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PATTERSON, SEYMOUR

THE EFFECTS OF ECONOMIC INTEGRATION ON ECONOMIC DEVELOPMENT: A CASE STUDY OF THE CENTRAL AMERICAN COMMON MARKET AND PANAMA

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degree of

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By

SEYMOUR PATTERSON

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1980

THE EFFECTS OF ECONOMIC INTEGRATION ON ECONOMIC DEVELOPMENT:

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GLOSSARY OF SYMBOLS

The symbols used in this study are listed below in alphabetical order. In instances where the symbols refer to the Spanish title, an English rendition follows in parentheses.

CACM	Central American Common Market, which consists of Guatemala, Costa Rica, Nicaragua, Honduras, and El Salvador
CCE	Central American Economic Cooperation Committee
ECLA	Economic Commission for Latin America
FAO	Food and Agriculture Organization of the United Nations
ICAITI	Instituto Centroamericano de Investigacion y Technologia Industrial (Central American Institute of Industrial Research and Technology)
ILO	International Labor Organization
LDC	Less developed country
OAS	Organization of American States
OECD	Organization for Economic Cooperation and Development
ODECA	Organizacion de Estados Centroamericanos (Organization of Central American States)
OPEC	Organization of Petroleum Exporting Countries
SEICA	Secretaria Permanente del Tratado General de Integracion Economica Centroamericana (Permanent Secretariat of the General Treaty of Central American Economic Integration)
SITC	Standard International Trade Classification

UNESCO U.N. Educational and Scientific Organization

UN-TAA United Nations Technical Assistance Administration

THE EFFECTS OF ECONOMIC INTEGRATION ON ECONOMIC DEVELOPMENT: A CASE STUDY OF THE CENTRAL AMERICAN COMMON MARKET AND PANAMA

CHAPTER I

INTRODUCTION

Perhaps one of the most serious issues in international economic development concerns the income differential between rich and poor countries. The evidence collected by some researchers on such variables as gross national product (GNP) and per capita GNP confirm the fact that a huge gap exists in the distribution of income between developed and less developed countries (LDCs). Poor countries have approximately 70 percent of the world's population, but only 30 percent of the world's income. In terms of per capita income, the poor countries as a group have about $250 per annum, while rich countries have about $3000.[1] It is doubtful that trade with rich countries would result in exports by LDCs large enough to narrow the income gap between rich countries and poor ones.

To a large measure, income differences among countries are a reflection of their structural differences.

While LDCs export primary goods, the rich countries export manufactured goods. This suggests that there is a direct correlation between industry and development. Moreover, it can be argued that development is the precursor of economic development. Thus, one could infer from this that industrial development can close the income gap between rich and poor countries.

Industrialization based economic development may proceed either from import substitution or from the promotion of exports. The promotion of exports is the alternative to industrial development. This alternative will not be pursued in this study. In either case, however, small domestic markets inhibit industrial progress, and markets in LDCs are small.

Small markets mean low productivity and poverty. Private investment in any single industry is discouraged because of the size of the market, the lack of sufficient aggregate demand, and the absence of other industries which offer benefits (costs) from externalities. Small markets also prevent firms from producing the optimal output, and so deprive them of the opportunity of realizing economies of scale. Nurske,[2] Rosenstein-Rodan,[3] Hirschman,[4] and Prebisch[5] in one fashion or another took an inward-looking approach to the industrial development goals of LDCs.

Nurske says that low productivity due to a lack of capital results in low real income. The lack of capital is

caused by insufficient saving. Investment is limited by small markets. To escape this vicious cycle, "a wave of capital investments in a number of different industries is needed."

Rosenstein-Rodan says that a big push is needed to "produce a 'bundle' of wage goods on which additionally employed workers can spend their income. In general, unless there is assurance that the necessary complementary investments will occur, any single investment project may be considered too risky to be undertaken at all."[6]

Hirschman agrees with the theses of Nurske and Rosenstein-Rodan, but argues for unbalanced growth which results from stimulating strategic sectors of the economy that would have the greatest impact on growth. Countries that are poor cannot afford to spend their scarce resources on all areas equally. This would dilute their resources and reduce their effective use. What is needed is planning which will maximize the benefits from the use of available resources.

The search must be for the unbalanced strategy that is most effective. In other words, investments may have both forward and backward linkages. To achieve maximum benefits it is imperative to isolate those areas of investment that have both forward and backward linkages because their interaction will have the greatest impact on growth.

Prebisch contends that the world is divided between industrial centers and peripheral countries because of the uneven spread of technical progress. Industrialization in his view is a part of the process of change accompanying a gradual improvement in per capita income.

The income elasticity of demand for primary goods produced in the periphery is relatively low, while the income elasticity of demand for industrial goods produced in the center is relatively high. The result of trade between the center and the periphery is a transfer of income from the poor country to the rich country. The solution to this problem as he sees it is import substitution.

In LDCs planning industrialization has been an important ideology. Because of their existing discontent with the results of international trade, import substitution became a deliberate official policy in the 1950s.[7]

After WW II less developed countries (LDCs) became interested in economic development. Economic development, however, is an elusive term, and its attainment is elusive as well.

For the Central American primary goods exporting countries, the postwar period was marked by prosperity because of an unprecedented increase in the world price of the export goods of the Central American Republics. The benefits, however, from this price increase did not accrue equally to all of these countries because of differences

in their rate of economic development. The prosperity that these countries experienced was not a result of an improvement in technology or in productivity, but rather a result of an increase in the world price of their exports. Despite the gains in the export sector, some of the countries started to industrialize after the war because of the special conditions existing at the time, i.e., a shortage of imports and a war-caused isolation from external competition.[8]

However, the smallness of the national markets of these countries had been an obstacle to import-substitution of industrialization. The LDCs which certainly include Central America fit quite comfortably into the classification of the periphery defined by Prebisch. Since the periphery must depend on the vagaries of world demand (price) for their export revenues, there is a strong trend toward external imbalances to develop in these countries because of a tendency for a secular deterioration in the terms of trade due to deficiencies in demand for primary goods, i.e., raw material and foodstuffs. The obvious solution faced by the Central American republics was to minimize their reliance on the export sector for foreign exchange with which to pay for imports and turn their efforts to import substitution and industrialization. This scheme was perceived as the great hope in LDCs for economic expansion and development.[9]

LDCs equate industrialization with economic development. For this reason, their economic policies are designed to accelerate the rate of industrialization. One such policy is trade augmentation within the confines of regional integration.

> Industrialization and trade expansion are the goals of most underdeveloped economies. Despite elaborate schemes and proposals to achieve development, progress usually remains slight. Obstacles such as lack of sufficient leadership, capital, skilled labor, internal and external markets are frequently overwhelming. The creation of customs unions or common markets among developing countries has been growing more popular as a means for overcoming these barriers. There is no assurance, however, that, even if the political difficulties to integration are resolved, the economic gains will be substantial. The Central American Common Market (CACM) established in 1960, stands as a model of the possibilities and pitfalls of integration among developing countries.[10]

In addition to promoting development through industrialization, LDCs presuppose that trade plays a significant role in the process of economic development. The arguments concerning trade are conflicting. Almost all countries around the world accept the proposition that trade is better than no trade. But most of these countries have reservations about the proposition that free trade is better than restricted trade. The latter view is based on the belief that free trade can harm some countries while making others better off.

Since free trade would move countries to export goods for which they have a comparative advantage (goods which are cheaper to produce domestically) and import goods

whose domestic opportunity cost of production is relatively high, support for trade restriction implies a rejection of comparative advantage and a belief in the efficacy of trade intervention.

Myrdal and Prebisch contend that trade works in favor of industrial economies and will lead to greater international inequalities. On the other hand, Professor Harberler and Sir Alex Cairncross argue that foreign trade can contribute to development of LDCs and that the gains incurred from specialization will be combined with the gains from growth.[11]

Together these arguments are complementary in their justification of economic integration. The Common Market restricts trade with the rest of the world because this trade promotes greater international inequalities. But the Common Market members remove tariffs among themselves to gain from specialization and growth. Small national markets, however, continue to be a constraint. To overcome the limitations of small national markets, the Central American Republics had to integrate the region.

> Integration means fusion. It promotes specialization in countries and regions and provides for the freedom of: (1) exchange of goods and services within the area; (2) movement of material resources within the area; and (3) movement of financial resources.[12]

Also,

> economic development of the region may be enhanced in the following ways: (1) by increases in the gains from trade, (2) by more favorable terms of trade, (3) by

> more technical efficiency within existing firms, and, (4) by creation of new firms and other economic activities.[13]

"As the larger market makes new industries feasible and as the common tariff barriers are erected, the supply of capital responds to these new opportunities for profit."[14] Competition from freer trade will increase the efficiency of existing factor inputs through allocative efficiency and through what Leibenstein refers to as X-efficiency or motivational efficiency.[15] The first process leads to trade diversion effects and trade creation and consumption effects, and the second leads to static effects because it relates to improvement of existing resources. The third and fourth effects are dynamic because "they add to the resources available for allocation and development."[16]

Economic integration is justified on the grounds that LDCs are so

> small that they could not efficiently begin the "first easy" stages of import substitution on the national level. A region-wide market was needed to encourage the establishment of light manufacturing industries on an economic scale. Without the growth of import substitution under a program of regional integration, the Central American economies were doomed to stagnation and continued dependence on foreign exchange earnings received from the export of primary products.[17]

The general consensus about developing countries is that although they share some commonalities, poverty being the most glaring one, they are not homogeneous. Data in Table 1 show that the five Common Market republics have, in total, an area of 170,297 square miles, and a total

TABLE 1

AREA AND DENSITY OF POPULATION OF CENTRAL AMERICA, BY COUNTRIES

Country	Areas		Population* (In Mil)	Pop. Density	
	KM^2	MI^2**		KM^2	MI^2
Costa Rica	50,900	19,575	2.83	55.6	144.6
El Salvador	21,393	8,260	4.12	192.9	498.8
Guatemala	108,889	42,042	2.01	18.5	47.8
Honduras	112,088	43,277	6.26	55.8	144.6
Nicaragua	148,000	57,143	2.31	15.6	40.4
CACM TOTAL	441,270	170,297	17.53	39.7	102.9
Panama***	75,650	29,209	1.70	22.2	57.4

*International Monetary Fund, International Financial Statistics, XXXII, No. 8 (August 1979), Population for 1976.

**Areas in MI^2 from U.S. Statistical Abstract, 1962.

***Data taken from Panama en Cifras, October 1976, p. 40.

population of about 17 million people. The countries range in size from 8,260 square miles to 57,143 square miles, and the population range is from 2.3 million in Nicaragua to 6.3 million in Honduras. The differences are not limited to physical size and population.[18] Furthermore, the countries have in common small markets, small industries and little capital. In addition, the United Nations Economic Commission for Latin America (ECLA) supported the Central American economic integration effort on the contention that the member countries were faced with a severe scarcity of capital and other resources needed for economic development. To ECLA,

> coordinated national and regional economic development planning was the only possible way for Central America to utilize the resources effectively and avoid duplication and wastes.[19]

As suggested earlier, there has been an interesting association in the minds of many officials and citizens of LDCs that development and industrialization are one and the same thing. Hence, some of these countries have even attempted to sacrifice agriculture to industry.[20] But awareness of the potentials for development that agriculture represents changed this way of thinking in recent years.[21]

> In any event, labor (here considered homogeneous and unskilled) shifts from agriculture into industry. The supply of labor from agriculture to industry is 'unlimited' (i.e., completely elastic) at the given urban wage (about 30 to 50 percent higher than the rural wage), owing to the relative size of the agricultural labor force at the margin.[22]

Thus, agriculture can promote development because, aside from being a significant source of employment, it provides food, foreign exchange, and conserves foreign exchange.

In developing countries industrial development is undertaken under the umbra of protectionism. The postwar trend in international trade has been toward an increasingly more liberal system. However, many countries have, in recent years, been demonstrating a shift in the opposite direction.[23]

One justification for protectionism has been the infant industry argument. The tariff barriers necessary to allow for industry growth militate against competition and the recognized gains from free trade. Domestic industries fear foreign competition. However, they will have to engage in free trade eventually, although this step will require some adjustments by LDCs, if they are to enjoy the benefits from trade.

One way to achieve a modicum of protection is with the common tariff walls of a common market. "One of the defining characteristics of a customs union . . . is the existence of a common external tariff toward the outside world. It is the fundamental instrument of the trade and external policies of the Community."[24] The external tariff has the effect of reducing trade with the rest of the world. This is a cost in terms of the lower-priced world goods that must be sacrificed for the higher-priced union goods. The union, customs or common market, derives benefits from trade creation.

On the other hand, apart from the welfare gains from integration, there are other, perhaps less tangible ones.

> In the works of Karl W. Deutsch, integration refers to the probability that conflicts will be resolved without violence. The Central concept is that of a "security-community," which is "a group of people which has become integrated": that is, they have attained "within a territory . . . a 'sense of community' and . . . institutions and practices strong enough and widespread enough to assure, for a 'long' time, dependable expectations of 'peaceful change' among its population."[25]

Integration provides security and it can also encourage the flow of capital into the protected industries. With success of the union more industries will appear and a market, with efficient production based on comparative advantage, may ultimately produce an expansion of exports to the rest of the world.[26]

It is not enough for output to increase. More attention has to be given to how best to distribute the gains from integration. The distribution cannot be delegated exclusively to market forces. The countries must devise appropriate policies to deal with the specific aspects of industrial integration.[27]

> Any imbalance of benefits would prove impossible to maintain in the long run, and would militate against progress toward the common market. Integration agreements could stem only from expressed decisions by the governments in which the distribution of benefits had been carefully weighted.[28]

Thus, the allocation of industries within the region is of critical importance to each member, but particularly to the more backward members of the group. The sine qua non for the success of the union is an equitable

distribution of the gains from integration. Consequently, within the confines of the union, the proper management of the allocation of new industries may contribute to a more equitable distribution of income from development. This is not so on an international level where "big" countries are able to manipulate the world price of goods.

Within the common market, evidently, if the distribution of gains from the association is not perceived to be equitable, the member country which feels that is is being treated unfairly may decide to disassociate itself from the common market. The basis for the decision to stay or leave will depend on whether the gain from affiliation will be greater than the gain without. Distribution then will be very instrumental in ensuring the secular viability of the CACM.

The distribution of income can be assessed by an "examination of the trade balances of the members." The device for determining distribution is based on "the prevalent notion that countries with more favorable trade balances vis-a-vis the other countries of the region are benefiting the most from integration."[29]

Since Panama has been trading with the Central American republics before and after integration, it is useful to analyze the ramifications of the CACM not only as it affects the members, but also as it affects Panama's trade with the CACM.

On a number of occasions Panama had been invited to join the union and to participate in some of the CACM meetings. The country has to date declined any positive overt commitments on the first score, but has acquiesced willingly to the latter invitation. Nevertheless, Panama has entered into bilateral agreements with each of the CACM members.

With the obvious continuing interfacing of the country of Panama with the CACM members in various facets of international activities, it is reasonable to speak to the issue of the implication for Panama of the possible decline in welfare (which economic theory says will result) for nonmembers trading with the CACM. The question thus becomes, what are the welfare effects of the presence of the CACM on Panama?

Purpose and Scope

The primary purpose of this study is to analyze the Central American Common Market (CACM) to determine if integration can lead to economic development in the less developed countries (LDCs) using the CACM (consisting of Guatemala, Honduras, El Salvador, Nicaragua, and Costa Rica) as a special case. Development is defined here as an improvement in the standard of living of the people (i.e., improvement in welfare) in a given country. In this study, changes in income will be used to measure changes in welfare.

Another purpose of this study is to determine the effect of the CACM on a nonmember neighboring country which trades with the CACM countries, such as Panama.

The analysis of the effect of economic integration on the five Central American Republics and Panama involves a test of Viner's hypothesis of trade creation and trade diversion. Viner argued that trade creation from customs unions is welfare improving and trade diversion is welfare reducing.

Several methods will be used to analyze Viner's hypothesis. The study will be comprised of seven chapters. Chapter II will discuss the history of the integration of Central America. The coverage will include the factors responsible for integration, such as the poverty in the region, its trade with the industrial world where payments for imports exceeded the receipts for exports, and the belief that industrialization would prevent this loss of foreign exchange. The analysis will begin with observed changes in GNP and per capita GNP for Central America for the period before and after economic integration.

Chapter III will provide the theoretical background for integration. The hypothesis is that integration will result in trade creation and trade diversion, and that the net effect will be an improvement in welfare. Of interest, too, is the effect of integration on nonmember trading countries such as Panama. It will be argued that the effect

of the Central American Common Market on Panama has been a reduction in exports and an increase in unemployment in Panama.

Chapter IV will discuss the source and the quality of the data used in this study, and the manner in which the data will be employed in the analysis of the effects of integration on the countries forming the Common Market and on Panama.

Chapter V will deal with some informal measurements of the effects of economic integration. These measurements will be the GNPs of the CACM and Panama. The objective will be to observe trends in GNP before and after integration.

Two additional informal analyses will be an examination of trade balances and balance of payments data for the countries involved. It is expected that integration would have resulted in improvements in both trade balances and balance of payments figures of the countries that are the subject of this study.

Chapter VI will discuss two effects of integration; trade creation and trade diversion and their impact on welfare. The income propensity to import and the export income elasticities will be used to analyze the trade gains and the trade losses that resulted from integration. Furthermore, the distribution of welfare gains on losses will also be considered in this section as well.

Chapter VII will develop the regression analysis that will be used in this study. The analysis will proceed from the functional form of the equation to the computations of trade creation and trade diversion.

Chapter VIII will summarize and conclude the results of the study.

We will begin the next chapter with a review of some of the history that led to the creation of the Central American Common Market (CACM).

FOOTNOTES

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[12]Raul Moncarz, "Monetary Aspects of the Central American Common Market," Journal of Common Market Studies, Volume XXII (1973-74), pp. 196-204.

[13]Holbik, p. 7.

[14]Dermot Gately, "Sharing the Gains from Customs Unions Among Less Developed Countries: A Game Theoretic Approach," Journal of Development Economics, Volume I (1974), pp. 213-233.

[15]Ibid.

[16]Holbik, p. 7.

[17]Royce Q. Shaw, Central America: Regional Integration and National Political Development (Boulder, Colorado: Westview Press, 1978), p. 47.

[18]The countries in Central America are different in terms of rates of growth, size of population, level of development--socially, politically and economically. They differ also in terms of area. "In the case of Central America, the countries of the Isthmus share a number of characteristics, such as a common historical background, the same language, and roughly the same culture. . . ." "It can be said, then, that although these countries share the common condition of primary product (banana, coffee, cacao, cotton, etc.) exporting countries, this generalization should not be carried too far, because (1) not all of them depended on the same products and (2) their different degrees of development influenced the impact that the conditions of the world market had on their economies individually." (Orantes, p. 2.)

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CHAPTER II

THE ORIGIN OF THE INTEGRATION MOVEMENT IN CENTRAL AMERICA: A HISTORICAL VIEW

The history of the integration of Central America began in 1821 when the region gained its independence from Spain. At the time of independence, a loose federal republic was formed because of the absence of the necessary "political and economic bases for a cohesive national organization of Central America."[1] Immediately after independence it was quite apparent that the required economic and political forces were lacking for a cohesive national organization. The federal republic was made up of the provinces and other territorial units of the old Capitania General de Guatemala of colonial times.

The Capitania General was not a viable concept because of inherent political, administrative and religious institutions that promoted disunity. Authority and responsibility were delegated to the provincial governors by the Capitania General and by the Crown. The appointment of governors was generally made by the Crown although the Capitania General had jurisdiction over some of these officials.

Additionally, unity of Central America was made difficult because of an unfavorable geographic setting and problems with transportation and communication. All of these forces led to the breaking up of the federal republic. The federation lasted roughly from 1821 to 1840, during which time numerous attempts were made at political unification. These efforts were generally unsuccessful.[2]

As mentioned above, political unification was made difficult because of the lack of adequate communication and transportation in Central America, i.e., the lack of adequate linkages among the various "territorial components" in the political area.[3] However, communication and transportation linkages did exist with the rest of the world to a large extent because the Central American countries had over the years traded within the world market. The most serious problem which caused the permanence of an internally fragmented system can be ascribed to the economic policy followed by colonial authorities.[4]

The problems stemmed from the Spanish Crown's mercantilistic policies toward its new world territorial claims. The Spanish gave the region its legacy and its tradition. As in the case of the British in North America, it tended to be restrictive. "The primary and almost exclusive objective of colonial policy was to develop and maintain reciprocal trade flows between the center overseas and each of the individual provinces."[5] To enforce this reciprocal trade flow, high internal duties were established.

