ The number of people who could successfully manage such hotels is still very small and the marketing problems are probably difficult to handle, especially given the reluctance of American tour operators in this respect.

utilities may benefit not only tourists but residents; so, to work out the costs of infrastructure which should be attributed to tourism as such is not very easy. But no rational decisions are possible without making some estimates. The second issue concerns government policy regarding tax incentives. As already discussed, present tax incentives are excessive in the potential loss of revenue they involve, and the tax loopholes open to profitable hotels seem to be very large. There is urgent need for uniformity in tax incentive policy and for ensuring that profitable hotels contribute to the public purse. If and when the profitability of hotels can be increased their contribution to the economy will hinge on whether a substantial proportion of these profits can be taxed.

51. The economy of Antigua in its present state does not induce optimism in an outside observer. It depends heavily on tourism but tourism is languishing. Hotel rates are excessively high and occupancy rates are low. Trade unions are powerful, money wages are increasing rapidly and the government faces a severe debt crisis. The prospects for Antigua are gloomy unless by a combination of skillful policy and leadership the government can improve occupancy rates and profitability in hotels. This would ease the revenue situation, stimulate investment and permit some much needed diversification of the economy.

Infrastructure Requirements in Relation to Tourism

1. The soundest basis for estimates of future infrastructure requirements in connection with tourism in Antigua would be a careful analysis of experience in the recent past. Unfortunately this approach is severely hampered by the quality of the statistical data available. Much of the data is so weak that it would be misleading to present it without severe reservations.

For recurrent expenditure or income in connection with infrastructure, figures are often missing for many recent years. For water, income is supposed to have been exactly EC\$417,453 for two successive years, a rather suspicious coincidence. Expenditure often appears under surprising heads in the Estimates: in the 1970 Estimates, only EC\$71,328 appears under "Public Works Water Division" but a total of EC\$355,012 for water appears under "Ministry Headquarters and General Administration". Recurrent expenditure on roads is very difficult to separate from expenditure on other public works such as buildings. Nevertheless, the data on recurrent expenditure on infrastructure is good compared with that for capital expenditure. Generally, only estimates of future expenditure are available from the annual Estimates, not data on actual expenditures in the past. A delayed project may also appear in a second year's Estimates, and it is not always clear whether or not this has occurred from the title of the expenditure. Data on aid- or loan- financed projects -- the majority by value -- is very patchy. The analysis which follows is inevitably affected by the quality of the data on which it is based. For the harbor, we were unfortunately unable to obtain sufficient data for any analysis at all.

2. The data available on expenditure and employment in the police and fire services is as follows:

Table 1

<u>Calendar Year</u>	<u>Number</u>	<u>Actual Recurrent Expenditure in EC\$</u>	<u>Capital Expenditure from Budget Estimates</u> EC\$	<u>Other Capital Expenditure</u> EC\$
<u>Police</u>				
1968	N.A.	640,124	About	Admin. Bldg.
1969	272	1,005,580	50,000	288,000
1970	272	1,361,376	per annum,	and Vehicles
1971	273	1,148,907 (certain items excluded)	(1970-73)	82,000

Recent recurrent expenditure has been EC\$ 1.3-1.4 m., and capital expenditure EC\$ 150,000 (British aid).

<u>Fire</u>				
1968	N.A.	189,576		Coolidge
1969	72	237,241	Generally	Airport
1970	72	254,944	Low	
1971	72	273,383		192,000

For reference, it may be useful to note that tourist bednights declined from 1968 to 1971, from about 224,000 to 173,000. From this it can be deduced that:

- (a) There is no close link between tourism and a need for expanded police and fire services. For a period a country can probably "get by" with existing facilities.
- (b) Much of the increasing cost of the police and fire services was due to inflation, particularly wage inflation. In 1969 there was a particularly sharp wage increase.

Furthermore, civil disturbances, not directly related to tourism also contributed to the increase in police expenditure after 1968.