It was not until the 1950s that very serious attempts were focused on economic integration. After more than a century of unsuccessful efforts at political union, the five Central American Countries turned their attention in the 1950s toward economic unification. In the early 1950s the ECLA was instrumental in forming some regional institutions in the Central American republics and in training political neutral local technicos.[6] It was only after the Central American economies abandoned their efforts at political integration (the efforts were not abandoned totally--the Organization of American States (OAS) represents a continuing effort for political unity) and turned their attention to economic integration that a reasonably successful effort to improve living conditions in the countries of Central America was realized.

After WW II the activities and institutional developments in the region were encouraging. These institutions were fundamental to later efforts to economically integrate the Central American region. The institutions favored economic rather than political integration.

Some of the activities and institutions, i.e., "establishment of central banks and development corporations, social legislation, tariff policy, etc., as well as (in the) relatively large public works programs and private business investments (that) have been carried out with a view to realizing the potentialities of the internal economies."[7]

Success in these areas led to the negotiation of a "series of bilateral trade agreements among the five countries in the early 1950s."[8] However, as early as 1918 El Salvador and Honduras had signed a bilateral trade agreement. What was readily obvious was that the dimension of the market would be expanded, and purchasing power would be magnified. It was realized that if the market was large enough as in the other large Latin countries, industrialization was possible.[9] Central American leaders like leaders in developed nations, correlated industrialization with economic development. Hence, the logical inference of Latin thinkers and U.N. advisors in Central America in the 1950s was that plans and programmes had to be devised for industrialization which would culminate in the economic development of the whole region and of each republic within it. There were conflicting views about the merits of international trade for Central America. The prevailing view, of course, was Raul Prebisch's view of the deterioration of the terms of trade. It was also reasoned that the problem to overcome was small size markets. This could be done by means of economic unity, and industrialization could then be carried on within the confines of a common market. The aim of the countries had shifted substantially for now, they pursued "development of an urban, industrialized society, rather than of a rural, raw material producing economy."[10]

The basic concern of the effort of integration has to be development which would raise the standard of living of the masses. This process, apart from socio-political strictures, involves economic problems which must be recognized and dealt with. First, the policy-makers must deal with "problems of investment, diversification of production and resource development . . ., (Secondly, they must confront problems concerning) strengthening of internal demand and more effective access to external markets for new and traditional exports."[11] In effect, what is accomplished is overcoming the limitations of small markets and allowing the countries involved to gain greater benefits of economies of scale and external economies.[12]

The elimination of small markets was achieved in Central America by the formation of the Central American Common Market in the 1960s. This development will be discussed in the following section.

Formation of the Common Market

As discussed earlier, the 1950s marked the pivotal point in the formation of the Central American Common Market. With the assistance of the United Nations Economic Commission for Latin America (ECLA) the Central American integration scheme was started.[13] In fact, the role of the ECLA was very crucial to the integration of the area. ECLA was responsible for formulating the guidelines for moving the

countries in the desired direction. The roles of the United States and of the ECLA will be discussed later. Let it be said here that without the assistance of the ECLA the CACM would not have become a reality.

Some economists were convinced that a new perspective of the realities of economic growth, divorced to a large degree from the ideas of political union, may have been responsible for making the union of the Central American republics a viable effort. Mr. Carlos Castillo (of the ECLA) stated in this regard,

> a new generation, more concerned with the realities of economic growth than with the niceties of diplomacy or the rhetorics of political union, had reached positions of power in the governments of the five countries. It was the vision of these men that enabled them to see far ahead and to conceive of the economic integration program, in spite of the complacent mood encouraged by the high export prices prevailing at the time.[14]

The main reason for high export prices for primary goods after WW II was overall scarcity. The high prices ushered in a time of prosperity. But these young men were aware of the shortlived nature and the inconsistencies of world prices for their exports, and so, sought independence from the world market by establishing a large market in the region of Central America for themselves.

With this backdrop and the fourth session of the U.N. Economic Commission for Latin America which met in Mexico in June 1951

> The Central American Economic Co-operation Committee (CCE) was established to take charge of the program,

> and the United Nations was called upon to provide it with advisory services. The Ministers of Economy were designated ex-office members of the CCE. The Committee was set up as a body of the Economic Commission for Latin America (ECLA). Advisory and secretariat services were provided by the ECLA Secretariat and technical assistance rendered by the United Nations and its specialized agencies, such as FAO and ILO.[15]

The activities of the ECLA began in 1951 but it was not until 1958 that ECLA began to seriously consider concrete steps which would result in the economic integration of Central America. The four basic principles which would promote the goal of integration were (1) that membership in the regional market should be open to all Latin American countries, (2) the market should include all goods produced in Latin America . . ., (3) membership would allow the less advanced countries to enjoy special advantages in customs tariffs, financing, and other measures in order to enable them to catch up with more developed countries (These advantages would have, of course, been eliminated as the countries attained equal development in the areas in which they were deficient), and (4) the market should be competitive and that steps should be taken to prevent monopoly and unfair practices. These safeguards facilitated and encouraged participation of private enterprise which was felt to be indispensable to the success of the market.[16]

Castillo refers to the period 1951-1958 as an incubation period. It was a period of experimentation and development of the concept of economic unification of Central America. ECLA was very concerned with industriali-

zation at this time. During the first meeting of the CCE in Tegucigalpa, Honduras in 1952, the members stressed the need for promoting the principle of reciprocity. The concept of the principle of reciprocity involved the development of industries such that the resulting trade was accomplished on the basis of reciprocal interest. It meant that the other countries would participate in carrying out the activity and would also participate in the benefits and costs that resulted from it. If an agreement were reached to establish an industry (plant) in one of the countries, it should be allowed free access to the CACM countries for its inputs as well as its outputs. The project would be a coordinated activity of regional interest.

Planning the scope of integration was perceived as imperative. This meant knowing the size and nature of available resources and the promotion of new projects based on the assessment of the available resources and on need. The bilateral treaties and fiscal measures would not be sufficient to achieve integration and industrial development alone.

In 1955, the Central American Institute for Research and Industrial Technology (ICAITI) was established in order to advance industrial growth and productivity in Central Ameria.[17] "Also in 1958, the Agreement of the Regime of Integration Industries was made for the purpose of building large and medium sized industries in Central America."[18] The problems associated with the Regime were based on disagreement among

some of the countries, particularly Nicaragua and Honduras versus El Salvador and Guatemala. The latter countries believed that the integrated industries should not be accorded special privileges. The dispute was over whether free trade would apply to the products of the integration industry (plants) or to all plants producing the same goods. Guatemala and El Salvador, countries which were a step above Honduras and Nicaragua on the development spectrum, said that the plants should be accorded this privilege as well as the goods. On the other hand, Nicaragua and Honduras argued that the privilege of free trade should be granted to the integration plant because after they have made substantial investments to serve the whole region (market), the market would be found not large enough. They will, therefore, suffer losses and also fail to realize projected economies of scale. The weakness of this argument was that demand for the integration plant goods should have been determined prior to the time the plant was put in place. Free trade privileges to the integration plant would have created a monopolitic situation that was against the objectives of integration. Monopoly power could certainly manifest itself in higher prices for consumers and an output that is less than what is socially desired.

The second period of significance in the development of CACM was the period between 1958 and 1961. It was during this time frame that the "three basic legal instru-

ments of the Common Market were signed, although the last of them did not go into effect until 1961 and was not fully ratified until 1963."[19] The foundation necessary for the formation of the CACM was laid down with these legal documents.

The legal instruments of the Common Market were signed at different times and represent a progression from a free trade association to a customs union to a common market. The three documents are shown in Table 2. The first of these documents was signed in 1958. This treaty, the Multilateral Treaty, established a free trade regime by abolishing customs duties between their territories. This treaty was followed by the Central American Agreement on Tariff Equalization. The objective of this agreement was to establish external tariff for the Central American countries. The Tripartite Treaty between El Salvador, Honduras, and Guatemala guaranteed free movement of persons, goods and capital between their territories. The General Treaty on Central American Economic Integration established a Common Market in the Central American region. Each of these treaties will be discussed more fully.

The Multilateral Treaty was signed on June 10, 1958. Its objective was the removal of internal tariff restrictions among the member countries. This was done on a small number of items initially with the proviso that the list would be expanded over time until complete freedom of trade

TABLE 2

THE FORMATION OF THE COMMON MARKET: THE TREATIES

Date Signed	Place Signed	Treaties	Purpose of Treaty	Signatories Plenipotentiaries
10 June 1958	Tegucigalpa Honduras	Multilateral Treaty on Free Trade and Central American Integration	Establish a free trade regime by 1968 by abolishing between their territories the customs duties, charge and conditions of the Treaty (Articles I thru XXVIII, plus the Annex A). Article I exempts products listed in Annex A of the Treaties (NAUCA) Uniform Central American Customs Moneclature or Nomenclatura Arancelaria Uniforme Centroamericana which is used for customs tariffs and statistics (Art. XXII).	Jose Guirola Leal, Guatemala; Alfonso Rochac, El Savador; Fernando Villar Honduras; Enrique Delgado Nicaragua; Wilbury Jimenez Castro, Costa Rica.
1 Sept. 1959	San Jose, Costa Rica	Central American Agreement on Tariff Equalization	Establish a uniform external tariff for the Central American countries. Uniform rates were agreed to on a substantial number of the more than 1200 tariff categories	Eduardo Rodriguez Genis, Guatemala; Alfonso Rochac, El Salvador; Jorge Bueso Arias, Honduras; Enrique Delgado, Nicaragua; Alfredo Hernandez Julio, Costa Rica

TABLE 2

(Continued)

Date Signed	Placed Signed	Treaties	Purpose of Treaty	Signatories Plenipotentiaries
6 Feb. 1960	Guatemala City, Guatemala	Tripartite Treaty: El Salvador, Honduras, and Guatemala.	Guarantee free movement of persons, goods and capital between their territories	Alfonso Rochac, El Salvador; Jorge Bueso Arias, Honduras; Eduardo Rodriguez Genis, Guatemala.
13 Dec. 1960	Managua, Nicaragua	The Central American Bank for Economic Development	Promote economic integration and balanced economic development of the member countries.	Guatemala Julio Prado Garcia Salas; El Salvador, Gabriel Pilona Araujo; Honduras, Jorge Bueso Arias; Nicaragua, Juan Jose Luga Morenco.
13 Dec. 1960	Managua, Nicaragua	General Treaty on Central American Economic Integration	Establish a Common Market which will be brought into full operation within a period of five years from the date on which the present Treaty enters into force.	(Ratification) Guatemala Julio Prado Garcia May 5, 1961; El Salvador, Gabriel P. Araujo May 8, 1962; Nicaragua, Juan Jose Lugo Marenco May 26, 1961; Honduras, Jorge B. Arias April 27, 1962; Costa Rica, Raul Hess Estrada July 23, 1962.

existed within the region. It was virtually the process by which a free trade association was established in Latin America.[20] However, all the countries did not sign at the same time. Nicaragua was concerned that new industries would gravitate to countries with the larger industrial bases. Economists have long been aware of the center's ability to attract capital, since capital will flow to regions where it is relatively safe rather than to regions where it is needed most. The presence of other industries has external benefits which new industries can take advantage of. In the smaller countries these benefits are almost always lacking. So within the CACM, Nicaragua believed that some countries, like herself, would end up being suppliers of raw materials for the more developed countries in the region if free trade was allowed to prevail. Integration plants should be favored and spatial distribution of industries made on equitable grounds to ensure development in the small countries. If an integration plant would provide the same benefits and cost no matter which country receives it, Nicaraguan officials contended, then the logical distribution alternative should be to the country that could not attract the plant on its own because of its size and lack of a large concentration of industries.

The next step was obviously to devise a scheme by which a common external tariff could be established against the rest of the world. This was the Central American

Agreement on Tariff Equalization, but it did not occur instantaneously. The tariff agreement entailed an upward rough averaging of the "previous tariffs of the five individual countries. Uniform rates were agreed to on a substantial number of the more than 1200 tariff categories, with some to go into effect immediately upon ratification and others to be instituted gradually over a five-year transition period."[21]

The next important agreement was the Tripartite Treaty. As seen in Table 2, two important events preceded the signing of the General Treaty on December 13, 1960. The first was the Tripartite Treaty of February 6, 1960, which El Salvador, Honduras, and Guatemala signed in Guatemala City, Guatemala. The purpose of this treaty was to guarantee free movement of persons, goods, and capital between their respective territories. The treaty reflected a strong desire to accelerate the integration movement.[22]

The agreement set aside a period of five years for the complete operation of the free zone, hoping to break away from the traditional approach of freeing trade by means of a list of products. In addition, the treaty contained a tariff agreement and made allowance for establishing a development and assistance fund designed to contribute to integration and economic development of the countries concerned. The Tripartite Treaty was to last 20 years.

Development is a public good which is scarce. Its attainment entails a cost. Integration which is entered into because it is believed to promote economic development must be financed. Therefore, the Central American Bank for Economic Development was established to promote economic integration and balanced economic development of the member countries.

Both the Tripartite Treaty and the Central American Bank for Economic Development were influenced by a number of factors, predominantly political in nature, which limited the treaty of February 6, 1960 to three countries. "A related development, which directly influenced the signing of both the Tripartite Treaty and the General Treaty, was the decision of the United States to extend special economic assistance to help solve the problems of transition if the Central American governments decided to establish a free trade area."[23]

The General Treaty on Central American Economic Integration was the final treaty and the most important one. Although the general treaty forming the Central American Common Market (as shown in Table 2) was signed in December, 1960, the final ratification by Costa Rica was not made until July 23, 1962. "As of that date, the Common Market was complete."[24] The objective of the General Treaty was, among others, the full development of the Central American Common Market, the creation of a common tariff system and

economic development of the entire region in order to raise the standard of living of the people in the various countries. This agreement was to have a life of 20 years.

Chapter Five (Article XXI) of the General Treaty provides, in addition, for formation of two organs: (a) the Governing Board and (b) the Executive Council. The Governing Board was made up of the Ministers for Economic Affairs who were the actual negotiators and signers of the treaty. The Governing Board's main function was to establish general policies to be adhered to for the purpose of promoting economic integration. The Executive Council was required to carry out the resolutions of the Governing Board.[25] The Executive Council was responsible for all transactions and operations that were designed to give practical effect to the promotion of the economic integration of Central America.[26]

In addition to the Governing Board and the Executive Council, there were two other important organizations. These were (1) the Permanent Secretariat (SIECA) with a secretary general and a professional staff, to oversee the implementation of the treaties and other agreements coming out of the higher agencies created by the General Treaty; and (2) the Monetary Council. The Monetary Council's role was expected to increase as the process of integration proceeded.[27] It was also to act as a financial instrument to aid in the integration process. SIECA was responsible for

supervising the implementation of the Central American agreements.

The planning for integration in Central America had the assistance of disinterested outside groups such as the Economic Commission for Latin America (ECLA). The ECLA (founded in 1948) played a very important role in the integration of Central America. "A majority of Central American officials believe that Central American integration would not have taken place without ECLA's participation."[28]

The problem faced by the Central American countries, as noted before, was small markets, and the fact that they were producers of primary goods and importers of industrial goods. The solution to their problem hinged on the creation of large markets via integration and the consequent achievement of less dependence on exports by means of import substitution.

The success of the effort of uniting the Central American economies after WW II was due mainly to the presence of relatively young economists in government, for the most part trained abroad, "who thought that the main responsibility of government was to better the living condition of the masses."[29]

ECLA hoped to appeal to these tecnicos by making it clear that their national efforts would not be impaired by economic integration.[30] The point that ECLA officials tried to get across was the regional integration would benefit each

country. That is to say, "industrialization and market expansion would support, complement and ensure the success of their activities at the national level."[31]

The ECLA's strategy in Central America consisted of three main features. (1) The separation of economics from politics. Political integration had been tried for one century before without success.

> The Ministers of Foreign Affairs were working to establish a subregional organization within the framework of the United Nations and the Organization of American States. In October 1951, they signed the Charter of San Salvador to create the Organization of Central American States (ODECA). The foreign ministers thought they could approach political integration in spite of the failures of the past.[32]

The separation among activities of ODECA's Economic Council and ECLA's Committee of Economic Cooperation was emphasized when the first meeting of the Committee took place in Tegucigalpa in August 1952.[33] (2) A gradual instead of total integration.

> By requiring that integration take place gradually, ECLA kept the progress noncontroversial and low in cost. By forcing governmental delegates to keep their sights lowered, ECLA was able to make them concentrate on the technical studies and limited objectives the Secretariat had decided to pursue.[34]

Finally, (3) involved the carrying out of the program at a minimum cost to each country. The ECLA was in total control of the technical aspects of integration because it controlled the purse strings. Subcommittees were formed to work out the ECLA plans. These subcommittees were established for the purpose of developing unification of international trade

statistics and tariff nomenclatures; industrial technology and research; electric power; transportation; technical training in industry and administration; and agriculture.[35]

In addition to the subcommittees, the ECLA urged the Ministers of Economy to establish two permanent institutions. The Central American School of Public Administration and the Central American Institute of Industrial Technology and Research (ICAITI).

The United Nations Technical Assistance Administration (UN-TAA) financed the cost of the studies and provided the experts. The Technical Assistance Board created a group to handle the monetary areas of integration. This was done in 1952, and the group was made up of the Technical Assistance Board, the Economic Commission for Latin America (ECLA), the Food and Agricultural Organization of the United Nations (FAO), the United Nations Technical Assistance Administration (UNESCO), the International Labor Organization (ILO) and the World Bank.

> All requests for financial assistance had to be sent to this regional representative after they had been drawn up by the Committee of Ecnomic Cooperation and ratified by the national government. This enabled ECLA to maintain almost total control of the early stages of the integration movement.[36]

The United States was not enthusiastic about the CACM because it was still more interested in free trade at the time. Yet, by 1959 the position of the U.S. took a turn. The U.S. gave technical assistance to Guatemala,

El Salvador, and Honduras, that eventually led to the negotiation of the Tripartite Treaty of Economic Association. Costa Rica and Nicaragua were excluded from the secret negotiations "because of their reluctance to proceed at the full pace desired by the others."[37] Costa Rica signed the General Treaty in 1963 because she wanted to proceed with caution and maintain her traditional isolation from the rest of Central America.[38]

In terms of the cost to establish the CACM, the required expenditure by the Central American governments was not large. ECLA's contribution in the 1950s was largely "in the form of theory, promotion, and technical assistance, but almost nothing in the actual expenditures of funds."[39] After the General Treaty was signed, however, "the integration movement developed sufficient dynamism to carry on without outside assistance."[40] On the other hand, integration imposed a cost in terms of higher prices for goods bought by consumers, and the loss of government revenues from import duties.

Some Difficulties Faced by CACM

The activities of the ECLA were not without conflicts. One conflict related to how best to allocate industries on a regional basis. The importance of the allocation of industries cannot be ignored because it can be argued that there is a positive relationship between a

member country's capacity to attract industries and that country's stage of economic development and economic welfare from integration. The more developed regions like Guatemala were able to attract industries successfully.

The next difficulty involved treaty ratification. Guatemala, Nicaragua, and El Salvador, signed the General Treaty before Honduras and Costa Rica did. This meant that the integration process was not viewed with equanimity by all the countries concerned. Some of the countries, the poor ones, believed that the benefits they stood to obtain from integration were not compatible with the benefits that the more developed countries could hope to obtain. Honduras and Nicaragua were particularly vocal on this score, and as a result demanded preferential treatment from the other countries.

The success of the ECLA efforts in Central America can be segmented into periods. The first period was from 1950 to 1957, and was what Carlos Castillo refers to as "one of incubation, examination, confrontation possibilities, assessment of possible consequences, and accumulation of limited experiences." The next period, from 1958 to 1962, "was one of rapid progress and far-reaching achievements."[41] During this period ECLA achieved the following:

(1) It established subcommittees and held meetings with Ministers of Economic Affairs

(2) It established the first regional institutions

a. The Central American School of Public Administration

b. The Industrial Research Institute

(3) It performed major research studies on

a. General development

b. Transportation

c. Agriculture

d. Electric power

e. Taxation

f. Commercial policy

h. Industrial possibilities

(4) It was instrumental in the passage of these treaties

a. The Multilateral Treaty

b. The Tripartite Treaty

c. The General Treaty

In spite of the successes of the CACM during this period, the operations of the CACM were not always without difficulty. The allocation of industries and treaty ratification were just two of the difficulties. Other problems involving Honduras and Nicaragua will be discussed in the following sections.

The Withdrawal of Honduras

The Republic of Honduras was as of 1821 a part of the Capitancy General of Guatemala and, along with the other

Central American countries, made up the Central American Federation which was dissolved in 1838.[42] This republic like the others in Central America was largely an agricultural nation.

Before integration, Honduras' economic development was meager. "Five-sixths of the economically active population was engaged in farming pursuits. Yet only 4,244,000 acres, or less than one-sixth of the national territory, was being used in 1952 for pasture or cultivation."[43] It would appear reasonable to assume that integration with the other Central American economies would serve to promote economic development in Honduras by allowing the country to participate in the allocation of industries within its borders, industries which would employ people and service not only the domestic market but also the broader Central American market.

However, Honduras was a source of conflict from the start of the integration efforts in Central America. Apart from her argument in favor of a free trade for integration industries only, Honduras asked for preferential treatment from the Common Market because she felt that she was at a lower stage of economic development than the other republics.[44] Moreover, Honduras was concerned that the Common Market benefits would not accrue to her. So from the very beginning of negotiations on the treaty, Honduras voiced a lack of interest in integration. By 1963 Praxedes Martinez, sub-secretary

of the Ministry of Economy and later economic advisor to the National Congress,[45] expressed the perceived disadvantage Honduras would have in the Common Market before the Common Market was fully operative and so could not be tested empirically.

Most assuredly Honduras' position at that time threatened the very existence of the Central American Common Market. Gately talks about this within the context of a "game theoretic approach" in analyzing the motives for association and disassociation (self-sufficiency) of the members in an integrative situation. Specifically, he talks about the "propensity to disrupt" the union. He explains this for a given country as the ratio of how much the other (four) countries of the union would lose, to how much it (say Honduras) would lose for refusing to cooperate.[46] Evidently, a country's propensity to disrupt will be infinite if the country receives less than or just equal to what it could by not cooperating.[47] It is obvious from Honduras' complaint that her propensity to disrupt the union was significant enough to induce her to actually withdraw from the union. The problem ultimately leading up to this point of withdrawal for Honduras was the conflict between El Salvador and Honduras.

On July 14, 1969 El Salvador and Honduras entered into armed conflict. This meant some disruption of the coalition effort in Central America.

Honduras was concerned with the industrialization process, too, feeling that the countries with the largest concentration of industries "not only benefited by the income effect but also collected taxes imposed upon the imported components that were definitely transferred almost totally to the consumers in the importing countries."[48]

This problem was magnified when the San Jose protocol was signed creating additional tariffs of 30 percent to raw material imported from nonmembers. The tax meant that the price of goods to consumers produced with these imports would be higher. Honduras felt that "this new surcharge would result in a price rise on final manufacturing products with a bias against Honduras and with corresponding increases in net transfer of domestic resources to other exporting member countries."[49] Among the measures Honduras suggested to militate against these adversities was a side payment or (fiscal compensation to redistribute the benefits) transfer from members with a surplus in their regional trade to those in a deficit position. Decree No. 97, which was put into effect on December 31, 1970, imposed "the same external tariff to all imports from Central America that applied to the rest of the world."[50] This decree in effect marked the withdrawal of Honduras from the Central American Common Market, but it also made provisions for bilateral agreements with Honduras and the other three countries.

The disruption caused by Honduras has been a source of concern to the proponents of integration. In recent years, attempts have been made by the president of Honduras and the Chief of State of El Salvador to reestablish economic relations. General Carlos Humberto Romero, President of the Republic of El Salvador, and General Juan Alberto Melgar Castro, Chief of State of Honduras, met on January 7, 1978, to examine the future economic relations between the two countries.[51] Moreover, Dr. Jose Luis Bustamante y Rivero, the Peruvian mediator for El Salvador and Honduras, stated in the Honduras capital that there was a climate of conciliation and understanding between the two countries and that he was committed not to a total solution to all their problems, but, rather to bringing the two countries closer together.[52]

The reintegration of Honduras should depend on whether it is in her best interest to do so. That is, if the benefits from integration are at least equal to the benefits from selfsufficiency. Because of her relative poverty, Honduras had asked for special concessions (factories, market privileges, etc.) before the Common Market was established. Honduras may have been wrong in her assessment of the cost/benefit calculus from integration right from the beginning. Even if the payoffs to Honduras are negative after integration, this alone should not be the decisive point. What is really relevant is the final payment

to the country. Gately defines this final payment as the "payoff plus (minus) the side payments received from (made to) its coalition partner(s)."[53]

The criteria for association of a country with other countries will be discussed at length in the next chapter. The point must be stressed, however, that integration per se is not always beneficial to all the countries, in fact it might be harmful to one or more of them. The harm may be factual or imagined, but the decision must be made on the most realistic basis and not just on some preconceived notion that integration will somehow automatically result in economic development for the region as a whole and for the country in particular.

Nicaragua's Problems

The basic problem with Nicaragua, as with Honduras, was her perception of the relative disadvantage she had with respect to the other countries. The issue was one of balanced growth.[54] "During the course of the Central American integration process, the concept of balanced development gradually emerged as an aspiration of the nations which considered themselves less developed than the other members."[55]

In Nicaragua there was concern about the fact that the country was experiencing a continuous deterioration in the balance of payments brought about by a consumption tax of a number of goods. This tax caused a reaction from the

other countries because they believed it was a violation of the General Treaty. As a result the other countries took measures (counter-measures) which brought a halt to trade between Nicaragua and the other members of the CACM.

Like Honduras, Nicaragua asked for preferential treatment, partly because of her balance of payments problem and partly because Honduras did. There appears to have been no real justification for this request because Nicaragua, for example, although in worse shape economically than Honduras in the early 1960s, proved that industrialization could be achieved in the union without preferential treatment. By the early 1970s, and without preferential treatment, Nicaragua had developed an industrial sector as dynamic as any in the region.[56] This was a crucial point because Honduras had requested preferential treatment on the basis of a perceived disadvantage in terms of her level of development relative to that of the other four countries. This contention was not empirically testable as Honduras made the observation prior to the full operation of the CACM. With the advantage of hindsight and from empirical evidence, it is clear that at least in the case of Nicaragua preferential treatment was not necessary for industrial development.

Nicaragua, the largest of the Central American Republics, had been experiencing difficulties with the other countries. The countries were dissatisfied with the quality

of the goods produced in Nicaragua. However, Nicaragua's demand for preferential treatment stemmed also from the fact that Nicaragua and Honduras had a serious border confrontation which was resolved in favor of Honduras by the Hague in 1960. The conflict between these two countries carried over into the Common Market so that Nicaragua's request for special treatment equal to that received by Honduras was simply retaliatory. Evidently, Nicaragua might never have demanded preferential treatment had Honduras not done so. Thus, the problems, although having economic repercussions, stemmed primarly from political discord between Nicaragua and Honduras[57] and not from purely economic causes.

The year 1969 was a time of crisis for the unity of Central America. Over the years there have been other problems, and the gallant attempts by pro-integrationists to solve them have not been entirely fruitful.

The year 1979 signaled the end of the Somoza Dynasty at the hands of the Sandinistas. At this writing it is too early to assess the implications for the CACM of the outcome of the Civil conflict in Nicaragua.

CACM and Panama

Panama is not a member of the CACM. One reason for this would appear to be the fact (as Cline and Delgado have shown) that the per capita GDP of Panama exceeds that

of all the other Central American republics. A second possible reason is that the Panama Canal represent an unfair advantage to the other countries, because it is a source of income that is unique to the region.

SIECA has been trying to promote economic relationships with Panama, specifically with respect to Panama's joining the CACM and concerning other aspects of development and activities of regional interest.[58]

This study will also investigate the effect of the Central American Common Market on the economic development in Panama. Panama is not a developed country in spite of the Panama Canal and its higher per capital GDP rate of growth relative to the other five Central American countries. Development is a goal sought by the Panamanian people. It is reasonable to assume that by joining the CACM Panama could share in the benefits (as well as the burdens) of integration. It is, therefore, possible that with a certain amount of persuasion Panama may be lured into the union. In the event this occurs, it would be useful to analyze the probable effects of the operations of the CACM on the economic development of Panama.

It is quite likely that if the benefits without integration exceed the expected benefits from association, Panama will not consider becoming a member of the group. However, Panama may currently be enjoying the benefits of the operation of the CACM without sharing in the cost. If

this is the case Panama may have a "moral" obligation to join. Alternatively, Panama may be harmed by the CACM, and may seek to minimize its costs by joining the union. Whatever the situation, it is our purpose to investigate it to determine whether Panama should maintain the present status quo or join the group.

General Economic Development of Panama: A Historical View

An analysis of the evolution of the Panamanian economy shows that it has been the result of the cross-fertilization and interaction of many factors. Among these factors are forces of purely historical character, structural changes, international relationships with other countries, and economic problems that plague the whole world.

In terms of the structural aspect of the economic growth and development of Panama, it is relevant to recognize that the period 1858-1973 marked the time of the most spectacular growth. The factors responsible for this growth are rapidly being used up. The growth of exports of goods and services made a positive contribution to economic growth. Exports grew at an average rate of 13% per annum, particularly export of bananas, shrimp, and the sale of services to the Panama Canal, tourist trade, and the operation of the Colon Free Zone. Import substitution in the industrial sector grew at 12 percent annually. However, the rates of

growth were not sustainable because of a drop in the world prices of bananas and shrimp and a no growth situation in the sale of commodities and services to the Canal Zone. Very slowly, but indelibly, these decreases were conveyed to other sectors of the economy.

As an alternative to import of goods, import substitution in Panama was constrained by the limited size of the national market. The small market of Panama does not permit a very rapid industrial growth rate and greater diversification of industries at a reasonable cost.

The process of growth in one sector may be a catalyst for growth in other sectors. It is difficult to determine just exactly when an economy shifts gears and accelerates as a whole to a new and a higher level of performance. But once the initial internal "spontaneous combustion" sparks the motion the rate of increase proceeds at a decreasing rate. That is precisely what occurred in Panama during the 1970s.

In 1971 a staggering increase in construction was stimulated by accumulated demand and an expansion in bank credit, public investments in basic infrastructure, and by financial and commercial services. These positive aspects of development were offset by world-wide inflation, aggravated by higher oil and food prices. The result was that Panama was paying more for her imports than she was getting for her exports.

Some Structural Changes of Panama

In the decade of the 1960s, available data reveal the structure of a Panamanian economy that experienced gradual changes. The contribution of manufacturing industries to gross domestic product increased albeit at an unsteady pace relative to agriculture whose contribution declined by one percentage point each year from 1961 to 1963 and again from 1965 to 1967. The decline in the relative importance of agriculture continued into the mid-seventies with the relative importance of manufacturing industries exhibiting about 14% to 15% share of GDP. In terms of factor costs, agriculture as a percentage of GDP was 30.3% in 1955; in 1965 this percentage was down to 25.7%. In manufacturing the 1955 share of GDP was 9.8%; and in 1965 it was up to 15.0%.[59]

Panama's economy is characterized in large measure by free trade because of her fixed exchange rate relative to the dollar, because of the lack of a central bank, and because the country is a net exporter of services. These factors have contributed to the determination of the structure of production, the pattern and volume of trade, regional development, and trends in migration and the distribution of income within the country. These factors have also contributed to relatively high economic and per capita growth, compared with other Latin American countries and with the industrial world.[60]

During the 1960s the expansion of the export sector ushered in a period of a 9.8% annual real growth from an initial $153 million in 1960, to $390 million in 1970. The greatest source of growth was banana exports, the sale of services to the Canal Zone, the operations of the Colon Free Zone, and tourism.

Internal economic activities complemented advances in external economic activities. Panama engaged in import substitution in the areas of light manufacturing and food products. According to the report on Panama's National Development Plan (1976 to 1980) manufacturing during the 1960s increased by 10.3%. Both the external and internal forces alluded to had repurcussions throughout the country. Ripple or spillover effects had therapeutic implications for improvements in welfare of an economy striving to raise the standard of living of its people.

Costs and Benefits of the Bilateral Agreements

Panama's foreign trade with the CACM began to grow in 1965 as a result of the free trade agreement signed by Panama with Costa Rica and Nicaragua in 1965, with El Salvador in 1971, with Honduras in 1973, and with Guatemala in 1974.

Exports from Panama to the CACM countries increased from $0.8 million in 1964 to $11.3 million in 1974. Imports were $1.8 million and $30.5 million for 1964 and 1974, respectively.

Data in Table 3 show that exports from Panama to Costa Rica, Nicaragua and El Salvador rose from $0.09 million in 1965 to $7.6 million in 1973, while imports increased from $1.3 million to $16.0 million for the same period. The increase in trade involved mainly non-traditional products. This increase in duty free imports meant a revenue loss of $5.9 million from 1970 to 1973. Exports from 1970 to 1973, however, as a result of the bilateral treaties, increased by $2.8 million.

Data in Table 3 also show that Panama had experienced an unfavorable trade balance with the CACM from 1964 to 1973. The implication of this state of affairs for Panama was a drop in income.

The next chapter will be devoted to a discussion of the underlying theory of international trade and the theory of customs unions.

TABLE 3

PANAMA: EXPORT/IMPORT TRADE WITH THE CENTRAL AMERICAN COMMON MARKET

1964-1973 ($1000)

Year	Item	Central American Common Market					
		Total	Guatemala	El Salvador	Honduras	Nicaragua	Costa Rica
1964	Export	854	6	211	33	63	541
	Import	1807	205	279	440	139	744
1965	Export	1000	33	284	79	119	485
	Import	1982	116	262	438	178	988
1966	Export	2101	85	164	27	231	1594
	Import	3095	168	181	584	305	1857
1967	Export	1845	84	240	45	271	1205
	Import	4679	287	175	680	376	3161
1968	Export	2786	41	101	15	198	2431
	Import	6570	837	308	871	486	4068
1969	Export	2803	131	62	31	197	2382
	Import	7811	1315	535	718	824	4419
1970	Export	3003	171	141	50	359	2282
	Import	10016	1686	703	731	1129	5767
1971	Export	3958	227	197	101	449	2984
	Import	13137	2286	1067	837	1696	7251
1972	Export	5463	150	732	90	871	3620
	Import	17420	2651	1759	1302	2029	9679
1973 (P)	Export	7945	191	904	203	1767	4880
	Import	21695	3861	2883	881	2545	11525

P = Preliminary Data

Source: Integracion en Cifras, SIECA, July 1979

FOOTNOTES

[1]Carlos M. Castillo, Growth and Integration in Central America (New York: Frederick A. Praeger, Publishers, 1966), p. 3.

[2]Donald H. McClelland, The Central American Common Market: Economic Policies, Economic Growth, and Choices for the Future (New York: Frederick A. Praeger, Publishers, 1972), p. 188.

[3]Note: The federal republic was made up of provinces and other territorial units of the old Capitania General de Guatemala of the Spanish Colonial period.

[4]Castillo, p. 4.

[5]Ibid.

[6]Stuart I. Fagan, Central American Economic Integration: The Politics of Unequal Benefits, Research Series No. 15, Institute of International Studies, University of California, Berkeley, 1970, p. 1.

[7]Castillo, p. 69.

[8]Ibid., also, the bilateral treaties were designed to intensify free trade between the respective countries and to expand their markets. We list below specifically when they were signed and who signed them.

(1) El Salvador and Nicaragua, March 9, 1951;
(2) El Salvador and Costa Rica, October 5, 1953;
(3) Guatemala and Honduras, August 20, 1956;
(4) Guatemala and Honduras, December 20, 1955; and
(5) El Salvador and Honduras, April 1, 1957.

These agreements gave the countries involved an effective basis for limited experimentation with a policy of free trade, and provided an indication of results which could occur if the policy were extended to the entire Central American region. Nino Maritano, A Latin American Economic Community: History, Policies, and Problems (Indiana: University of Notre Dama Press, 1970), p. 31.

[9]Castillo, p. 69.

[10]Ibid., p. 70.

[11]Ibid., p. 71.

[12]Ibid.

[13]Royce Q. Shaw, Central America: Regional Integration and National Political Development (Boulder, Colorado: Westview Press, 1978), p. 1.

[14]Castillo, p. 77.

[15]Ibid., p. 78.

[16]Maritano, p. 31.

[17]David E. Ramsett, Regional Industrial Development in Central America: A Case Study of the Integration Industries Scheme (New York: Frederick A. Praeger, Publishers, 1969), p. 24.

[18]Ibid.

[19]McClelland, p. 191.

[20]Ibid., p. 192.

[21]Shaw, p. 6.

[22]Ibid.

[23]Ibid.

[24]McClelland, p. 193.

[25]"Treaties and International Agreements registered or field and recorded with the Secretariat of the United Nations," Treaty Series, Vol. 383 1, Nos. 5494-5506 (1963), pp. 3-66 and Convenios Centroamericanos de Integration Economica SIECA, Vol. 1.

[26]Ibid.

[27]McClelland, p. 194.

[28]Shaw, p. 17.

[29]Isaac Cohen Orantes, Regional Integration in Central America (Lexington, Mass.: Lexington Books, 1972), p. 14.

[30]Ibid.

[31]Ibid.

[32]Shaw, p. 3.

[33]Orantes, p. 17.

[34]Shaw, p. 19.

[35]Ibid., p. 20.

[36]Ibid.

[37]John F. McCamant, Development Assistance in Central America (New York: Frederick A. Praeger, Publishers, 1968), p. 252.

[38]Ibid., p. 254.

[39]Ibid., p. 255.

[40]Ibid., p. 258.

[41]Castillo, p. 79.

[42]Limites Entre Honduras y Nicaragua-Alegato Presentado a su Majestad Catolica El Rey de Espana, en Calidad de Arbitro por los representantes de la republica de Honduras, Madrid, Marzo de 1905. New York, 1938, p. 10.

[43]Franklin D. Parker, The Central American Republics (London: Oxford University Press, 1971), p. 200.

[44]Shaw, p. 65.

[45]Ibid., p. 66.

[46]Dermot Gately, "Sharing the Gains from Customs Unions Among Less Developed Countries: A Game Theoretic Approach," Journal of Development Economics, Volume I (1974), pp. 213-233.

[47]Ibid., p. 221.

[48]Enrique Delgado and William R. Cline (eds), Economic Integration in Central America (Washington, D.C.: The Brookings Institution, 1978), p. 40.

[49]Ibid.

[50]Ibid., p. 41.

[51]Carta Informativa No. 207, SIECA, Guatemala, January 1979, p. 3.

[52]Carta Informativa No. 210, SIECA, Guatemala, April 1979, p. 2.

[53]Dermot Gately, "Sharing the Gains from Regional Cooperation: A Game Theoretic Application to Planning Investment in Electric Power," International Economic Review, Vol. 15, No. 1 (February 1974), pp. 195-208.

[54]Note: "In the absence of vigorous upward shifts in world demand for exports of primary products, a low income country through a process of diversified growth can seek to bring about upward shifts in domestic demand schedules by means of increased productivity and therefore increased real purchasing power. In this way, a pattern of mutually supporting investments in different lines of production can enlarge the size of the market, and help to fill the vacuum in the domestic economy of low income areas. This, in brief, is the notion of balanced growth." Gerald M. Meier, Leading Issues in Economic Development: Studies in International Poverty, second edition (London: Oxford University Press, 1971), p. 363.

[55]Delgado, p. 23.

[56]Shaw, p. 66.

[57]Ibid., pp. 71 and 72.

[58]SIECA: Funcionalidad y Principales Actividades, p. 12.

[59]Statistical Abstract of Latin America, Vol. 18, 1977, UCLA Latin American Center Publication, University of California, LA.

[60]Resumen del Plan Nacional de Desarrollo (1976-1980) Vol. No. 1: Objectives, Politicas y Metas, Globales y Regionales, Version Preliminar, 1976.

CHAPTER III

THE THEORETICAL BASIS FOR ECONOMIC INTEGRATION

Introduction

Economic theorists such as Ricardo,[1] Heckscher,[2] and Ohlin,[3] dealt with free trade and the benefits received from it, and along with Edgeworth[4] and Marshall[5] discussed the determinants of trade. The latter three considered the possibilities of changes in the terms of trade which lead to gains and losses in welfare. Kaldor,[6] Scitovsky,[7] Stopler and Samuelson,[8] and Metzler[9] have presented arguments in favor of tariffs as a protection devise to promote improvements in a country's welfare.

Both international trade theory and regional economic integration involve the movement of goods, services, people, capital funds and physical capital across natural and political barriers. In other words integration and international trade involve the movement of commodities and factors across national frontiers. Trade is regarded as the most desirable and beneficial gain from integration and various aspects of division of labor constitute its underlying principles.[10] Division of labor means not only the production of goods but also a way of organizing its production.

The extent or size of the market places limits on the division of labor. The size will be determined by both political and natural forces, i.e., national frontiers, duties, taxes, and so forth, that limit transportation.

However, the division of labor will result in an increase in output (income or welfare) because of the greater efficiency of specialization. Specialization will alter the proportion of goods produced domestically. The good that has the lower input-output ratio will be produced in larger quantities and exported, while the more expensively produced domestic good will be imported.