3. According to the Chief of Police himself, in 1965 police strength was about 150, and in 1973 it was 303: he attributed 100 of this increase to tourism, which would seem to be an over-estimate. If related proportionately to tourist arrivals, it would suggest no need for police at all in the absence of tourism. However, from 1965 to 1972, tourist arrivals did rise from 48,651 to 72,328; and cruise ship visitors rose from 11,776 to 64,099. Even from 1968 to 1971, tourist arrivals rose from 55,838 to 67,367, and cruise ship visitors rose from 15,763 to 38,117 -- the apparent paradox in the relation between tourist arrivals and bednights being explained by a shorter average stay. To some extent the numbers in the flow of tourists itself creates work for the police, regardless of length of stay. Shorter stay tourists still had to be processed by immigration, and would probably have spent more of their time walking or driving around the island rather than esconced in their hotel or on its beach. Overall, it might perhaps be reasonable to attribute a third of police employment and expenditure to tourism, i.e. 100 people, recurrent expenditure of about EC\$450,000 p.a. and capital expenditure of EC\$50,000 p.a. However, because a large increase in tourism could well cause a rise in wage rates, a doubling of tourism might quite possibly double money expenditure on the police services, as occurred (with a time-lag) after the sixties tourism boom.

4. The need for fire services is related to tourism: at present half of the 78-man force is stationed at Coolidge Airport. While the airport is not solely a tourism facility, it would appear reasonable to attribute at least half of employment and costs of fire services to tourism, since the fire services also protect hotels. Thus tourism may account for employment of 40, recurrent expenditure of EC\$ 150,000 and capital expenditure of EC\$ 50,000. As in the case of the police force, a large increase in tourism could well cause wage inflation in Antigua and hence increase money expenditure sharply. If however, there was an increase in tourism -- say 30% in bednights -- largely caused by better hotel occupancy rates, particularly in the off-season, it is quite possible that neither the police nor the fire services would require much expansion. Both services have to be manned and equipped so as to deal with peak rather than average demand. Certainly, in the short run Antigua would be able to get by without a significant increase in expenditure under these heads.

5. Accounts for water supply are particularly bad. Most projects (except the desalination plant) have been aid-financed, and no depreciation costs have been allowed. Rather over half of water consumption is unmetered, and earns no revenue, (e.g. public stand-pipes). Domestic users pay EC\$ 3 per thousand gallons, and hotels EC\$ 6; there could well be a certain amount of truancy in the payment of water bills. The available data for the years 1968 to 1971 is summarized as follows:

Table 2

<u>Calendar Year</u>	<u>Actual Revenue</u>	<u>Actual Recurrent Expenditure in EC\$</u>	<u>Capital Expenditure from Budget Estimates</u>	<u>Other Capital Expenditure</u>
1968	171,314	N.A.	Possibly an average of around 300,000 p.a. 1970-73	Potworks Dam 850,000
1969	306,691	N.A.		Dam Road 109,000
1970	417,453	N.A.		Design 168,000
1971	417,453 (Suspicious coincidence)	573,336 plus emoluments (100,000?)		Stanley Consultants 876,000 Desalinisation plant 5,322,000/1: recent or current projects

/1 Or perhaps EC\$ 4.6 m.

During 1964-68, Antigua experienced a severe drought, and a severe water shortage: as a result a desalinisation plant with a capacity of 1 million gallons per day was bought; this compares with current total water consumption from public sources of about 1.2 m. g.p.d. With the arrival of the desalinisation plant, there was almost certainly a cut-back in the use of surface water and boreholes: there had been problems with bad-tasting water. Currently, the Potworks Dam has been built, but is not yet in use: it provides 4,000 acre feet of reservoir, and could yield 1,100 acre feet of water (or about 0.8 m. g.p.d). Another effect of the water shortage was the commissioning of the Harlcrow Report, with a view to turning several minor dams from agricultural to domestic use. Many of the hotels built in the sixties had their own wells, or other source of water: roof catchment facilities were general. Even private homes of normal Antiguans had rainwater tanks. According to the Harlcrow Report, and indeed in accordance with the common situation, surface or borehole water would be a much cheaper source of supply than desalinated water, with total costs (capital plus recurrent) a half or less. The desalination plant would seem a panic decision, possibly brought about by high-pressure salesmen. Even with the desalination plant as a sunk cost, it would probably be economic to use the plant as little as possible, since variable costs alone are extremely high. Nevertheless, currently the desalination plant is being run as near to capacity as possible. This yields the lowest average cost of production for desalinated water, but a high average unit cost over total water supply.