All countries accept the dictum that trade is better than no trade, but not that free trade is superior to restricted trade. Since it is a foregone conclusion that countries gain from trade, the next logical progression is the determination of the distribution of gains. The terms of trade (or the exchange ratio between the two goods) determine the distribution of gains from trade. What determines the terms of trade? If there are two countries A and B engaged in trade, and A is big, it will be a price maker. The small country B will be a price taker. Country A will be able to impose such terms on country B as to extract all gains from the poor country. An alternative presents a diametrically opposite argument. Country B being small will not be able to supply all of country A's demand for a good, say Y. However, country A can produce both goods,

X and Y, and must make up for the shortfall of Y from B. Thus, country B will specialize in the production of Y and import X. At constant cost, the terms of trade would be equal to the cost ratio in country A. This constant cost ratio will allow the small country to receive the entire gain from trade. If increasing cost exists in the large country, the gain retained by the small country will be larger.[11]

If a country wanted to gain more from trade it could alter the terms of trade, i.e., improve the terms of trade so that it can squeeze the partner and gain for itself a larger share of the combined increase in total output.

> The terms of trade move in favor of the tariff-imposing country if the latter possesses monopoly power in trade. This has interesting ramifications for social welfare, which now gets subjected to two conflicting pulls. On the one hand, the improvement in the terms of trade consequent upon the tariff tends to raise social welfare, and this welfare gain increases with the tariff; on the other hand, the introduction of the tariff impairs productive efficiency and tends to lower welfare, and this loss increases with the rise in the tariff. It follows then that there is a certain rate of tariff at which social welfare is maximised. This tariff is the optimum tariff at which social welfare is maximised. Evidently, free trade is not the optimal policy in the presence of variable terms of trade.[12]

Market failures due to externalities, taxes, tariffs, and imperfect competition result in a divergence between social costs (benefits) and private costs (benefits). The efficiency of the market in allocating scarce resources is impaired. Forced efficiency in the form of a customs union

or common market "would increase the number of producers producing the same or similar products, who would then compete with one another in a common market."[13] The resulting increase in effective competition would lower both commodity and factor prices.

In his pioneering work on customs union Viner made a clear distinction between trade creation and trade diversion and the economic effects of a discriminatory reduction in or removal of tariffs.[14]

Others have built on this important work by making refinements to the model. Makower and Morton noted that welfare would be greater the greater the dissimilarity of the cost ratio of the same good in the two countries.[15] Gehrels modified Viner's exposition by considering substitution in consumption. He stated that

> to examine customs unions in the light only of production effects, as Viner does, will give a biased judgment of their effect on countries joining them. It understates the gains to members in a favorable case, and it may lead to unfavorable conclusions where a union would in fact benefit the members.[16]

The formation of the customs union or common market has very distinct effects on consumption and production and consequently on welfare. These effects are usually considered in terms of trade creation and trade diversion. Trade creation occurs when a country which formerly obtained a good from a high-cost producer now obtains it from a lower cost producer. Conversely, trade diversion occurs when the

country purchases a good from a higher cost producer after the creation of a customs union. Welfare for such a country is improved if the effects of trade creation outweigh those of trade diversion. Welfare is also affected when economies of scale are present.

One would expect that the large markets that result from establishing a customs union would allow firms to increase capacity and realize economies of scale.

When economies of scale are present, an increase in output value can be accomplished by a less than proportional increase in inputs of labor, capital, and raw materials. If the degree of returns to scale (sum of output elasticities over all inputs) is 1.1, for example, a 100 percent rise in output will require only a 91 percent rise in inputs, and therefore a windfall gain will have occurred equal to the difference of 9 percent of output (and input) value.[17] The gain will have a positive net effect on welfare, so that the welfare gain from trade creation will be greater.

If economies of scale exist and are actually realized with the formation of a customs union, they can lead to the phenomenon known as trade suppression. For example, suppose there are three countries, A, B, and C. A is the highest-cost producer of X_2, the imported good, and C is the lowest-cost producer of the good. If A and B form a common market that allows for the production of X_2 with substantial economies of scale, the demand in B is met by imports from A

instead of C, and the demand in A is met entirely by domestic production. B now imports X_2 from A instead of from C, which results in trade diversion, but now not from a more efficient to a less efficient source, because the economies of scale have made A more efficient. The price of X_2 in B is reduced because imports are from a cheaper source as well as free of duty. "The substitution in A of domestic production for imports from C constitutes trade suppression."[18] Nevertheless, within the confines of a customs union or common market, comparative advantage will determine specialization and the pattern of trade as in international trade.

The concept of comparative cost is defined as the ratio of the production costs of the goods distinguished in terms of quantities of inputs. Trade will occur if comparative costs are different among countries. The difference is reflected in a production function that is similar in various countries which have different factor endowments (Heckscher-Ohlin theory) or in production functions in the various countries that are the same as in the classical theory. In the classical theory, cost is expressed in terms of more than one input (labor, capital, etc.). In the classical version developed by Ricardo on the basis of the labor productivity that is determined by natural conditions within each country, some countries are more productive in some goods than in others.

In the neo-classical version, it is assumed that the capital-labor ratio differs between industries and that countries have different endowments of capital and labor. Thus, some industries will be more appropriate to some countries than others. The tenor of the argument leads to the Heckscher-Ohlin theorem which states that a country will export those goods which use a relatively large proportion of the factor that is relatively abundant and import the goods which use a large proportion of the scarce factor.

Attempts at testing both theories are not conclusive. Caves[19] cited Kravis[20] who ranked industries by hourly earnings of workers in Japan and in the United States, found that the hourly earnings were almost identical in the two countries. The data seemingly lend support to the Ricardian hypothesis that comparative labor productivity differences determine relative price differences.[21]

The Leontief Paradox resulted from Leontief's attempt to test the neo-classical theory of international trade. The results of his study show that "America's participation in international division of labor is based on its specialization of labor intensive, rather than capital intensive, lines of production."[22]

In contrast to the classical and neo-classical theories of trade, Hirsch proposes the Product-cycle theory, which enhances the importance of skill or know-how as a separate factor of production.[23] Hirsch says that new

product-cycle goods are goods that have been manufactured as a result of recent innovations and research-and-development efforts.[24]

The neo-classical production function is distinguished from the classical in that the neoclassical production functions in the various countries are similar because of the assumption that technologies are known and are universally available. Thus the marginal productivity of the factors of production depends on the combination of the factors in production and not on their location. In the classical case location is paramount to the productivity of the factor.

In contrast to the neo-classical theory, the new-product cycle theory assumes that the production functions are different in the various countries. This is true too because of the high cost of international technology transfer.[25] These goods are likely to remain restricted to the advanced industrial countries, because according to Linder the consumption of products varies with the level of income and will be most similar for countries at an equal stage of development.[26] All the characteristics of international trade just discussed are relevant to the common market which is best understood within the context of the theory of customs unions, which is discussed in the next section.

Theory of Customs Unions

To understand the economic effects of integration, it is necessary to look at the theory of customs unions.

The theory of customs unions is a special case of international trade theory. Traditional trade theory analyzes international trade mostly by looking at two countries, but the customs union theory considers at least three countries. The theory of customs unions may be considered a special case of tariff theory. Discussions of tariffs deal usually with nondiscriminatory tariffs. The theory of customs unions deals with discriminatory tariffs because of the removal of tariff restrictions among members and the erection of a common tariff against the rest of the world. Moreover, the theory of customs unions studies the impact of geographically or regionally imposed discriminatory alterations in trade restrictions.[27]

The basic conventional assumptions used to describe the world of customs union are: There are three countries: A, B, and C; there are two goods: X and Y; indifference maps of the individuals are identical and nonchanging, justifying the use of community indiffernce curves; all tariff revenues are redistributed back to the people; perfect competition is present in all markets (with the exception of the customs union tariff); and a common external tariff is present against the rest of the world.

The first assumption is justified because of preferential reductions in tariffs between partners, i.e., the presence of discriminatory tariff. "If a number of countries is to be assumed discriminating against other

countries, clearly the minimum number of separate countries that can describe such a situation is three."[28] Hence, two of the countries can agree to preferential tariffs among themselves, and a common external tariff against the rest of the world. Thus, A may be described as the home country which forms a union with B, and C will be considered the rest of the world.

Next we assume two commodities. Each country will produce both X and Y. At this point we have depicted a two-product, three-country world.

For the third assumption we consider that "preferences of different countries are reflected by a single indifference map that is nonintersecting and has also all the properties of individual preferences."[29]

The import duties levied by each country are redistributed to its residents in a lump-sum fashion. Thus,

> the governments of the different countries levying a tariff or paying a subsidy on some or all exports or imports in proportion to the value of trade, are redistributing tariff revenues to the private sector in such a way as to preserve a balanced budget.[30]

Since competitive conditions are assumed, the marginal rates of transformation and substitution and relative prices will be the same in the three countries and any differences in these rates will be a result of the imposition of tariffs and subsidies.

The common tariff erected against country C, i.e., the rest of the world, may be one of three kinds: (1) the

union may adopt the lower of the two initial tariffs (lower level of protection), (2) the union may adopt the higher of the two initial tariffs (higher level of protection), or (3) the union may adopt an average of the two initial tariffs.

Without too much elaboration here the conclusion[31] depends on the form of tariff that is adopted by the union. In the first case, the adoption of the lower of the two initial tariffs creates trade, and benefits the initially high-tariff country and leaves unaltered the wellbeing of the lower-tariff country. If the tariff is the higher of the two initial tariffs, the result will be an extinction of trade.

The third possibility implies that

> there always exists a common duty of intermediate magnitude which leaves unchanged the volume and direction of foreign trade. The rate of duty which leaves trade unchanged in referred to as a critical rate. If that critical rate is adopted the country with the initially high duty will benefit from the union; possibly both members will benefit.[32]

Traditional trade theory holds that free trade is superior to restricted trade. This assertion justifies any movement away from distortions in international trade to free international trade because such a move will take advantage of differences in comparative costs and promote specialization and an improvement in global output and welfare.

However, international trade may lead to problems that must be dealt with or recognized before a reconsidera-

tion or modification of traditional trade theory can be pursued. The trading partners indeed gain from trade which should promote economic development and growth. But, when industrial nations trade with primary goods exporting economies, the former pay a lower price to the latter for their exports. That is, the primary goods exporting countries must pay more for their imports than they get for their exports.[33] This means that the exports of the countries' primary goods cannot pay for their imports--there is a gap between export receipts and import payments.[34] The logical conclusion from this discrepancy is the creation of tariff walls behind which industrial goods may be manufactured domestically. However, the domestic market may be too small; therefore, economic integration with other less developed countries would overcome this dilemma of small markets.

The move toward integration, nevertheless, has two possible effects. It may lead to an improvement or a reduction in welfare. The other possibility, however, is that if we consider only the production effect, the outcome is in favor of gains from union activities rather than losses. The net effect of trade creation and trade diversion in this case is positive.

This analysis applies to a two-commodity-three-country model. It can be shown, however, that if we use three commodities the outcome is indeterminate. In the two-commodity case, there is one optimum solution (or level of

consumption and production) which is achieved when the relative prices of the two commodities are equal. However, a customs union involves goods from the rest of the world, the home country, and partners. When this possibility is considered, the conclusion of a general presumption of gain from integration vanishes.

Table 4 shows that the movement from an ad valorem tariff on all imports to the formation of a customs union with country B results in some efficiency between the partners, but leads to inefficiency in trade with the rest of the world. This is the result of Lancaster and Lipsey's theory of the second best.

The Theory of the Second Best

Integration in a region such as Central America is a movement closer to universal free trade. Couched behind this movement is the accepted view that this will improve welfare because it eliminates tariffs among the members. But this is not necessarily true as Viner has shown. Trade creation may result in improved welfare and trade diversion may lead to welfare reduction. This is the contribution of the theory of customs union to the development of the theory of the second best.

> The best static solution, assuming a competitive world economy, is universal free trade because that will satisfy the Pareto optimum conditions. A customs union represents a step toward universal free trade since it expands the area of free trade. But it does not necessarily increase aggregate welfare by bringing the world closer to the best solution.[35]

TABLE 4

TRADE INVOLVING THREE GOODS

Free Trade (Col. 1)	Uniform Ad Valorem Tariff On All Imports (Col. 2)	Customs Union With Country B (Col. 3)
$\frac{P_{Ad}}{P_{Bd}} = \frac{P_{Ai}}{P_{Bi}}$	$\frac{P_{Ad}}{P_{Bd}} < \frac{P_{Ai}}{P_{Bi}}$	$\frac{P_{Ad}}{P_{Bd}} = \frac{P_{Ai}}{P_{Bi}}$
$\frac{P_{Ad}}{P_{Cd}} = \frac{P_{Ai}}{P_{Ci}}$	$\frac{P_{Ad}}{P_{Cd}} < \frac{P_{Ai}}{P_{Ci}}$	$\frac{P_{Ad}}{P_{Cd}} < \frac{P_{Ai}}{P_{Ci}}$
$\frac{P_{Bd}}{P_{Cd}} = \frac{P_{Bi}}{P_{Ci}}$	$\frac{P_{Bd}}{P_{Cd}} = \frac{P_{Bi}}{P_{Ci}}$	$\frac{P_{Bd}}{P_{Cd}} < \frac{P_{Bi}}{P_{Ci}}$

Where A, B, and C are countries: d is the domestic price in B including tariff, i refers to the price in the international market.

This analysis is taken from R. G. Lipsey,"The Theory of Customs Unions: A General Survey," Economic Journal, 70 (September, 1960), pp. 495-513.

If all conditions of optimality are met, a positive social dividend will always be achieved. However, if all the conditions for a Pareto optimal solution are not realized, a change that increases the number of conditions fulfilled does not lead to a positive social dividend, i.e., increase in welfare.[36]

> The theory of the second best has been used to question the desirability of policies which attempt to attain the Pareto conditions on a piecemeal basis for markets considered in isolation. The counter argument to this is that, though piecemeal policy is not valid in general, it is valid for many specific cases.[37]

The analysis for customs unions is expanded to incorporate common markets. Hence, the common market does not necessarily result in a positive social dividend, although it increases the number of conditions for the Pareto optimal solution. The problem is that integration has benefits as well as costs and under certain conditions the costs may be greater than the benefits. (For additional information on the theory of the second best see footnote 38.) The second best theory suggests that other options to free trade are available. Some of these options are discussed in the following section.

Stages of Economic Integration

There are a number of options available to countries desiring economic integration. The economics literature provides the following classification.

A free-trade area. In this particular system the countries agree to gradually eliminate tariffs among themselves. Each country is allowed to retain the right to establish its own tariff against non-members.

A customs union. This represents the second highest state in the classification and it is characterized by the inclusion of the provisions of the free-trade area, with the addition that the countries set up a common tariff policy against the rest of the world.

A common market. The common market includes the agreements contained in a customs union, but it adds a further dimension to economic integration. It allows for free movement of factors among the members of the integrated area.

An economic union. This stage of integration includes all the steps in the previous three and adds "according to certain economists, some degree of harmonization in national economic policies in order to remove discrimination that arose out of disparities in these policies."[39] The implication is that the area should operate as if it were one.[40]

Total economic integration. Total economic integration is the ideal form of integration that contains in the agreement tariff elimination among the members, a common external tariff policy, free factor movement and harmonization of economic policies as well as unification of monetary, fiscal, credit, social, and countercyclical policies.

The phases of economic integration do not end at total economic integration. An economic community such as the European Economic Community may evolve to an economic and political situation where supranationality prevails.

Maritano outlines various other possibilities for integration such as national and regional, vertical and horizontal integration, in addition to sectorial, boarding, and physical integration.[41]

If the highest form of economic integration is the ideal form or phase, the countries beginning at the first stage should gravitate to this ideal form. Integration should be dynamic, not only changing the goods and factor movements among countries, but should include harmonization and unification goals as well. Since universal free trade is not available, the areas of free trade areas dispersed around the globe should approximate global free trade. Yet, we must recognize the second-best nature of this alternative, realizing that welfare may not improve as a result of economic integration.

The Costs and Benefits of Economic Integration

The process of integration involves an opportunity cost if the countries involved are "forced" to replace higher-cost sources of supply for lower-cost sources.[42] For example, suppose the money prices of a single commodity X in three countries is as shown in the following table:

TABLE 5

MONEY PRICES OF A SINGLE COMMODITY (X)

IN THREE COUNTRIES

Country	A	B	C
Price	$35	$25	$20

A tariff of 100% is levied by country A, the home country, to protect its domestic industry producing good X. If the home country forms a customs union with either B or C, it will be better off. However, suppose A had been levying a nondiscriminatory tariff of 50%, she would have been buying from country C, the lowest cost supplier. A customs union with B would mean that B would be exempt from the 50% tariff and A would import commodity X from B at a cost of $25. Country C, however, must supply X at a price of $30. In terms of export value, A must buy commodity X from B at a price of $25, whereas country C formerly provided it at $20. This is Viner's example of trade diversion.[43] The "higher-cost production within the union may displace lower-cost production in countries outside the union, with the result that world output is reduced and some countries within the union are made worse off."[44]

The economic coalition may be stymied by trade diversion as the countries that are made worse off demand

preferential treatment as did Honduras (because of real or imagined injury), or threaten withdrawal from the union.

On the other hand, the objective of integration is sought because of the welfare creating possibility of trade creation and trade diversion. In general one may assume that integration that results in trade creation leads to improvement in welfare. Yu and Scully[45] have eloquently demonstrated the Lipsey-Gehrels theorem discussed above as follows:

Let X_1 and X_2 = A's outputs of the 2 commodities 1 and 2.

A's national income expressed in terms of commodity 2 is:

(1) $I = px_1 + x_2$

Where $p = p_1/p_2$ = terms of trade

(2) $dx_2/dx_1 = -P$ = production possibilities

(3) $I = p^*x_1 + x_2 + [t/(1 + t)\ E_2]$

Where $[t/(1 + t)]E_2$ is the tariff proceeds; E_2 is the excess demand for the imported good ($E_2 = d_2 - x_2$); and p^* = A's internal price ratio

The effect of the tariff on A's national income is known from the derivative of national income with respect to the tariff by Kemp[46] as follows:

$$(4)\quad dI/dt = (dp^*/dt)d_1 + t/(1 + t)\ p^*(dx_2/dp^* - dx/p^*) \ /\ 1 + t(1 - m_2)$$

where m_2 = MPC of the imported good

$dp^*/dt = -p/(1 + t)$

d_i = domestic demand for good i, and i = 1,2

x_2 = Noninferior good, so $0 < m_2 < 1$, and the denominator in the last term of equation 4 is positive

$dx_2/dp^* < 0;\quad \partial d_2/\partial p^* > 0.$

Therefore $dI/dt < 0$, and the imposition of a tariff on C lowers A's national income.

If A forms a trade-diverting customs union with B,

$$(5)\quad dI/dp = x_1 > 0.$$

Thus a decline in A's terms of trade will lower A's income. So trade diversion is income reducing.

The loss from trade diversion depends on the magnitude of the deterioration in the term of trade. Assume at p', $-\Delta I_t = -\Delta I_d$, so the formation of a trade-diverting customs union with terms of trade p' leaves A's national income unchanged. However, at p" > p' A's national income will increase, proving that a trade diverting customs union may lead to an increase in welfare.

In terms of a tariff against C the extent of the loss in national income depends on the size of the tariff rate. After the imposition of a tariff, national income declines from I_o to I_t. The loss in national income becomes $-\Delta I_t = I_t - I_o$.

Yu and Scully have also demonstrated mathematically that in the presence of domestic distortions, trade creation may be welfare reducing and trade diversion may be welfare improving. It is interesting to note that although integration may promote growth, in a number of studies Yu,[47] Batra,[48] and Bhagwati[49] have demonstrated that growth may have a negative effect on welfare when factor distortions or price changes are present. We shall not pursue this point here. What we will be discussing is how to best improve welfare. Gains in welfare may be affected by the kind of countries which form partnerships.

The literature is replete with discussions concerning the gains from customs union. Markower and Morton noted that "given that trade creation was going to occur" from integration, the gains would be greater the greater the dissimilarity between their cost ratios in the two countries.[50]

It is worth noting that countries with similar cost ratios are competitive economies and the gains from integration will be small. However, complementary economies have dissimilar cost ratios and thus integration will lead

to higher gains. This analysis applies to two countries producing the same goods. But countries that have extremely different stages of development present an entirely different problem. If one country is highly developed and the other is not, trade may tend to benefit the highly developed country at the expense of the less developed country. Cline has noted for the Latin American economies that differences in income may lead to import substitution by the less developed country.[51]

Complementary economies as noted above are those with different patterns of production or costs ratios, and thus, each specializes in the production of the good with the lowest cost. Rival economies have similar cost ratios or patterns of production. So the costs of producing each good is greater among complementary economies than among rival ones. Thus, it follows that complementary economies will yield greater savings in costs.