6. Stanley Consultants seem to have written a Report on desalination plant at an earlier stage. They have just recently taken over the running

of both water and electric power facilities. Technical problems of scaling in the case of shut-down were mentioned as a reason to run the desalination plant full time. However, this would not prevent running the plant at less than full capacity. Scaling is always a problem, and the plant is in any case shut down regularly for maintenance. For the desalination plant we were given the following data, all estimated or projected rather than based on cost records:

Table 3

1972 Projected Costs

Peak production - 1 m. g.p.d.
Annual production - 350 m gallons

Costs (EC\$'000)

Labor and supervision	54
Fuel	314
Maintenance labor	30
Supplies	215
Administration, general	<u>108</u>

721

Debt service	795
"Margin" Requirements	<u>75</u>

Total Delivered Cost 1,591
Cost per thousand gallons EC\$ 4.55 (EC\$1 = US\$1.9)

The debt service requirements effectively depreciate the desalination plant over five years. According to the Minister of Public Utilities desalinated water cost EC\$ 4.80-5.00 per thousand gallons at source, and EC\$ 6.40 delivered. (He also gave 1973 recurrent expenditure estimates as EC\$ 790,000, and revenue as \$700,000). Under present operational policies, there is probably a substantial loss incurred by the government from water supply, partly because non-paying standpipe users have been switched from low-cost surface or borehole water to high-cost desalinated water.

7. Potworks could be in use next year, and it might then be economic not to run the desalination plant much of the time: it remains to be seen what will happen in political and administrative practice. With Potworks already agreed -- indeed, built and only awaiting connection to the mains -- very little extra capital expenditure might be necessary to meet an increase in hotel occupancy. New hotels would require some expenditure on distribution facilities. Only in the longer run, would rising Antiguan domestic demand require major new investment: Peat, Marwick, Mitchell and Co. suggested 1980,

when total consumption would be twice present levels. After full utilization of Potworks, some further development of surface water or boreholes, might offer lower average cost than the variable costs associated with the desalination plant. After that, the desalination plant could be fully utilized. Finally, it might indeed be necessary to resort to a new desalination plant. (For comparison: hotels are only responsible for 10% of present consumption, or a small fraction of the yield of Potworks). If indeed the desalination plant is at present to be used as a standby, the marginal cost of water supply is the variable cost of the desalination plant (or, less, if its use can be avoided). This should be well below the EC\$ 6 per thousand gallons charged for water, so that extra tourism should improve the water supply budget. Data from an individual hotel, and overall data on hotel water consumption and bednights, both suggest water consumption from public sources of 250 to 280 gallons per bednight; this includes "overheads" such as hotel gardening, but excludes use of rain water. Improved occupancy could result in a slightly less than proportional increase in water use: on the other hand, new hotels with swimming pools (unlike many of the present ones in Antigua) could involve higher water use.

In the short-run, surface or borehole water may perhaps be available at relatively low cost. In the longer run, however, the marginal cost of water will depend upon the cost of desalinated water, and this is probably too high to permit its economic use for irrigation. ^{1/} Waste water could be used for irrigation, but for health reasons that would not be appropriate in the case of crops eaten raw (cabbages, etc.).

8. As for other infrastructure, the accounts available in the Estimates pose more questions than they solve:

Table 4

Calendar Year	Actual Revenue	Actual Recurrent Expenditure ---EC\$---	Capital Expenditure from Budget Estimates	Other Capital Expenditure
1968	153,482	113,821	About	
1969	154,978	99,218	50,000 p.a.	
1970	126,786 ^{/a}	219,490	in 1970-73	1,889,569
1971	406,015	176,964 plus emoluments (200,000?)		Automatic exchange

^{/a} Large unexplained drop in recorded radio telephone receipts.

^{1/} This is even more likely to be the case in view of the recent enormous rise in energy costs, since water-desalination is energy-intensive.

Fortunately these records are not the only source available, since in 1972 there was a detailed study of telecommunications under Canadian auspices, by Kalvaitis and Szaszkiewicz. According to this study, the calendar year 1971 revenue and expenditure position should have been as follows:

Table 5

Telephone Services: 1971 Accounts

<u>Revenue</u>		<u>Expenditure</u>	
EC\$		EC\$	
Received for local phone use:	334,569	salaries	215,386
		wages	63,829
		materials	33,102
Due to Antigua Govt. on overseas calls:	<u>166,637</u>	depreciation	85,031
		interest on borrowed capital	151,166
<u>TOTAL</u>	<u>501,206</u>	miscellaneous	<u>29,388</u>
		<u>TOTAL</u>	<u>577,902</u>

In addition, the Government should have paid itself about EC\$100,000 for local calls, and an unknown amount for overseas calls.

In fact, the cash flow position looked very different. Depreciation is not a cash cost, and Cable and Wireless were paid neither interest nor principal on the debt due to them. Nor were they paid for the technical assistance they supplied. Finally, the Government kept all the money it received for overseas calls, without handing over to Cable and Wireless the portion due to them for use of their international telecommunication facilities. As a result, the cash flow position would have been as follows:

Table 6

Telephone Services: 1971 Cash Flow

<u>Cash Received</u>		<u>Cash Probably Paid</u>	
(EC\$)		(EC\$)	
Received for local phone use:	334,569	Salaries	165,010 /1
		Wages	63,829
		Materials	33,102
Received for overseas calls:	<u>560,647</u>	Miscellaneous	<u>25,000</u> approx.
<u>TOTAL</u>	<u>895,216</u>	<u>TOTAL</u>	287,000 approx.

/1 Technical assistance not paid Net Cash Inflow: About EC\$ 600,000.

This technique of obtaining extra cash has not been without its drawbacks. The current amount due from the Government to Cable and Wireless may possibly be as much as EC\$4.8m, according to one source, although this figure does seem somewhat high: EC\$3.6m including the cost of the original telephone system would be a low estimate. On the whole, the current level of charges should be sufficient to pay off the amortization of the telephone system recently installed, over the 20 year period of the loan. However, the system is already in urgent need of extension. There is a waiting list of over 800, and probably some further hidden demand. One proposal is to put 3,000 new lines in, (as against 2,000 existing lines). According to the Canadian study, this would cost EC\$3,330,000, or about EC\$1,100 per line. It may be possible to complete the work at this price, although quotes received so far have been higher.

9. For a new 50 room hotel, a minimum of 3 lines is required. If there are telephones in each room usage might go high enough to justify 6 lines. Capital costs for a business line are the same as for a residential line, as far as outside line costs are concerned: however, part of the central exchange costs are higher, because of the greater intensity of use, (in Antigua, about 200 units per month for a business line, as against 70 units per month for a residential line). Accordingly, costs per hotel line could be EC\$1,250. Roughly 60% of this would be foreign exchange cost. If tourism increased because of better room occupancy off-season, it might be possible to get by without investment in telecommunications, in the short run. However, the telephone system is already congested. With the Antiguan Government's recent record for debt-servicing, it may not be easy to secure new long-term supplier's credits for an expansion of the telephone system. Either this will be provided under aid, or a short-term credit. In the latter case, telephone charges are unlikely to cover amortization costs, unless installation costs are increased substantially above current levels (about EC\$20 or less). One possible solution would be to make new subscribers buy compulsory telephone bonds, of perhaps EC\$500: interest on these would be deducted from telephone bills. Another way of easing the burden on public finances would be a partnership arrangement, e.g. with Cable and Wireless.