The opposite argument is that competitive economies yield greater gains. Viner argued that rival economies will lead to greater welfare because of greater trade creation.[52]

In reconciling these arguments, Makower and Morton noted that "if trade creation does occur, the gains will be greater the greater the difference in production costs in the two countries for goods involved in trade creation, a conclusion with which Viner specifically agrees."[53]

The tenor of Viner's contention can be illustrated in the following way. Assume that there are two groups of commodities x and y. One group, say x, is produced by all the countries, A, B, C, and D. The second group y is produced by countries C and D. Next, assume that a union is formed consisting of countries A, B, and C. D is the rest of the world. The most efficient producer of x in the union will capture the market. This is an example of trade creation. The one country C which produces y will capture the market for y. If D is a more efficient producer of y, then the shift from the low cost supplier to the higher cost producer, i.e., country C, will be an example of trade diversion which reduces the efficiency of resource use. If A, B, and C are rival economies, they will have relatively more x. So integration in this case will lead to more trade creation than trade diversion, the net effect being an increase in welfare.

Terms of Trade and Offer Curves

The offer curve is used to describe the equilibrium between three countries trading in two goods. The countries forming a union will have excess offer curves for the situation in which they have tariffs and one in which they do not for each of the goods.

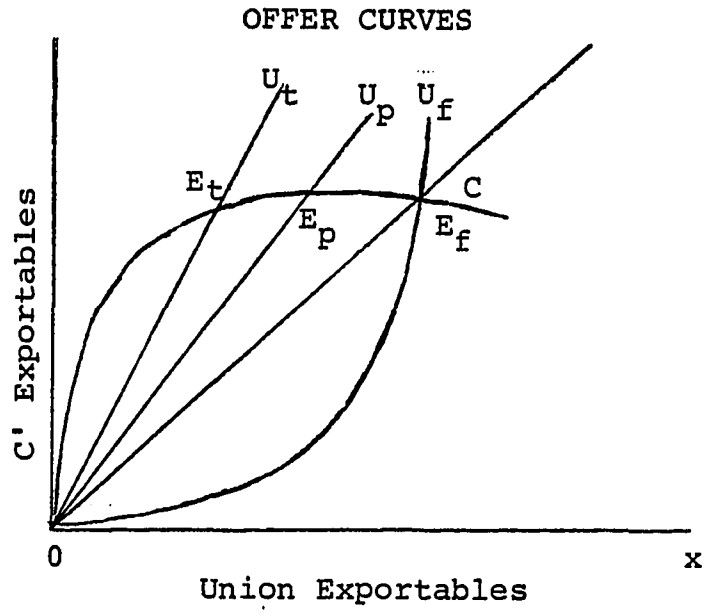


FIGURE 1

where

U represents the union offer curve

C represents country C's offer curve

E_p is the pre-union equilibrium. After integration, a common tariff is imposed against C. This leads to a worsening of the terms of trade for C (slope OE_t) and the union results in an improvement in B's terms of trade, but a worsening in A's terms of trade. However, the shift of the equilibrium for E_p to E_f reflects the discrimination against country C and the reduced trade of union countries with C. The greater the common tariff on nonmember goods, the greater the discrimination and trade diversion. "Although country A's terms of trade worsened, it benefits from trade expansion—it will export more of x to country B."[54]

Throughout this study, the proposition of worsening terms of trade of the LDC's vis-a-vis developed countries in matters relating to trade has been taken for granted. However, it can be shown that this proposition is not unique. The past five years have witnessed the steady rise in the price of oil coming from LDCs (OPEC, Mexico) to developed countries. This phenomenon has resulted in a substantial transfer of income from the developed industrial nations to some underdeveloped primary goods exporting nations. Oil is by no means a single example of the rise in the price of primary goods.

The reason for higher prices can very easily be seen. Industrial countries are rapidly exhausting non-renewable natural resources. Their industrial complex runs on energy which is quickly being depleted. Other inputs (raw materials) demanded by industrial nations are becoming unavailable either because supply is being exhausted or because of strong nationalistic sentiments in LDCs. They are making the supplies of these materials less available to developed countries. But whatever the cause, the reduction in supply and the existing demand in developed and underdeveloped will continue to push prices of primary goods up over time.

More specifically, CACM countries, because of low agricultural productivity and small industries, rely more on the foreign sector. Foreign exchange is therefore

dependent on the sale of cotton, bananas, and coffee, not oil. To the extent that they must import oil, this is a drain on their foreign reserves. On the other hand, their exports are subject to the vagaries of world prices. The low demand and supply inelasticities for their products tend to contribute to instability in the region.

Since economic integration simultaneously results in gains and costs (losses), welfare is augmented if the gains exceed the costs. The determination of the net gain is not as clear cut as this account of the effects of economic integration may lead one to expect. This is true because of the possibility that trade creation may lower welfare and trade diversion may increase welfare. "Lipsey establishes that the consumption effect can work either to raise or lower welfare and that trade diversion can raise welfare."[55]

Thus, although we speak quite liberally of trade creation and trade diversion as imparting greater and lower welfare, respectively, in the countries involved, the dichotomy of gain (higher welfare) and loss (lower welfare) from integration is not quite so apparent.

The Effect of Integration on Panama

The previous theoretical analysis can be used to analyze the impact of integration in central America and Panama. As stated above, Panama is not currently a member

of the CACM. The various partners have been trying to entice Panama into joining the union.

Lipsey states that the customs union will result in a worsening of the term of trade for the nonmember country. The conclusion is that the CACM will cause a deterioration in Panama's terms of trade and a decrease in welfare.

The data which will be used to analyze integration in Central America and Panama will be discussed in Chapter IV. The discussion will deal with the reliability and source of the data and hence, the limitations their use impose on the analyses done in the subsequent chapters of this study.

FOOTNOTES

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[2]Eli Heckscher, "The Effect of Foreign Trade on the Distribution of Income," Eknomisk Tidskrift, Vol. 21 (1919), pp. 457-512.

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[11]Ibid., p. 50.

[12]Raveendra N. Batra, Studies in the Pure Theory of International Trade (London: The MacMillan Press, Ltd., 1973), p. 123.

[13]Machlup, p. 82.

[14]Jacob Viner, The Customs Union Issue (New York: Carnegie Endowment, 1950), pp. 41-44.

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[21]Jagdish Bhagwati, Trade, Tariffs and Growth: Essays in International Economics (Cambridge, Mass.: The M.I.T. Press, 1969), p. 12.

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[25]Ibid.

[26]S. Linder, An Essay on Trade and Transformation (New York: John Wiley and Sons, 1961), p. 111.

[27]M. O. Clement, Richard L. Pfister, and Kenneth J. Rothwell, Theoretical Issues in International Economics (Boston: Houghton Mifflin Company, 1967), p. 174.

[28]Jaroslva Vanek, General Equilibrium of International Discrimination: The Case of Customs Unions (Cambridge, Mass.: Harvard University Press, 1965), p. 17.

[29]Ibid., p. 21.

[30]Ibid.

[31]Murray C. Kemp, A Contribution to the General Equilibrium Theory of Preferential Trading (London: North-Holland Publishing Company, 1969), pp. 103-115.

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[33]This statement is not absolutely true. The price of primary goods increased after World War II, permitting LDCs to enjoy a certain degree of economic prosperity. Presently oil prices are an excellent testimony to the fact.

[34]This thesis was expounded by Prebisch, The Economic Development of Latin America and Its Principal Problems, 1949.

[35]Clemen, Pfister, and Rothwell, p. 174.

[36]Ibid.

[37]James M. Henderson and Richard E. Quandt, Microeconomic Theory: A Mathematical Approach (New York: McGraw-Hill Book Company, 1971), p. 288. Example: Mathematically the characteristics of the theory of the second best can be shown for one consumer, one implicit production function and N number of goods, and a fixed supply of one primary input that is not demanded by the consumer.

The Pareto Optimal necessary conditions are obtained by maximizing the utility subject to the production function, thus:

$$(1)\quad L = (U(q_1,q_2,q_3,\ldots q_n) - tF(q_1,q_2,q_3,\ldots q_n,x^o)$$

and taking the partial derivatives and setting them equal to zero:

$$(2)\quad \frac{dL}{dq_i} = U_i - tF_i = 0,\ i = 1, 2, 3, \ldots, n$$

where $U_i = 2U/2q_i$ and $Fi = 2F/2q_i$,

so $\frac{Ui}{Uj} = \frac{Fi}{Fj}$ $i, j = 1,\ldots, n$

which states that the MRS = MRT

If we assume that the first condition is violated, then

$$U_i - kF_i = 0$$

where $k > 0$, and $k \neq t$

The conditions for a second-best welfare solution are achieved by maximizing the utility subject to the production function and $U_1 - kF_1 = 0$.

$$= U\ (q_1,q_2,q_3,\ldots,q_n) - tF\ (q_1,q_2,q_3,\ldots,q_n, x^o) - \mu(U - tF_1)$$

Where t and μ are both undetermined multipliers

$$\frac{\partial L}{\partial q_i} = U_1 - tF_i - \mu(U_{1i} - kF_{1i}) = 0,\ i - 1,2,3,\ldots,n$$

$$\frac{\partial L}{\partial t} = - F\ (q_1,q_2,q_3,\ldots,\ q_{n1}x^o) = 0$$

$$\frac{\partial L}{\partial \mu} = - (U_1 - kF_1) = 0$$

A solution for this system cannot have

$$\frac{U_i}{U_j} = \frac{tF_i + \mu(U_{1i} - kF_{1i})}{tF_j + \mu(Ui_j - kF_{ji})}\ i, j = 1,2,3,\ldots,n$$

Nothing is known a priori about the signs of the cross partial derivatives U_{1i}, U_{ij}, F_{1i}, and F_{ij}. Therefore, in general, one may not expect any of the usual Pareto conditions to re quired for the attainment of a second-best optimum. (Henderson and Quandt, pp. 287 and 288.)

[38]Ibid., pp. 287 and 288.

[39]Nino Maritano, A Latin American Economic Community (Indiana: University of Notre Dame Press, 1970), p. 12.

[40]David E. Ramsett, Regional Industrial Development in Central America: A Case Study of the Integration Industries Scheme (New York: Frederick A. Praeger, Publishers, 1969), p. 8.

[41]Maritano, p. 15.

[42]Delbert A. Snider, Introduction to International Economics, fifth edition (Illinois: Richard D. Irwin, Inc., 1971), p. 227.

[43]R. G. Lipsey, "The Theory of Customs Unions: A General Survey," Economic Journal, 70 (September, 1960), pp. 496-513.

[44]Gehrels, pp. 61-64.

[45]Eden Siu-Hung Yu and G. W. Scully, "Domestic Distortions and the Theory of Customs Unions," The Southern Economic Journal, Vol. XLII, No. 2 (October 1973), pp. 218-224.

[46]Murray C. Kemp, The Pure Theory of International Trade and Investment (New York: Prentice-Hall, Inc., 1969), p. 65.

[47]Eden Siu-Hung Yu, "Factor Price Rigidity, Labor Immobility and Economic Growth," presented at the Eastern Social Science Meeting in Denver, April 27-28, 1978, or "Rigid Wage, Factor Immobility and Immiserizing Growth," Economic Record (December 1978), pp. 387-393.

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[50]Lipsey, pp. 496-513.

[51]William R. Cline, Potential Effects of Income Redistribution on Economic Growth: Latin American Cases (New York: Praeger Publishers, 1972), p. 31.

[52]Lipsey, pp. 496-513.

[53]Clement, Pfister, Rothwell, p. 188.

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[55]Eden Siu-Hung Yu and G. W. Scully, pp. 218-224.

CHAPTER IV

DESCRIPTION OF DATA

Improving the quality of estimates used in a study like this is subject to the usual constraints facing the LDCs. For example, of particular significance are the problems confronting LDCs in estimating their national product because of the monetized nature of their economies. In this regard, estimating a large part of the gross output of goods and services is subject to a wide margin of error because in the absence of data, activities outside the monetary sphere have to be approximated. Further complications arise when exchange rates are used to express estimates of national product in a common currency unit. This approach is subject to a number of serious faults, both theoretical and statistical, which have been described elsewhere. The main criticism of this method is that it oversimplifies a complex problem of evaluating in a common currency unit the GNP of different currencies. One might argue that approximately accurate results can be achieved by this approach only where there exists an equivalence between the prevailing rates of exchange and the relationship of internal

forces. This equivalence is not likely to be experienced by most countries because of the prevalent use of exchange controls and quotas.

A second bias that data in LDCs promote is accessibility. According to Mundell (Asian Drama, N.Y. 1968, App 4.), "These are biases in the sense of both statistical skewness and unwarranted valuations." The quantitative data limitation forces restrictions of their own on the results and conclusion of the analysis conducted in this study. Data accessibility tends to reinforce the macro or aggregate bias, a stress on physical capital rather than human, and attention to few huge projects to the neglect of many small projects.

With these limitations on the data in mind the next step is to describe the sources, uses, and reliability or quality of the data used in this study.

The period of time covered in this study is 1950-1969, which is further broken down into two sub periods, i.e., 1950 to 1959, and 1960 to 1969. This breakdown follows logically from the nature of the subject of this study. The period 1950-1959 represents the pre-integration years and 1960-1969 the integration years.

The data series and the data sources for imports and exports relevant to this study are dependent on the United Nations Statistical data[1] and on SIECA Statistical data.[2] The figures are reported in some instances in U.S.

dollars, Pesos Americanos, which are equivalent to U.S. dollars, and in the individual national currencies, which had to be converted to dollars. The total annual dollar figures were transformed to index numbers with a 1963 base. The data series are shown in Tables 2 and 8 in the appendix.

The data on exports from Panama to the CACM were not available for the period 1950 to 1959. Therefore, an alternative was sought for these data. The Panamanian exports to the CACM in 1960, 1961, 1962 and 1963 were 0.3%, 0.7%, 0.6% and 0.9%, respectively,[3] of total Panamanian exports. Using a two-year moving average of these percentages yields approximately 0.7%. The years 1960 to 1963 were chosen because during these years the CACM was still not fully operational. Hence for the years 1950 to 1959, 0.7% of the total exports (from the Year Book, 1968, p. 658) were assumed to go to the CACM from Panama. The series for this period were then divided by the value of exports to CACM in 1963 from Integracion en Cifras to get the 1963 export index.

Figures for gross national product (GNP) were of the quality and quantity of the University of California Statistical Abstract data.[4] These data series were used for the informal analysis in this study. The GNP series appear in constant dollars of 1970 and were transformed to index numbers with a 1963 base. (See Table 1 in the appendix.)

Two price series were used in this study. They were extracted from various issues of the U.N. Year Book of International Trade Statistics and the IMF International Statistics, 1977 Supplement, Annual Data 1952-1976. The prices are in index form. In the IMF series, the prices appear with a 1970 base and were converted to a 1963 base. The data are shown in Tables 3 and 4 in the appendix.

The computation of the relative price variables of the equations for the CACM demand was as follows.

GENR RELPR = ((PINDEX x duty)/(CPI) x B

GENR MPRICE = PINDEX x duty

where

GENR = generate

RELPR = import-price index/CACM price index

B = 100

MPRICE = Import price index

CPI = CACM consumer price index

Duty = Tariff on CACM imports

PINDEX = Price index of imports of Panamanian goods.

The price variables should have been supply prices from both the CACM and Panama. Since they were not available, it was assumed that the CACM, CPI and import price index would serve as adequate substitutes for the supply prices. The price series includes the estimated tariff on imports.

Approximate tariff rates were computed from the Year Book of International Trade Statistics, by finding the duty receipts on imports as a percentage of the total imports on an annual basis.[5] (See Table 5 in the appendix.) The legal tariffs are weighted averages of industrial tariffs for 1958 and 1968.[6] These are in two groups: one based on import value weights and the other on consumption. Data in Table 7 in the appendix show the trend in tariff protection in Central America. The legal tariffs were reduced to a uniform, intermediate level by 1968 from their 1958 levels. In addition, the consumption-weighted averages were higher than the import averages because of the high level of protection of basic consumption sectors for food and beverages and the lower levels of protection facing imports of raw materials and capital goods such as chemicals, steel and iron, and metal and machinery products.[7]

Imports flowing into the CACM were taken from the U.N. Year Book of International Trade Statistics, 1968. These data series appear in various forms--U.S. dollars and national currencies, which were transformed to U.S. dollars. Finally, the data were converted to index with a 1963 base. The import data used in this study were aggregate annual figures. Disaggregated annual values were available for SITC 1-9, but not for intra- or extra- area trade. Extra-area imports were assumed to represent total CACM imports from 1950 to 1959.

Data series for gross fixed capital formation are of the quantity and quality that appear in the IMF Financial Statistics, Annual Supplement, May 1977. This data series was used as a substitute for capital in the production function for the CACM. (See Table 11 in the appendix.)

The industrial wage index was taken from the Statistical Abstract of Latin America, Volume 18 (1977). This series was compiled by John L. Martin, Labor's Real Wages in Latin America Since 1940. Martin notes that "the industrial worker is more highly organized that the worker in other sectors and can exert more leverage over society through strikes and demonstrations because of his importance in, and proximity to, the decision-making centers."

The dummy variable used in the aggregate production function is intended to capture the effects of integration on gross national income in the CACM area.

The total energy consumption variable (Table 6 in the appendix) was assumed to place a constraint on CACM production. High import oil prices increase production costs and lower income and imports.

Data for Labor Displacement and Labor Displacement Cost

The labor data for Panama are of the quality and quantity found in the ILO Yearbook of Labor Statistics (various issues). The data series was used to determine

the labor displacement and labor displacement cost generated in Panama by the CACM. The series covers a period from 1960 to 1975 or 16 years. (See Table 13 in the appendix.)

The gross national product series for Panama from 1960 to 1974 came from the International Financial Statistics (1977) Supplement, Annual Data (1952-1976), Volume XXX, No. 5, May 1977, pp. 302 and 303. The data series is in millions of Balboas, which are equivalent to dollars. The data are shown in Table 12 in the appendix.

The gross fixed capital formation data series was taken from the International Financial Statistics (1977) Supplement, Annual Data (1952-1976), Volume XXX, No. 5, May 1977, pp. 302 and 303. The data series covers a period of 16 years (i.e., 1960-1975) and is reported in millions of Balboas. See Table 14 in the appendix.

The data on industrial wages from 1960 to 1963 came from the University of California, Statisitcal Abstract of Latin America, Volume 18, California, 1977.

In the next chapter we will measure the amount of trade creation and trade diversion in the CACM, and trade which is diverted from Panama by the Central American Common Market. Although references were made to the dynamic effects of integration, such measurements as structural transformation, investment effects and the effects of competition within the CACM will not be calculated despite the fact that they are relevant influences.

The informal analyses of the gross national product and per capita gross national product of the CACM as well as of the rate of growth of both measurements will be discussed in Chapter V. The effects of trade balances and of balance of payments on each partner of the CACM will also be examined. The next chapter, in addition to discussing several ways of measuring the amount of trade diversion and trade creation, will also measure the distribution of such gains or losses.

FOOTNOTES

[1]United Nations, Yearbook of International Trade Statistics (1968), New York: United Nationsl Publishing Service, 1970, pp. 12 and 13.

[2]SIECA, Integracion en Cifras, Guatemala: Republic of Guatemala, pp. 37 and 38.

[3]Ibid.

[4]University of California, Statistical Abstract of Latin America, Volume 18, Los Angeles, Cal.: University of California, 1977, pp. 300-303.

[5]United Nations, Yearbook of International Trade Statistics (1968), p. 7:

> The ratio of import duties received to value of imports is not necessarily a reliable indicator of the magnitude of the effect of the level of import duties; very high duties discourage dutiable imports and thus may reduce rather than increase the ratio, furthermore, different countries apply duties to different classes of commodities to diverse purposes, e.g., for revenue or for the protection of domestic industry.

The duty on traded goods varied from good to good. Duties were to be gradually lowered over a period of years, being completely eliminated in the year designated by agreement. The period may be as short as two years or as long as six. The rates on some goods were as high as 85% (on lard, for example) and as low as 8% (cosmetics) in the first year of the agreement. Convenios Centroamericanos de Integracion Economica I, SIECA.

[6]William R. Cline and Enrique Delgado, eds., Economic Integration in Central America (Washington, D.C.: The Brookings Institution, 1978), p. 80.

[7]Ibid., pp. 80 and 81.

CHAPTER V

MEASURING THE EFFECTS OF ECONOMIC INTEGRATION

Introduction

Measurements of trade creation and trade diversion of the CACM will be dealt with in this chapter. In this chapter, the distribution of gains from integration and the viability of the CACM will also be discussed.

Two methods are used to measure the effects of integration, namely (1) informal and (2) static. A third possible method, dynamic analysis, is alluded to but no actual use of the method will be made. Regression analysis will be used to test for trade creation and trade diversion. These analyses, to be useful, should be structured in a way that makes comparison before and after integration possible. The period 1950-1959 represents the pre-integration years[1]; the period 1960-1969 represents the period of "incubation and experimentation" and a period of time when the union was most fully operative. However, for the informal tests, the periods 1956-1962 and 1962-1968 will be used because they represent the most active years of planning and trade before and after integration, respectively. The informal

analysis will begin in the next section with the data on GNP for the CACM and Panama.

Gross National Product of the CACM and Panama

The first informal analysis to be discussed is GNP. The data in Tables 6 and 7 show the economic position, in absolute and in relative terms, of each of the CACM countries and Panama. In terms of GNP, Guatemala, followed by El Salvador, appeared to be better off than the other members of the CACM. In terms of per capita GNP, Costa Rica would seem to be the most advanced country in the common market. Outside the common market, Panama registered a higher degree of economic advancement, in relative terms, than any of the members of the CACM.

Each country shows increases in GNP and per capita GNP each year. These increases are not large, they appear to be approximately the same year after year. In general, both in an absolute sense and in a per capita sense, economic activities in the Central American republics are too restricted to justify the massive use of capital in the region. Small markets restrict economic activities for even small industries with low capital requirements for their operations. The small markets as we have already indicated inhibit economic growth.

The next informal analysis is akin to the previous one. It pertains to rates of growth in total and per capita

TABLE 6

GROSS NATIONAL PRODUCT IN CONSTANT 1970 U.S. DOLLARS FOR CENTRAL AMERICAN COUNTRIES, ANNUALLY, 1950-1974

(In million of dollars)

YEAR	GUATEMALA	EL SALVADOR	HONDURAS	NICARAGUA	COSTA RICA	PANAMA
1950	761	403	275	264	276	285
1951	775	423	295	282	286	283
1952	791	454	313	323	322	299
1953	813	474	333	328	359	318
1954	828	484	336	362	378	324
1955	851	504	346	382	396	343
1956	931	524	359	389	405	361
1957	982	554	399	426	433	400
1958	1027	554	404	424	461	407
1959	1076	564	425	432	479	438
1960	1102	581	448	439	494	470
1961	1148	601	451	471	504	525
1962	1189	671	467	519	535	571
1963	1302	700	481	554	569	621
1964	1360	766	487	616	564	653
1965	1420	805	525	677	618	701
1966	1486	804	569	697	659	755
1967	1546	911	594	744	716	813
1968	1677	941	647	746	782	869
1969	1741	973	666	783	856	946
1970	1859	1008	701	818	902	1014
1971	1952	1048	729	859	938	1095
1972	2110	1109	757	900	1001	1166
1973	2268	1169	799	916	1073	1237
1974	2417	1230	820	1002	1118	1288

Source: Adapted from the Statistical Abstract of Latin America, Vol. 18, edited by James W. Wilke, co-editor Peter Reich (California: UCLA Latin American Center Publication, 1977).

TABLE 7

PER CAPITA GNP IN CONSTANT 1970 DOLLARS, FOR CENTRAL AMERICA ANNUALLY 1950-1974
(In hundreds of dollars)

YEAR	GUATEMALA	EL SALVADOR	HONDURAS	NICARAGUA	COSTA RICA	PANAMA
1950	271	218	190	249	318	358
1951	268	220	199	258	318	345
1952	264	232	205	288	350	354
1953	263	232	212	284	376	366
1954	259	232	208	310	387	363
1955	260	235	208	312	387	373
1956	275	241	209	310	382	382
1957	281	244	226	330	392	412
1958	286	241	222	319	394	407
1959	290	237	226	315	394	425
1960	288	237	231	311	398	443
1961	291	237	225	324	388	479
1962	292	237	226	347	398	506
1963	311	256	225	359	409	534
1964	315	358	220	387	392	545
1965	320	273	230	413	415	568
1966	324	278	241	415	428	594
1967	328	288	243	432	450	620
1968	345	294	255	421	479	644
1969	350	294	254	430	508	681
1970	361	294	259	436	515	708
1971	372	294	261	445	520	743
1972	386	303	261	449	541	772
1973	408	309	267	445	561	793
1974	419	314	264	480	572	793

Source: Adapted from the Statistical Abstract of Latin America, Vol. 18, edited by James W. Wilke, co-editor Peter Reich (California: UCLA Latin American Center Publication, 1977).

GNP. These measurements of economic growth are useful because they reflect the rate of increase in GNP and in per capita GNP before integration, during integration, and after integration. If these rates are significantly divergent from each other, during the different periods, the difference may be due to integration.

Data in Tables 8 and 9 show the rate of growth of total and per capita GNP. The rates of growth of GNP after integration can be clearly assessed from Tables 8 and 9. It becomes apparent from the tables that the rates of growth of output for 1962-1968 were higher than the rates of growth for the periods 1956-1962 and 1968-1974; i.e., the pre- and post-integration years.

Data in Table 9 show gains in per capita GNP for all countries except Costa Rica. Panama, despite the fact that it is a nonmember, has experienced greater gains per capita than the CACM members. Furthermore, Panama's performance could be a disincentive for her to join the union. It is noteworthy that Panama's GNP per capita declined during the period of integration of the five countries. This decline may indicate that the formation of the Central American Common Market had a negative impact on the rate of per capita GNP (and GNP, see Table 8), and consequently on economic welfare in that country.

It must be underscored that gathering accurate data about the CACM is not an easy undertaking. One has to

TABLE 8

GNP GROWTH RATES, TOTAL IN CONSTANT DOLLARS, 1950-74

COUNTY	TOTAL GNP		
	1956-1962	1962-1968	1968-1974
Nicaragua	4.8	6.2	4.9
Costa Rica	4.6	6.7	6.1
El Salvador	4.0	5.7	4.4
Honduras	4.3	5.5	3.8
Guatemala	4.0	5.9	6.3
Panama	8.3	7.5	6.9

Source: Adapted from the Statistical Abstract of Latin America, Vol. 18, edited by James W. Wilke, co-editor Peter Reich (California: UCLA Latin American Center Publication, 1977).

TABLE 9

RATE OF GROWTH OF PER CAPITA GNP (ANNUAL)

COUNTRY	PER CAPITA GNP		
	1956-1962	1962-1968	1968-1974
Nicaragua	1.7	3.4	2.0
Costa Rica	0.6	2.9	2.8
El Salvador	-0.2	3.4	1.0
Honduras	1.2	1.8	0.5
Guatemala	0.9	2.6	3.1
Panama	4.6	3.9	3.3

Source: Calculated from the Statistical Abstract of Latin America, Vol. 18, edited by James W. Wilke, co-editor Peter Reich (California: UCLA Latin American Center Publication, 1977).

rely on the data provided by the country without knowing how the counting procedure was conducted. In LDCs much of the domestic production of goods and services is done by households. Thus, GNP will underestimate output in these countries.

Obviously the more developed or industrial economies will report a higher GNP but this may be due in part to the fact that most of the goods and services in these economies go through the market place while in LDCs a substantial part of output is not monetized. This fact makes comparison between the countries difficult and misleading. On the other hand, per capita GNP, being an average, offers no information on the distribution of income in the various countries.

Since increases in both absolute and per capita GNP are evident, it cannot be ascertained if these increases can be attributed to integration. If per capita GNP in Panama is higher than in any other Central American economy, it could be argued that Panama need not join the CACM unless this movement will further add to her welfare.

Remember that the period 1956-1962 represents the pre-integration yeras. The 1962-1968 period may be called the period of "incubation and experimentation," and the years 1968-1974 a period of conflict and uncertainty. During the 1962-1968 period, significant gains were made by the five countries, with Costa Rica manifesting the highest

rate of growth in GNP compared with the pre-integration period. The higher rates of growth of GNP in each country would suggest that integration accelerated growth. But it is difficult to isolate the effects of integration or growth from other factors which may also contribute to growth. Panama's rate of growth accelerated during this integration period, too, but Panama was not a member of the CACM. To what, then, can be attributed the higher rate of growth in Panama?

The growth rates tell us nothing about whether the people are better off or not. If population rates of growth are higher than growth rates of GNP, then per capita GNP will decline, implying that welfare per consumer has declined.

The analysis presented above seems to suggest that integration had a positive influence on income. This inference discounts the effects of other variables on the rate of growth of output (income).

The effect of integration is to shift imports from the rest of the world to partners. This implies that domestic production must expand to fill the vacuum caused by tariff discrimination against nonpartners.

The five developing Central American republics are assumed to be capital poor. The supply of labor is not unlimited. These two factors in their infinite variety and coupled with the "state of the art" determine output.

Output is shown in the following functional relationship

$$X = f(K,L,t) \qquad (1)$$

where

X = income or output

L = labor

K = capital

t = technology

The effect of integration on output has to be specifically incorporated into the analysis. This may be accomplished by means of inserting a variable into the production function which will capture the effect of integration. The variable is "switched on" for the integration period and "off" for the preintegration period. Hence, equation (1) may be rewritten as

$$X = f(L,K,t,D) \qquad (2)$$

where

D = dummy variable

Equation (1) and equation (2) are indistinguishable if D = 0. This will be true for the period 1950-1959. When the period of analysis is 1960-1968, D takes on a value of one.

The supply of labor cannot be the same everywhere. However, since the countries in the study produce the same

agricultural export goods, it can be concluded that they are labor intensive producers, and that the labor force in each country is roughly the same, i.e., homogeneous.

The capital controversy centers around the question of whether the real world of heterogeneous capital goods would invalidate the theoretical production function.

The functional relationship between inputs and the resulting output described by equation (1) has the following properties.

1. Both capital and labor are necessary for the production of X.
2. The production function is homogeneous of degree one.
3. And the marginal productivities of both factors are positive but decreasing.

For estimating purposes, equation (2) will be rewritten in linear form as

$$X_1 = a_o + a_1K + a_2L + u \qquad (3)$$

$$X_2 = a_o + a_1K + a_2L + a_3D + u \qquad (4)$$

Equations (3) and (4) differ only by the a_3D term by which changes in output from one period to another can be accounted for by the D in equation (4). The coefficient of D in equation (4) can be tested for statistical significance. If it is statistically significant, it can be inferred that integration raised CACM output.

The available data for the equation are the industrial wage index and the gross fixed capital formation. The data are in real terms. The dependent variable is gross national product (see Table 6). The choice of the industrial wage index for CACM was based on availabiliy. However, since the industrial sector is not as important as the nonindustrial sector in terms of relative contributions to income, the choice of industrial wages may underestimate the importance of labor in production. The coefficient for gross fixed capital formation may not be significant following this line of reasoning, since labor in developing countries contributes more to output than capital.

The concept of economic growth is defined simply as a rise in national income or output over time. The measurement of this growth was done with a modified model to analyze the effects of integration on output. Thus, equation (1) becomes

$$X = f(K(i), L(w), D) + u \qquad (5)$$

where

$L = L(w)$; $L' < 0$

$K = K(i)$; $K' < 0$

i = real interest

w = real wage

D = dummy

u = disturbance term

Equation (5) shows that output is a function of interest and wages. An increase in wages above the equilibrium wage will result in a drop in employment and a reduction in output. The rate of gross capital formation is tied to the real rate of interest in the sense that lower real interest rates will increase the rate of gross capital formation by rendering such augmentations relatively cheaper. Differentiating equation (5) yields the following expression.

$$\partial X = \underset{+\ -}{\frac{\partial X dK}{\partial K di}} + \underset{+\ -}{\frac{\partial X dL}{\partial L dW}} < 0 \qquad (6)$$

For gross national product to rise, interest rates and wage rates must decline so that the first and second terms in equation (5) become positive. Alternatively, a drop in wages not offset by higher interest rates will raise income.

TABLE 10

AGGREGATE CACM PRODUCTION FUNCTION

Independent Variables	Regression Coefficient	t
Gross Fixed Capital Formation	-0.008	-0.89
Industrial Wage Index	-0.22	-3.68*
Dummy Variable	1.36	3.17*
Constant	5.54	12.50*
R^2 = 0.66 D.W. = 1.83	N = 18	
Dependent variable is GNP		

*Statistically significant at the 5% levels of significance.

Source: Computed from equation (5).

The results of the basic equation are shown in Table 10. R-squared indicates that 66% of the variations in the gross national income is explained by gross fixed capital formation and industrial wages and integration. According to the "t" values in the table, all of the independent variables except GFCF are statistically significant at the 5% level of significance. At 5% D.W. test is inconclusive. Improved results were achieved by a log-linear regression shown in Table 11.

TABLE 11

AGGREGATE PRODUCTION FUNCTION (CACM)

Independent Variables	Regression Coefficient	t
Gross Fixed Capital Formation	-0.02	-0.61
Industrial wage index	-0.23	-4.14*
DUM	0.32	3.83*
Constant	1.77	15.77*
R^2 = 0.70 D.W. = 2.04	N = 18	
Dependent variable is GNP		

Statistically significant at the 5% level of significance.

Source: Computed from equation (5).

All coefficients of the independent variables except gross fixed capital formation are statistically significant at the 5% level of significance. The estimated parameters are consistent with our suggested model for output. The signs of the coefficients are also consistent

with the model. The coefficient of GFCF is -0.02 and it is statistically insignificant. Hence, it can be inferred that GFCF has very negligible effect if any on output. The Durbin-Watson test rejects the presence of serial correlation in the disturbance term.

Of greater importance is the dummy variable which assumes a value of one in the equation to capture the effect of integration on output. The value of the coefficient is statistically significant at the 5% level of significance, and this suggests that integration had a positive effect on output. This lends support to the conclusion tentatively reached by the informal analysis.

The aggregate data for the CACM production function presented in Tables 13 and 14 include a time trend variable. The "t" values corresponding to the independent variable are shown in Tables 13 and 14 in parentheses. At the 5% level of significance, the coefficient of the time trend variable is not significant. The inclusion of this time trend in equation (1) resulted in the coefficients of the other independent variables becoming statistically insignificant at the 5% level of significance.

The effect is the same for both the regression results shown in Table 12 and the log linear regression results shown in Table 13. That is, all the coefficients of the independent variables are statistically insignificant at the 5% level of significance. In the final analysis,

TABLE 12

AGGREGATE CACM PRODUCTION FUNCTION

Independent Variables	Regression Coefficient	t
Gross Fixed Capital Formation	-0.19	-0.158
Industrial Wages Index	-32.19	-0.729
Dummy Variable	31.69	0.065
Constant	3645.30	1.778*
Time	228.53	1.503

R^2 = 0.80 D.W. = 1.49 N = 18

The dependent variable is GNP

*Statistical significance at the 5% level of significance.

Source: Computed from equation (5) modified by including a time variable.

TABLE 13

AGGREGATE CACM PRODUCTION FUNCTION

Independent Variables	Regression Coefficient	t
Gross Fixed Capital Formation	0.014	0.28
Industrial Wage Index	-0.578	-0.58
Dummy Variable	0.016	0.54
Constant	9.767	2.43*
Time	0.055	1.22

R^2 = 0.84 D.W. = 1.45 N = 18

The dependent variable is GNP

*Statistical signifiance at the 5% level of signifiance.

Source: Computed from equation (5) modified by including a time variable.

the inclusion of time trend in equation (1) may have no predictive or statistical value and should be dropped from the equation. It is uncertain whether time plays any significant part in determining CACM output, since multicollinearity may have produced the low "t" values shown in Tables 12 and 13.

Analysis of Trade Balances and Balance of Payments

Another informal analysis of economic gain centers on trade balances. This measurement, however, more appropriately refers to the distribution of the gains from integration among the partners. The countries with more favorable trade balances are assumed to have benefited from integration relative to other members.[2]

Data on trade balances shown in Table 14 indicate that all countries had trade deficits during many years. Guatemala and El Salvador were the main beneficiaries of integration. After Costa Rica joined the union officially in 1962 her balance of trade record displayed a remarkable improvement in 1964, but depreciated steadily afterwards, becoming negative in 1967 and 1968. The data in Table 15 show that after 1962, El Salvador, Guatemala, and Honduras experienced a worsening in their balance of payments. Nicaragua experienced a worsening in the balance of payment from 1962 to 1965, but showed a steady improvement thereafter until 1968, when she had a deficit of $5 million.

TABLE 14

TRADE BALANCES: INTRA CENTRAL AMERICAN TRADE 1960-1969

(IN THOUSANDS OF CENTRAL AMERICAN PESO)

Countries	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Guatemala	-2625	-302	2205	-2454	3201	4035	16990	15842	27640	32301
El Salvador	-1199	369	-3363	2306	-2439	2988	6575	24647	19757	14615
Honduras	2766	2268	3170	-793	-1563	-4956	-14535	-17357	-18323	-21843
Nicaragua	-249	-1074	-1812	-2594	-7183	-8995	-15483	-24129	-21536	-10535
Costa Rica	-1093	-1849	-1588	128	7105	3541	2002	-7311	-12620	-13471
CACM	-2400	-588	-1388	-3407	-879	-3390	-4451	-8308	-5082	1062

SOURCE: Integracion en Cifras, SIECA, July 1979

TABLE 15

BALANCE-OF-PAYMENTS, 1962-1968

(MILLIONS OF U.S. DOLLARS)

Countries	1962	1963	1964	1965	1966	1967	1968
Costa Rica	-4.3	3.8	9.2	10.6	6.1	-27.3	-9.1
El Salvador	35.1	-5.1	-40.7	-31.2	-77.5	-41.5	-10.7
Guatemala	14.5	-10.7	-5.3	-4.1	14.7	3.2	-2.3
Honduras	0.1	0.9	-6.7	-6.8	-.3	13.8	-22.4
Nicaragua	-4.1	-6.8	-5.1	-0.7	13.0	18.9	-5.2
Panama	0.7	-5.8	22.0	4.9	6.6	12.3	1.3

SOURCE: International Monetary Fund, Balance of Payments Year Book, Vol. 21, 1964-1968, Washington, D.C.

Panama developed an unfavorable balance of payments only in 1962. The data in Table 15 seem to suggest that the main beneficiary of economic integration was Costa Rica. The countries "hurt" by integration would require appropriate compensations. The desirability of compensation suggests that, in practice, new intraregional trade flows ought to be balanced, or at least not worsened, as a result of the formation of the Common Market.[3] What is relevant is that no absolute method of directing trade flows appears likely. With integration, specialization will lead to new patterns of trade and payments. So in the final analysis, what is relevant is the total balance of payments position when the effects of integration on trade are being evaluated.[4]

The outcome, of course, is not that simple.

> Because of the formation of the union, one can imagine two possible outcomes in the pattern of specialization. First, as is implicitly assumed in both the theoretical and empirical literature on customs union, is the case where there is no change in comparative advantage and thus no shift in specialization pattern is indicated. Second, is the situation where country A may now, because of the differential tariffs between A and B on goods from C, (so that A exports the good it formerly imported) . . . this would be a reversal of its previous specialization pattern.[5]

Implications of the Balance of Payments Analysis

If a country has a central banking system, a growing balance of payments deficit will cause an increasing outflow of foreign exchange which has two effects: (1) a drop in the country's foreign exchange; (2) a reduction in the

country's money supply. A drop in the money supply will contract aggregate demand and money income and employment. Monetary policy by the monetary authorities would call for an expansion in the money supply by the purchasing of bonds on the open market, the lowering of the discount rate, and the lowering of the reserve requirements. Expansionary monetary policy would prevent the contraction caused by the liquidity shortage occasioned by the balance-of-payments deficit.[6]

No matter how large the initial reserves, a country cannot maintain a balance-of-payments deficit indefinitely because the outflows will eliminate the reserves and cause a reduction in economic growth, unless some means can be found to expand exports and/or promote import substitution. Devaluation of the domestic currency is an alternative solution.

The balance-of-payments problems of the CACM countries had to be dealt with. The Central American Clearing House was instrumental in the increase in intraregional trade by clearing payments within the Central American region, and by making Credit available to the members.