10. The cost and revenue data available for electricity supply are as follows:

Table 7

<u>Calendar Year</u>	<u>Actual Revenue</u>	<u>Actual Recurrent Expenditure</u>	<u>Capital Expenditure from Budget Estimates</u> EC\$	<u>Other Capital Expenditure</u>
1968	1,579,547	1,158,505	about 230,000 p.a. average over	Hawker equipment loan 4,320,000
1969	N.A.	1,316,580	1970-73:	Fairbanks equipment loan
1970	2,164,398	2,246,990 /1	more most recently	5,650,000
1971	2,344,912	1,965,261		

/1 Including large unspecified special expenditure.

Thus the electricity department probably rather more than covers its recurrent expenditure, but imposes a significant net burden on government finances for debt-servicing. Rates are probably not unduly low. There are various rate schedules for different categories of user, with declining charges for successive tranches of power consumed: a typical business user probably pays a weighted average of slightly over EC\$0.08 per KWH, or US4-1/4¢. With good management and bill collection, this should cover all costs including depreciation, and provide a return on capital equivalent to standard commercial interest rates for loans (although it might not be sufficient to service debt on very short-term supplier credits). In fact, however, electricity supply in Antigua has been beset with problems. Installed capacity in working order is about 10MW: according to the Minister of Utilities this would be increased to 20 MW if other equipment already in Antigua were put into working condition, at a cost of perhaps EC\$3m. Stanley Consultants now control the management of electricity power supplies. The available cost data are given below:

Table 8

		<u>EC\$</u>			<u>EC\$</u>
<u>Grabbs 1971</u>	Labor	115,081	<u>Cassada 1971</u>	Labor	57,366
	Fuel	742,493		Fuel	53,555
		<u>857,574</u>			<u>110,921</u>

divided by 33,910,400 kWh = \$.025 per kWh

divided by 2,665,070 kWh = \$.042 per kWh.

Both plants are diesel. The marked difference in unit costs is due almost entirely to the spreading of the labor overhead over fewer units of output at Cassada. 1/

11. Because of the problems of the past, installed capacity in Antigua could probably be increased at unusually low cost. Better room-occupancy in the low season may just lessen the swing between peak and low demand, and hence necessitate virtually no capital expenditure. New hotels would eventually lead to a need for an increase in installed capacity, (present peak load is about 7.7 MW). More immediately, they would require expenditure on the provision of distribution facilities. For reference one may note that normal capital costs for a power unit suitable for Antigua might be about EC\$400 per kw, with as much again to be spent on power distribution. With average bed occupancy of well under 30%, a hotel in Antigua may use 25 kWh per bed-night, or a peak demand of about 3kW per room -- yet annual consumption of electricity could be less than 3,000 kWh per room. Higher occupancy rates could raise annual electricity usage very substantially, although to the extent that the improved occupancy was mainly in the low season, peak demand (and hence need for installed capacity) would not be greatly affected. Electricity usage for new hotels would vary very greatly according to the type of hotel, particularly in regard to requirements for air-conditioning. A hotel room air-conditioner set uses about 1-1/2 kW, and if public rooms are also air-conditioned, this increases power consumption even more. It should be mentioned that another possibility is for hotels to use their own power supplies, which of course avoids the need for capital expenditure by the government. Indeed, some existing hotels operate on just this basis, with their own private power supply. A danger here is that such hotels will use government electricity for peaking purposes, and thus worsen the load factor. Possibly for this reason, Stanley Consultants (now in charge of electric power in Antigua) wish to legislate private electricity supply systems out of existence. However, in the future, when all available government equipment is in working condition and used to capacity, there could be a case for looking favorably on private supply systems. This would be particularly true if sources of government financing were tight, and peaking use of the government electricity supply could be controlled. One might thus economize on requirements for public finance at the probable expense of some loss of technical economies of scale.