A San Jose Protocol added a 30 percent surcharge on all import duties from nonmembers; a voluntary consumption tax of 10 percent on all nonessential items; and 20 percent on luxury commodities. Another device to ease the balance of payments problem was incorporated in the protocol. For example,

> In February 1970 the Fondo Centroamericao de Establiza-cion Monetaria began operations to ease short-run balance-of-payments problems. The Stabilization Fund received $4 million from each member, $5 million from Venezuela, and $10 million for USAID.[7]

The result was that all the countries experienced improvements in their balance-of-payments except Honduras. As a result of this worsening position, Honduras reimposed its internal tariffs, according to the strength of Decree 97, on all the Central American countries to which the other members responded by placing tariffs on all Honduran goods.[8]

Because of the loss of trade suffered by El Salvador after its conflict with Honduras, El Salvador tried to get preferential trade agreement with Panama to replace its losses. "Panama has generally had preferential tariff rates or exemptions from control on goods traded with both Nicaragua and Costa Rica."[9]

Countries get paranoid when they suffer from balance-of-payments or trade deficits. But attempts by any one country to achieve a balance of payments surplus can have adverse effects on the other countries. Regulations to insure a surplus position may undermine the importance of integration and its benefits. It might be argued too that if there is a net gain from integration, it is justified. This is not a Pareto optimal solution because the net gain may imply that some countries are worse off. Obviously the countries that are worse off will have an incentive to withdraw from the union. The basis for integration rests

on benefits (not losses) and not on altruism or ulterior motives such as the overall good.

Rather than oppose balance-of-trade inequities, the countries should recognize that

> These inequities may be offset by the accelerated growth resulting from regional investment policies. The key to the CACM's success is the pattern of industrialization resulting from the integration industries programs, . . . Free internal trade and appropriate external tariffs are provided to these industries. If balanced trade flows are enforced the larger potential benefits from regional industrial growth may be lost.[10]

In the 1960's, Panama had a favorable balance of payments, but the record of performance for the 1970s was not quite as good. Because Panama lacks a Central bank, it has to depend on international banks to finance its balance-of-payments deficit. A high deficit that cannot be financed can be translated to an offer for a loan for less than the desired amount of the deficit. The result is, on the other hand, higher real production costs for the economy, and on the other hand, a contraction caused by the expenses of servicing the loans and the effects on the level of production, income and employment. This was the case for Panama in 1975, during which time the country experienced the greatest debt to the internatinal financial markets.[11]

Conclusion

The above analysis has provided useful information about the progress of economic integration in the CACM.

The GNP and per capita GNP figures have shown gains during the period of integration relative to the pre-integration period.

The review of the rates of growth of GNP and per capita GNP suggests improvements in wellbeing accompanying integration.

The analysis of trade balances and balance of payments gives some indication of the major gains from integration. The country with favorable balances or small unfavorable ones relative to the other countries may be the ones which experience greater gains from integration.

The above economic indicators do not disaggregate the effects of the various factors which promote economic growth. Hence, to achieve more accurate and meaningful information about the effects on integration on economic development, a more complete model is needed. Three such models for the analysis of trade creation and trade diversion are developed below.

FOOTNOTES

[1]Data for 1950-59 are not available. This statement is in conformity with a letter from Idalia Gonzalez Dubon, Chief of Documents and Information Center of SIECA, Guatemala City, dated December 4, 1979.

[2]William R. Cline, Potential Effects of Income Redistribution on Economic Growth: Latin American Cases (New York: Praeger Publishers, 1972), p. 61.

[3]Karel Holbik and Philip L. Swan, Trade and Industrialization in the Central American Common Market: The First Decade (Austin: The University of Texas Press, 1972), p. 31.

[4]Ibid.

[5]Hossein Askari, "Changes in Specialization Pattern and Gains from a Customs Union," Journal of Common Market Studies, Vol. XV, No. 2 (December 1976), pp. 131-136.

[6]Resumen del Plan Nacional de Desarrollo (1976-1980) Objetivos, Politicas y Metas, Globales y Regionales, Version Preliminar, Vol. No. 1, 1976, p. 95.

[7]Holbik and Swan, p. 34.

[8]Ibid.

[9]Ibid., pp. 34-35.

[10]Ibid., p. 33.

[11]Resumen del Plan Nacional De Desarrollo (1976-1980) Objetivos, Politicas y Metas, Globales y Regionales, Version Preliminar, Vol. No. 1, 1976, p. 95.

CHAPTER VI

TRADE CREATION AND TRADE DIVERSION

Introduction

A tariff will have the dual effect of raising the domestic price of the imported good and of promoting the inefficient use of the country's scarce resources. Therefore, the removal of duties among common market members will have these two effects as well.

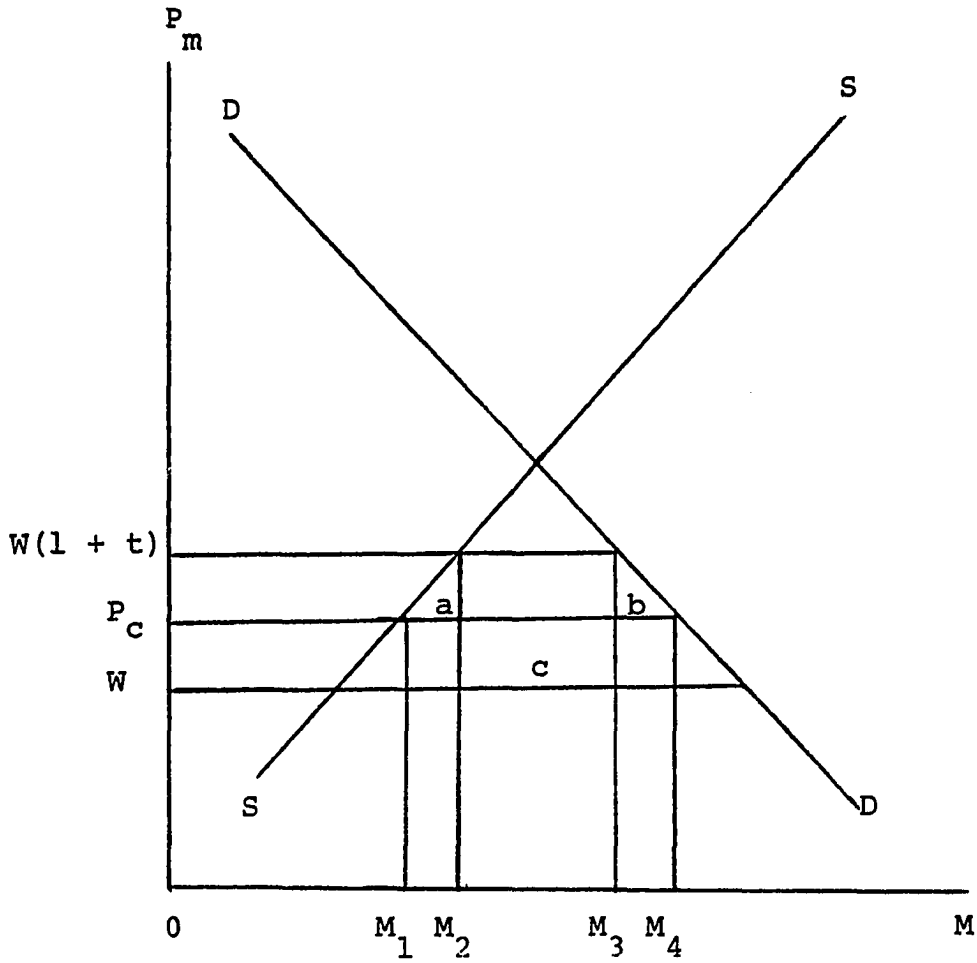
Theoretically, the welfare effects of the removal of trade barriers between partners can be seen from partial equilibrium in the graphical representation that follows (Figure 2).

Both the world price OW and the customs union price OP_c are assumed to be infinitely elastic. Before the customs union is formed, nothing is imported from prospective partners; however, after it is formed, nothing is imported from the rest of the world.

The customs union has the effect of expanding trade from M_2M_3 to M_1M_4; this is trade creation. It also has the effect of diverting M_2M_3 from the rest of the world (a low cost supplier) to the partner or high-cost supplier. This is the trade diversion effect.

FIGURE 2

DEMAND AND SUPPLY FOR THE IMPORTED GOOD M



where:

DD = home country's demand curve

SS = home country's supply curve

M_2M_3 = import of M at price OW (1 + t)

OW(1 + t) = tariff inclusive world price

OW = world price

OP_c = customs union price = OW (1 + t'), where t' < t

The welfare gains or deadweight gains are the triangles a and b in Figure 2, and are, respectively, the production and consumption effects of integration. The result is that the price falls from $OW(1 + t)$ to OP_c and production of the importable good is reduced, on the one hand, and consumption of the good is increased, on the other hand. In this comparative static analysis of the effects of trade liberalization, recognition is given to the drop in domestic production which implies that there is displaced employment.

The model of the customs union used in this study consists of three countries A, B, and C. Country A is the home country; B the partner, and C the rest of the world. The formation of a partnership with A and B has the effect of reducing A's production of the importable good and of reducing employment in that sector. But since A shifts demand for the importables from C to B, B has to raise production and thus employment to satisfy A's demand. So the drop in employment in A may be offset by a rise in employment in B. Country C, however, will experience some reduction in output from being excluded from the market. This exclusion will result in displacement of labor. Since Panama is country C in this study, it will be expedient to estimate the labor displacement cost to Panama.

The rectangle c in Figure 2 represents the welfare or deadweight loss because M_2M_3 after integrationmust be secured at a higher cost.

> In this one-commodity case, trade creation and the gains from the customs union are evidently greater, the greater the elasticities of demand and supply in the home country (or the flatter the demand and supply curves in Figure 2), the wider the cost differences between home country and partner, and the smaller these differences between partners and the world. On the other hand, the trade diversion loss is greater, the less elastic the demand and supply curves in the home country, and smaller the cost differences between home and the partner, and the wider they are between partner and the world.[1]

Certainly, since the social utility of the region is a function of the tariff and the terms of trade, the reduction in tariff will lead to an improvement in welfare. The extent of the improvement in welfare will depend on the relative elasticities of demand and supply for the importable good. The larger the elasticities of supply and demand are, the larger the gains from integration, and the move will translate into larger improvements in utility.

Income Propensity to Import

The above results can be depicted algebraically as follows: Trade creation and consumption effect TC and trade diversion TD are

$$TC = (N_1^t - N_0^t)\ C_1 \quad \text{(trade creation)} \tag{1}$$

$$TD = (N_0^r - N_1^r)\ C_1 \quad \text{(trade diversion)} \tag{2}$$

where

N = average propensity to import M/GNP

C = apparent consumption of goods measured as

domestic production plus total imports minus total exports of the good

t = superscript referring to total importation

0 = base year

1 = terminal year

r = the rest of the world imports

From Figure 2 (see page 128) it can be seen that total imports increased after integration by the amount $M_1M_4 - M_2M_3$.

We assumed that the propensity to import remains unchanged if there is no integration. So equation 1 shows the increase in total imports above the expected increase if the propensity to import had remained the same after integration. If the propensity to import is different after integration, the difference is attributed to integration. If the propensity to import is different after integration, the difference is attributed to integration. Equation 2, on the other hand, shows the decrease in total imports from the rest of the world above the expected increase if the propensity to import had remained the same.

Equations 1 and 2 measure changes in the volume of trade due to integration. It is useful to translate these changes to welfare costs and benefits. This can be accomplished by considering the world price W and the partner price $P_{\hat{c}}$ for the importable good.

Welfare Cost of TD and Welfare Gain from TC

The rectangle c in Figure 2 shows the welfare cost of integration.

$$c = (P_c - W)\ M_2M_3 = \text{trade diversion cost} \qquad (3)$$

$$TD = W \times M_2M_3 \qquad = \text{trade diversion} \qquad (4)$$

so

$$c = (P_c/W - W/W)\ W \times M_2M_3 \qquad (3a)$$

The welfare gains are depicted in Figure 2 by the triangles a and b. Thus, we can derive the equation for welfare gain as follows:

$$G = a + b = 1/2\ (W \cdot (1 + t) - P_c) \cdot (M_1M_4 - M_2M_3)$$

The analysis may be expanded to include the present value of a future stream of gains from integration. To accomplish this it is necessary to compute the rate of imports over the integration period. This rate is then used to estimate future import gains. The gains are then discounted to the present at some rate of return (interest) such as Treasury Bills in the U.S. Such an analysis is not germane to this study and will not be pursued.

As with the informal analyses, this test for trade creation and trade diversion does not incorporate changes due to prices or changes in tariff. This test attributes

changes in average propensity to import to integration with all other variables being held constant. Supply and demand might change as the variables that are terms in these functions change.

Because supply and demand conditions will likely vary from industry to industry, it is necessary to disaggregate the data as much as possible. The disaggregation, however, poses another problem, since it assumes GNP is a correct or appropriate proxy for each demand group considered. The income variable, GNP, suggests that the pattern of demand will remain unchanged.

> By abstracting from the influence of changes in the rate of growth of GNP on trade this method purports to indicate the static effects of integration, i.e., the impact of the elimination of internal duties on trade under ceteris paribus assumptions.[2]

The complete effect of integration on trade flow is not revealed by this test. Since the output after integration may be greater than before, the test would understate the increase in union trade and overstate the decrease in nonunion trade. This is true because integration will involve dynamic effects such as changes in competition, investment, and structural transformation from agriculture to industry. "The influence of non-recurring factors, structural changes and uncertainties relating to the underlying relationships also give rise to errors."[3]

The advantage of the test for welfare costs and benefits of integration is that it takes into account price

and tariff changes, which enter into the analysis of the customs union or the common market. With the above limitations of the income analysis taken into consideration, we now turn our attention to the analysis of the results.

The data in Tables 16 and 17 show that all five countries had positive welfare benefits from integration in 1968. The apparent anomaly in welfare gains for Honduras in both absolute and relative terms may be explained as a result of the limitation of the measurement used to determine gains and losses. When other static and dynamic effects are considered, both absolute and relative gains diminish for Honduras and increase for the more advanced countries.[4] With this in mind, the ranking of countries from most favored to least favored, i.e., Guatemala, El Salvador, Costa Rica, Nicaragua, and Honduras, is violated.

Although all the CACM countries benefitted from integration, the distribution of the benefits in 1968 was very unequal, being nine times as much for Costa Rica as for El Salvador, or 14 times in terms of net benefit per capita.

Obviously, this partial analysis does not properly convey the ranking of the countries or their "true" share of benefits. It could not be used to lend support to the Honduran complaint (that more advanced countries benefit)

TABLE 16

INTEGRATION EFFECTS, 1968

(Millions of U.S. $)

	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	CACM
Basic Effects						
Trade Creation	39.20	15.27	39.56	81.08	61.46	236.57
Trade Diversion	4.08	28.03	-8.03	-40.06	-21.32	-37.30
Welfare Effects						
Trade Creation	15.44	2.00	10.39	18.31	11.14	57.28
Trade Diversion	-0.58	-0.27	-0.08	3.08	0.82	2.97
Net Benefit	16.02	2.27	10.47	15.23	10.32	54.31

Source: Computed from Integracion en Cifras, SIECA, July 1979.

more from integration) and her eventual withdrawal from the CACM.

The data in Table 16 show that after integration all CACM countries experienced an increased volume of imports. The results for trade with the rest of the world were not quite as conclusive. Both Costa Rica and El Salvador reduced their extra-area imports, but Guatemala, Honduras and Nicaragua increased theirs. The positive values in Table 16 indicate trade creation. A positive sign for trade diversion suggests external trade augmentation, because trade with the rest of the world in the terminal year (1968) was greater than in the base year (1960). Thus Costa Rica and El Salvador increased their imports from the rest of the world. The net welfare effect was positive for all the countries. Hence each country experienced an improvement in welfare after the economic integration of Central America.

Imports were conputed for Standard International Trade Classification (SITC) groups 1 through 8 for each country. GNP is the proxy used for the income variable. Imports from the rest of the world showed an upward trend for each commodity group. Imports of the SITC groups 5, 6 and 8, and 7, representing chemical, manufactured goods and machinery, and transport equipment, respectively, increased about twofold from 1960 to 1968. Some of the

increase reflected in Table 16 is in the form of "negative" trade diversion for Honduras, Nicaragua and Guatemala. This is not difficult to understand. Machinery and manufactured goods will flow to the union from the developed countries until the union develops or acquires the technology to produce these goods to satisfy the area's internal demand.

Distribution of Integration Benefits

The net welfare benefits from integration shown in Table 16 are based exclusively on the effects of cooperation and protection, i.e., the static effects of integration. Other static effects such as trade suppression, external trade augmentation, the opportunity cost of labor, economies of scale, and foreign exchange savings, plus such dynamic effects as structural transformation of the economy, the investment effects, and the competitive effects which produce gains (losses), too, were dealt with quite extensively by the Brookings Institution study of the CACM. It would be superfluous to repeat the exercise here.

In addition, no distinction was made for different classification of commodities. Also, the results obtained in Table 16 do not fully represent the total gains and losses from economic integration in Central America, because some goods are traded more than others. A classification of goods analysis would reveal which ones are traded more.

Nevertheless, the question of distribution arises. An elaborate distributional scheme would necessitate

isolating many combinations of gains from integration. It would have to be determined how well the country could perform alone, in conjunction with one other country, two other countries, three other countries and four other countries. In this manner it could be determined which combination best suits the country. For example, if A is the country under consideration,

assume $v(A)$ = characteristic function of all of A's benefits

X_A = the benefits given to A,

then for two countries, the following condition must be present for a country A to join a union,

$$X_A \geq v(A) \tag{5}$$

$$X_A + X_B \geq v(A,B) \tag{6}$$

or $$v(A) \leq X_A \leq v(A,B,C) - v(B,C) \tag{7}$$

In condition (5), the benefits received must be equal to or greater than what the country could do alone. Condition (6) means mutual acceptability exists if the sum of the benefits received by countries A and B must be equal to or greater than what they could receive with co-operation with country c. The last condition is an expression of conditions one and two. Clearly, country A will participate in the integration effort if the gains received

by X_A are equal to or greater than the gains from independence. The benefit accruing to A is the difference between the sum of the benefits of the three countries, v(A,B,C) and the sum of the benefits from cooperation of two countries v(B,C). Once again I must eschew the thorough analysis for a more simplified version.[5]

The distribution of gains from integration is shown in Table 17. The largest gainers appear to be Honduras and Costa Rica, receiving 28% and 29.5% of the total benefits, respectively. With regard to the distribution in terms of the population, Costa Rica and Honduras are once again the countries gaining most from integration. A look at percentage of benefits as a percentage of GNP shows Costa Rica and Honduras as the two largest gainers from integration.

The order of ranking according to the distribution of benefits differs from the results obtained by the Brookings Institution. One reason for this difference is the inclusion of other effects by the Brookings study such as trade suppression, economies of scale and so on.

One final point is that the results shown in Table 17 represent the possible or potential distribution of the benefits on losses from integration, not the actual distribution.

The next section will deal with a variant of the income elasticities method discussed in this section. The Ex Post Income Elasticities will test from the presence of trade creation and trade diversion.

TABLE 17

DISTRIBUTION OF GAINS FROM INTEGRATION, 1968

Benefits	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	CACM
1. % share of Benefits	29.5	4.2	19.3	28.0	19.0	100
2. % share of						
Population	11.8	23.8	34.2	17.5	12.6	100
GNP	16.3	19.6	35.0	13.5	15.6	100
3. Ratio, % Net Benefit to						
%Population	2.5	0.18	0.56	1.6	1.51	1.00
%GNP	1.81	0.21	0.55	2.07	1.22	1.00

Format from Brookings CACM study, 1978

Ex Post Income Elasticities

This section deals with an alternative way of looking at the income propensity to import method of measurement. It is assumed as before that the income elasticities of import demand would have remained unchanged in the absence of economic integration.

The ex post income elasticity of demand for imports is used to calculate trade creation and trade diversion by comparing the ratios of the average annual rate of change of imports to that of GNP at two different points in time. Hence, a rise in the income elasticity of demand for union imports suggests gross trade creation, but an increase in the income elasticity of demand for imports from all sources of supply means trade creation proper has occurred. On the other hand, a fall in the income elasticity of demand for non-union imports indicates trade diversion.

The procedure followed in the analysis of trade creation and trade diversion is developed and outlined below.

$$TC = \dot{I}_1/\dot{G}_1 < \dot{I}_2/\dot{G}_2; \text{ in union (common market) trade} \quad (8)$$

$$TD = \dot{I}_1/\dot{G}_1 > \dot{I}_2/\dot{G}_2; \text{ in nonunion (rest of the world) trade} \quad (9)$$

where

TC = trade creation

TD = trade diversion

$\dot{I}_1$ = average annual rate of change of imports before integration

$\dot{I}_2$ = average annual rate of change of imports after integration

$\dot{G}_1$ = average annual rate of change of GNP before integration

$\dot{G}_2$ = average annual rate of change of GNP after integration.

When applied to union trade flows, the measure describes gross trade creation; obviously, when the CACM imports from the rest of the world, it describes trade creation proper.

The second test, $\dot{I}_1/\dot{G}_1 > \dot{I}_2/\dot{G}_2$, can be applied to one country such as Panama, rather than all nonmembers. A positive test would indicate trade diversion with respect to Panama alone.