12. The data available from the Estimates on road expenditure are hardly worth reporting: the Ministry of Works has spent large sums for purposes not clearly specified, and it is impossible to allocate these sums between roads and buildings. In particular, it is very difficult to allocate expenditure for personnel. Detailed figures provided to the Mission specially by the Public Works Ministry appear far too low, and perhaps refer only to materials costs. In fact, recurrent expenditure may have varied from EC\$1-1/2 million to EC\$3 million a year, probably with sizeable year-to-year fluctuations. Another Public Works figure is total local funds expenditure on roads of

1/ Recent developments in world markets are of course likely to raise fuel costs very considerably.

EC\$4,338,833 over the years 1970-73, or EC\$1.1 million a year - which could be correct. It is a characteristic of road maintenance expenditure that it is temporarily postponable, so that actual maintenance expenditure in a given year need not correspond to the effect of road usage in that same year. Furthermore, a recurrent expenditure merges easily into capital expenditure. Some of the aid projects - presumably, in theory, capital expenditure - are for "deferred maintenance". The Estimates give about EC\$100,000 a year for capital expenditure. Aid-funded expenditure, under C.D. &W. was EC\$1,383,028 over the years 1970-73, according to Public Works - it would certainly have been EC\$200,000 per annum or more. Not too much can be made of this very limited information. Total expenditure on roads has recently probably been of the order of EC\$1-1/2 million. Of this sum roughly a third goes on each of the sectors; city roads, village roads, and trunk roads. It is probably trunk road expenditure which is the most essential for the promotion of tourism. Because of the location of hotels and population, most roads serve both tourists and local population. These are a few partial exceptions: for example, the Anchorage Road, built largely for tourism, cost EC\$258,000, and there are a few similar cases.

13. A regards road usage, the following data is available on vehicle registration by type of vehicle:

Table 9
Vehicle Registrations

Year	Total	Private Cars	Car Rentals, Taxis	Buses	Commercial Vehicles	Tractors & Motorcycles
1955	1235	448	290	107	726	43
1956	1438	488	380	117	801	58
1957	1736	587	430	117	918	75
1958	1957	593	538	122	1137	91
1959	2248	568	792	240	1500	104
1960	2595	655	1130	286	1590	114
1961	2995	842	1232	332	1659	127
1962	3292	907	1432	413	1941	130
1963	3500	975	1530	490	2070	134
1964	3690	1020	1612	536	2112	146
1965	4080	1137	1868	551	2673	136
1966	4534	1346	2155	648	2679	143
1967	5018	1628	2218	673	3045	136
1968	5400	1858	2895	709	3348	85
1969	6278	2222	2785	770	3849	128
1970	5306	2797	2618	786	3880	130
1971	5684	2776	2622	900	5600	133
1972	5817	2815	2850	972	5632	122

However, not all registered vehicles are licensed or in use. In order to estimate road usage costs, adjustment needs to be made for:

- (a) Proportion of registered vehicles which are licensed
- (b) Annual mileage of different classes of vehicles
- (c) Road deterioration per mile of usage for each class of vehicle.

On this basis, rental cars or taxis - both of which categories are almost exclusively used by tourists - would be responsible for 20-30% of all road deterioration in most years. The tourism sector would also make some direct use of commercial vehicles, and to a very limited extent of private registration cars. Estimates of shares in road usage costs are given below:

Table 10
Road Usage

Year	Private Cars	Car Rentals, Taxis	Buses	Commercial Vehicles	Tractors & Motorcycles
	(. Percent of Weighted Total Road Usage)				
1955	27.7	17.9	6.6	44.9	2.6
1956	26.5	20.6	6.3	43.4	3.1
1957	27.6	20.2	5.5	43.2	3.5
1958	23.9	21.7	4.9	45.8	3.7
1959	17.7	24.7	7.5	46.8	3.2
1960	17.4	29.9	7.6	42.1	3.0
1961	20.1	29.4	7.9	39.6	3.0
1962	18.8	29.7	8.6	40.2	2.7
1963	18.7	29.4	9.4	39.8	2.6
1964	18.8	29.7	9.9	38.9	2.7
1965	17.9	29.3	8.7	42.0	2.1
1966	19.3	30.9	9.3	38.4	2.1
1967	21.1	28.8	8.7	39.5	1.8
1968	20.9	32.5	8.0	37.6	1.0
1969	22.8	28.5	7.9	39.4	1.3
1970	27.4	25.6	7.7	38.0	1.3
1971	23.1	21.8	7.5	46.5	1.1
1972	22.7	23.0	7.8	45.4	1.0

Of course, some road deterioration would occur due to weather regardless of road usage.

14. As against the costs of road maintenance, road vehicles do provide the Government with revenue. Drivers' licences, and vehicle licences, yielded the following revenue:

	<u>EC\$</u>
1968	136,200
1969	137,500
1970	n. a.
1971	232,051

In addition, revenue from taxes on petrol may have been perhaps EC\$300,000 p.a. Finally, taxes on the importation of new cars could yield EC\$200,000-EC\$400,000 p.a. according to the number of cars imported in a particular year and their country or origin, (the preferential import duty rate is much below that for other countries). Taxes on road use are presumably a factor in taxi and car rental charges: and tourists also pay a very high fee for a driver's licence - EC\$10.00. In theory this is for a year, but in practice most tourists use the licence only for a few days. Any expansion of tourism would lead to extra road use by tourists, and hence extra costs. However, more off-season tourism, and at existing hotels, should require little road-widening or building of new roads: the same could not be said of extra hotels being built. One should also note that there is some acknowledged over-staffing at PWD, for political reasons. Thus social costs of extra road maintenance may be lower than current money costs of existing road maintenance would indicate. Of course, tourism also has income effects, which increase road use.

15. It is possible that to some extent Antigua can choose between emphasizing luxury tourism and emphasizing middle-income tourism. If so, it is interesting to note the different implications for infrastructure investment. For any given number of rooms, a modest hotel, with no telephones in the rooms, may require only half the number of telephone lines of a luxury hotel. Rooms with showers alone will use far less water than rooms with baths. And hotels whose rooms do not have airconditioning will require far less electric power capacity than hotels which do have air-conditioning, often only a half or a third as much. Thus modest hotels not only require less capital per room directly, but also substantially less indirectly, in infrastructure investment.

16. Very little information was available on the demands made by tourism on port and airport facilities, the costs to the economy of supplying these facilities and the revenues generated for the economy by these facilities. What is fairly clear is that the port, like water, electricity and telephones, operates as a loss, but that the airport is profitable. The relevant figures for 1971 are given below:

Table 11

Profit and Loss Position in Various Public Utilities
(\$'000)

	<u>Electricity, Water & Telephones</u>	<u>Port</u>	<u>Airport</u>
Operating Expenditure	3,550	505	357
Public Debt Servicing	3,984	837	290
Other	786	-	-
Total recurrent Expenditure	8,320	1,342	647
Total Recurrent Revenue	4,070	1,032	2,154
Surplus (deficit)	(4,250)	(310)	1,507

Source: British Development Division in the Caribbean.

The sound financial position of the airport is not, however, necessarily to be attributed to tourism to Antigua itself. The main source of airport revenue is landing charges levied on aircraft but the traffic of transit passengers through Collidge is much greater than that of stay-over tourists. What is needed, therefore, is an accurate estimate of the benefits and costs associated with the airport which are to be attributed just to tourists to Antigua. This it was not possible to obtain. Our guess is that the tourist-generated airport activity is not a net cost to the economy. A long-term plan for tourism in Antigua would of course have to look fairly carefully at the costs of adding to airport capacity at the proper time.