The test ascribes changes in the ratios to the effect of integration with all other variables such as prices, tariffs, supply availability, taste, etc., held constant. Evidently, these variables are subject to change.

> It is desirable to disaggreagte the data as much as possible since supply and demand conditions may vary considerably from industry to industry. Disaggregation has the limitation, however, of assuming that GNP is the appropriate demand proxy each product group considered. The use of GNP as the income variable implies that the commodity pattern of demand remains unchanged over time.[6]

In addition, unlike the previous method, which is a test for the value of trade creation or diversion, this method tests for the presence of trade creation or diversion.

In Table 18 the negative signs suggest the presence of trade diversion and the positive ones the presence of trade creation. In the total imports segment of Table 18, for all the commodity groups except SITC 1 and 2, trade diversion was present. For food, SITC 0, the import elasticities have not changed much, hence, it may be concluded that for food there had been no significant integration effect. Trade diversion in the other commodity classification was partly indicative of the fact that LDCs aspiring to development would enhance that possibility by importing needed physical capital. For nonmarket economies, trade diversion in several commodity groups was offset by increases in imports of fuel and machinery.

Based on the data in Table 18, intra-area trade shows the expected evidence of trade creation and extra-area trade shows evidence of trade diversion in all categories but SITC 1 and 2. This means that imports among the members of the CACM increased. Imports from the rest of the world in two groups of goods increased as well. The average legal tariff in 1968 was 28%, which is not really prohibitive, and could, in part, account for the increase in extra-area trade in beverages, and tobacco and crude materials, the tariff was lower than the tariff levels for previous years (see Table 7 in Appendix).

TABLE 18

INCOME ELASTICITIES OF DEMAND IN CACM

Category	Annual Rate Of Growth 1954-1960 (1)	Annual Rate Of Growth 1960-1968 (2)	Income Elasticity** 1954-1960 (3)	Income Elasticity** 1960-1968 (4)	Difference (5)=(4)-(3)
TOTAL IMPORT					
0 Food and live animals	7.3	13.6	1.8	1.6	-0.2
1 Beverages and tobacco	-1.3	6.0	-0.3	0.7	1.0
2 Crude materials, inedible, except fuel	1.2	39.9	0.3	4.9	4.6
3 Mineral fuels, lubricants	10.5	3.5	2.6	0.4	-2.2
4 Animal and vegetable oils and fats	32.4	25.4	8.1	3.1	-5.0
5 Chemicals	10.5	19.9	2.6	2.4	-0.2
6 Manufactured goods	9.1	14.8	2.3	1.8	-0.5
7 Machinery and transport equip.	11.2	14.1	2.8	1.7	-1.1
8 Misc. manufactured articles	11.4	16.5	2.9	2.0	-0.9
0 to 8, Total of above	9.7	14.8	2.4	1.8	-0.6
INTRA-AREA IMPORTS*					
0 Food and live animals	9.9	87.9	2.5	10.8	8.3
1 Beverages and tobacco	4.8	46.4	0.0	5.7	-5.7
2 Crude materials, inedible, except fuel	0.0	22.3	-1.2	27.5	28.7
3 Mineral fuels, lubricants	11.2	58.8	0.8	7.3	6.5
4 Animal and vegetable oils and fats	14.2	221.4	10.7	27.3	16.6
5 Chemicals	11.7	116.2	2.8	14.3	11.5
6 Manufactured goods	9.7	98.4	2.4	-12.1	14.5
7 Machinery and transport equip.	12.6	90.0	3.2	11.1	7.9
8 Misc. manufactured articles	14.3	95.7	3.6	11.8	8.3
0 to 8, Total of above	10.6	98.6	2.7	12.2	9.5
EXTRA-AREA IMPORTS*					
0 Food and live animals	7.2	8.2	1.8	1.0	-0.8
1 Beverages and tobacoo	-1.6	2.4	-0.4	0.3	0.7
2 Crude materials, inedible, except fuel	1.2	29.1	0.3	3.4	3.1
3 Mineral fuels, lubricants	10.5	-0.002	2.6	-0.0002	-2.6
4 Animal and vegetable oils and fats	33.8	17.0	8.5	2.1	-6.4
5 Chemicals	10.5	13.4	2.6	1.7	-0.9
6 Manufactured goods	9.1	9.4	2.3	1.2	-1.1
7 Machinery and transport equip.	11.1	8.9	2.8	1.1	-1.7
8 Misc. manufactured articles	11.2	10.7	2.8	1.3	-1.5
0 to 8, Total of Above	9.6	7.2	2.4	0.9	-1.5
Gross National Product	4.0	8.1			

*Intra-inter area trade estimated at 6% and 94%, respectively, for each SITC group total.

**Computed by taking columns 1 and 2 divided by 4.0 and 8.1, respectively.

Source: Computed from the Year Book of International Trade Statistics, various issues.

TABLE 19

PANAMA'S IMPORTS INTO THE CACM, 1960 and 1968
(In millions of U.S. $)

	1960[a]	Hypothetical[b] imports in 1968		Actual imports, 1968		Differences between actual & hypothetical imports, 1968			
		1952[c]-60	60-68	in 1960 prices	in 1968 prices	Common Market (3) - (2)	Competitive Effect (4) - (3)	Price Effect (5) - (4)	Together (5) - (2)
	(In 1960 prices)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panama	1.063	1.976	1.913	6.570	6.570	-0.063	4.657	0.0	4.594

[a]Represents actual imports for 1960

[b]Calculated at growth rates of extra-area imports for the period

[c]Represents 1952 total imports

Source: Format from Balassa, "Trade Creation and Trade Diversion in the European Common Market," The Economic Journal (March 1967), p. 12.

In Table 19 the hypothetical import is assumed to be that level of import that would have resulted in the absence of a discriminatory tariff. The difference between actual and hypothetical imports was $4.5 million import from Panama after integration. The competitive effect of Panamanian goods was mainly responsible for this result. The common market effect was the difference between what imports would have been in 1960, by applying actual rates of growth between 1952 and 1960 to total imports from Panama in 1960, and actual rate of growth between 1960 and 1968 to total imports in 1960. The formation of the CACM resulted in a $0.063 million loss to Panama.

The competitive effect was the difference between imports in constant prices and hypothetical imports computed by applying growth rates in the integration period to 1960 imports. The data in Table 19 show a positive competitive effect of $4.657 million.

The price effect was simply the difference between imports expressed in current and in constant prices. In this regard Panama had not experienced any change.

Panama appeared not to have benefitted from the common market effect despite the bilateral trade agreements with Costa Rica and Nicaragua in 1965. The foramtion of the CACM resulted in a loss of trade to Panama of $0.06 million, but an increase in the overall share of common market imports of $6 million. This improvement in competi-

tive performance is shown in column 7 of Table 19. The improvement in market share substantially offsets the trade diversion from the formation of the common market, so that the net effect of the formation of the union on Panama was positive.

The positive competitive effect shown may have been due partly to the bilateral agreements alluded to before. The overall benefit to Panama may have been attributed to the increase in trade due to the agreements made possible between the CACM and Panama. The virtue of the ex post income elasticities method is the breakdown of the effects of integration by several categories. A modification of this approach is considered next.

The preceding analysis is analogous to one developed by Lamfalussy.[7] The tenor of the Lamfalussy approach is to breakdown the effect of a country's exports into three components. These are defined and explained in the discussion which follows.

The gains (or losses) to Panama using Lamfalussy's method is as follows:

$$T_p = X_2 - rX_1 \qquad (10)$$

where

r = percent change in CACM exports from 1960-1968 to the CACM--this is the intraregional trade rise from integration

X_1 = Panama's exports in 1960 to the CACM

X_2 = Panama's exports in 1968 to the CACM

If T_p is negative, Panama has suffered losses in trade due to integration and a discriminatory tariff. A positive T_p means gains from trade.

A second equation is used to determine the effect of the composition of commodity on trade.

$$C_p = \Sigma\ r_i\ X_i - rX_1 \qquad (11)$$

where

r_i = percent change in CACM exports of good i from 1960-1968

X_i = Panama's exports of good i in 1960.

The type of Panamanian goods that are exported to the CACM will determine the effect of integration on exports. If C_p is negative, there are losses to Panama due to the composition of the commodities Panama exports to the CACM. Zero means no effect. A positive value means benefits accrue to Panama from the commodity composition.

The market distribution effect is measured by

$$M_p = \Sigma\ r_{ij}X_{ij} - \Sigma\ r_iX_i \qquad (12)$$

where

r_{ij} = percent change in CACM exports of good i to CACM country j, from 1960-1968

X_{ij} = Panama's exports of each good i to each CACM market country j, in 1960.

If M_p is negative, there will be a loss to Panama due to market distribution of Panama's goods in the CACM.

The fourth effect considered is the competitive effect:

$$P = X - \Sigma\, r_{ij}X_{ij} \qquad (13)$$

where

X_j and $r_{ij}X_{ij}$ are defined as above.

A positive competitive effect means that Panamanian goods gained competitiveness in the CACM relative to partners because of tariff discrimination.

From Integracion en Cifras, the values of Panama's exports to CACM in 1960 and 1968 were $59,000 and $2,786,000, respectively. The years 1960 and 1968 were chosen because the data series begins in 1960 and complete integration was not achieved until 1962; so 1960 was a pre-integration year; 1968 was the year prior to the withdrawal of Honduras. Using equation 10, we get

$$T = X_{68} - rX_{60} = 2,786 - (8.15)(59) = \$2,305,150.$$

This result is inconsistent with theory (i.e., Panama should show a drop in the value of trade). But part of the cause of the inconsistency may be explained by the

bilateral agreements between Panama and members of the CACM. From equation 5 the dummy variable used to capture the effects of the bilateral agreements is significant at the 5% level. This suggests that these agreements must be taken into account.

Remembering that the first bilateral agreement was signed in 1965, a more accurate analysis of the effect of the union on Panama may be obtained by taking 1960 and 1964 as base and terminal years, respectively.

$$T = X_{64} - rX_{60} = (8.15)(59) = \$372,150$$

The result here is also positive. An additional explanation may be the import trend, that is, each year the CACM imported more and more of Panama's goods. Thus, the rate of growth of intra-union trade was lower than the rate of growth of Panamanian exports to the common market (815% versus 4700% over the nine year period). This rate differential would seem to imply that the competitive effect and the commodity effect were also positive, contributing to Panama's overall gain.

Conclusion

The informal analysis used in this chapter indicates that between 1962 and 1968 the rate of growth of GNP was up by at least one percentage point from the preceding period, i.e., 1956 to 1962 (see Table 8). Per capita gains

(see Table 9) were also evident for the 1962-1968 period. The gains are assumed to be the direct result of integration and this conclusion was supported by equation 5 in Table 11. The dummy variable in the equation which was used to capture the effects of integration on output is statistically significant.

Trade balances and balance of payments analysis did not convey a perfectly clear picture. Countries like Guatemala and El Salvador did not show improvements in their balance of trade (see Table 15). These are the two more advanced countries of the group so these results are more surprising. However, the results of the balance of payments (see Table 14) show improvements for some countries while others show no improvements at all.

The results of the computations for trade creation and trade diversion and the distribution of benefits, presented in Tables 16 and 17 respectively, show that each country benefitted from integration.

The effect of integration on Panama was assessed using Balassa's methodology (see Table 19) and Lamfalussy's (see equation 3). Both approaches reveal that the effect on integration on Panama was positive.

In summary, integration had positive effects on the partners of the CACM and positive effects on Panama which is a nonmember.

Regression analysis is a better method of determining the effects of trade restrictions on welfare. This method will be employed in the next chapter.

FOOTNOTES

[1]Charles P. Kindleberger, International Economics, Fifth edition (Ill.: Richard D. Irwin, Inc., 1973), p. 178.

[2]Bela Balassa, "Trade Creation and Trade Diversion in the European Common Market," Economic Journal, No. 305, Vol. LXXVII (March 1967), pp. 2-21.

[3]Ibid.

[4]Others using disaggregated data have shown that manufacturing accounted for the greater proportion of the benefits from integration accrued to Costa Rica, El Salvador and Guatemala, with the smallest going to Honduras. These results were reported in Economic Integration in Central America, William R. Cline and Enrique Delgado, editors, The Brookings Institution, 1978, p. 90.

[5]This analysis is drawn from D. Gately's 1974 article in the Journal of Development Economics, Vol. I (1974), pp. 213-233.

[6]James Arthur Merrill,"The Effect of the European Economic Community on Trade with Denmark," Doctoral Dissertation, Columbia University, 1976.

[7]Alexandre Lamfalussy, The United Kingdom and the Six: An Essay on Economic Growth in Western Europe (London: MacMillan & Co., Ltd., 1963), pp. 45-62. The thesis is that the growth rate of exports in the six had a strong influence on the ability of them to expand imports and stimulate growth. His analysis of the EEC shows that increases in exports had a pulling effect on GNP in each of the countries, except for a short period in France when this was not the case. Sales (exports) will be stimulated if the country sells the right goods--this is the commodity composition; if the goods are sold in the right market (market distribution position), and finally, if it manages to increase the share in individual markets. The latter effect can overwhelm the first two. For a complete discussion of market shares, see appendix I of Lamfalussy's book.

CHAPTER VII

REGRESSION ANALYSIS

Regression analysis is the basic technique for measuring or estimating the relationships among economic variables for prediction purposes. This chapter employs this technique in order to estimate the CACM's demand for imports. The purpose of the analysis is to determine from the resulting equations if integration altered the CACM demand for imports in general and for Panama in particular.

The methodology which will be used in this chapter is developed below.

Methodology

Ordinary least squares regression analysis is used to directly measure the value of trade diverted from the rest of the world, and also the value of trade diverted from Panama by the formation of the Central American Common Market. In addition, the ordinary least squares regression and the results are compared with the informal analyses previously described.

Demand equations are constructed for CACM demand for Panamanian goods. The basic formulation suggested by the

theory of demand is that the quantity of imports purchased depend on income (Y), the price of imports (P_m), and the price of other consumable commodities (P_y),[1] or

$$M = M\ (P_m,\ P_y,\ Y) \tag{1}$$

For this basic demand equation, the theory of demand says that changes in the own price of a good will result in changes in quantity in the opposite direction. So the coefficient of P_m will be negative. The coefficient of P_y will be positive if "all other goods" are assumed to be competing or substitute goods. As income increases, the demand for goods and services will increase, if they are not inferior goods. Thus the coefficient of Y is positive. So

$$\frac{\partial M}{\partial P_m},\ \frac{\partial M}{\partial P_y},\ \frac{\partial M}{\partial Y}$$

$$(-) \quad (+) \quad (+)$$

Available data on the dependent variable, imports (exports), are in value terms rather than quantity terms. The theory of demand, however, suggests that the relevant measure should be quantity. Thus, to conform to theory the value series must be divided by the appropriate measure of prices to obtain the property quantity term.

The quantity is given by

$$M = V_m/P_m$$

where

M = quantity of imports

V_m = value of imports

P_m = price of imports

If classes of goods are aggregated, V_m will be an aggregate of the classes of goods, and P_m will be a price index, and M is value in constant dollars. Dividing the value of imports by the price index results in an index of real value or value of imports in terms of base-year prices. This is the same process used to convert GNP to real income.

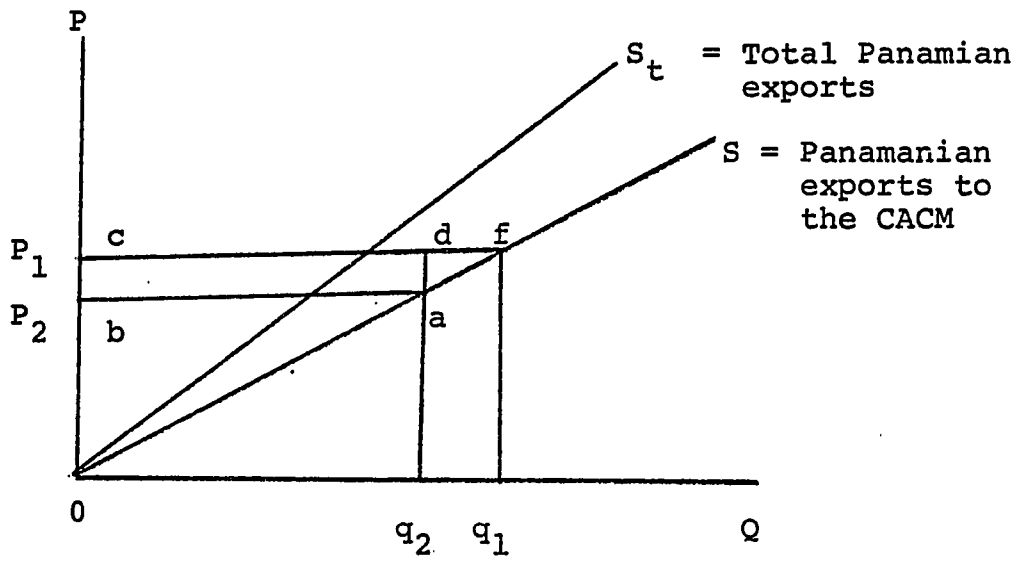
The use of real rather than current value of imports may introduce serious errors into the analysis. If the Laspeyres price index is used, $I_p(L) = \frac{\Sigma_1 q_{1j} P_{1j}}{\Sigma_j q_{1j} P_{1j}}$, the unit price becomes an unreliable indicator of the average price of imports, because it assumes that the quality of the product does not change over the spread of the price time series. Clearly an improvement in the quality will understate the real value.

Moreover, under certain conditions, it may be extremely difficult, if not impossible, to express imports in real terms; examples of such "invisible items" are services, tourism, and banking charges.

Under these circumstances the use of current value is desirable for better analytical results. In such cases regression analysis measures the entire area of trade diversion. For example, Figure 3 presents the case of a country such as Panama exporting to CACM.

Figure 3

PANAMA'S EXPORTS TO CACM



The drop in quantity is q_1q_2 and Price P_1P_2. The loss to Panama is equal to $P_1P_2afq_1q_2$; Producers' surplus loss is equivalent to P_1P_2af.

If the dependent variable in the regression is quantity, only the trade loss measured by q_1q_2df is accounted for. Thus, when M is current value, the regression takes the form

$$M = f(Y, P_m, P_y) \qquad (2)$$

which will capture the full effect of a change in demand for imports due to changes in import price, the price of all other goods and/or income.

The theory of demand for imports suggests that the independent variable used to explain demand for imports is

income, the price level of imports, and the price level of other goods as shown in equation 2. The theory of demand can be carried one step further to imply that the demand relationship in equation 2 may be rewritten as

$$M = f(P_m/P_y, Y/P_y) \tag{3}$$

which explains imports by relative prices and real income.

"This transformation is based on the assumption that individual consumers display the absence of money illusion; that is, a doubling of all prices and money income will leave the quantity demanded unchanged."[2] In general, demand analysis in international trade employs the transformed equation.

Additionally, if imports and domestic goods are not perfect substitutes, domestic supply will exert a direct impact on imports. To account for this, it is necessary to specify a varible for the capacity of the import competing industries in the demand function. Thus the basic demand for import function becomes,

$$M = f(S, Y, P, P_A) \tag{4}$$

where

S = a variable that shifts the domestic supply function with changes in imports

Y = income

P = price of the good

P_A = price of the alternative good.

If P_A is the price of a domestic good which is not a perfect substitute of M, then P_A will vanish from the import-demand function when M is total aggregate imports.

There are several other alternatives to the import-demand functions which include other variables such as raw materials and unfinished goods, capacity-utilization, dummy variables, the level of foreign exchange reserves, and credit variables. These are of course additional explanatory variables.

Capacity utilization is an addition to the dimension of queues to the demand function, and gives recognition to the notion that queues and prices determine demand. This idea of queues is important as a non-price allocative device when demand rises. For example, if a small country is the supplier of primary products whose demand increases in a large country, it is conceivable that bottlenecks will develop because of the inability of the exporting country to satisfy the additional demand. The large country will have to resort to various non-pricing distribution schemes. These devices would include delaying deliveries, which forces the consumer into a queue to await servicing his order. Alternatively, an increase in domestic demand may serve to force the domestic consumer to go to the foreign sources of supply to avoid delays in delivery. In effect, the consumer pays two prices, the quoted price and the opportunity cost of waiting in a queue. Hence, the preferred supply source

is the one that provides the minimum cost, including the cost of waiting.[3] So, equation 2 may be rewritten as

$$M = f(Y, P, P_y, CU) \tag{5}$$

Dummy variables or indicator variables assume values of one and zero. The value one is assumed if an unusual event such as a strike, war, or natural disaster which affects imports is present. If the unusual period is absent, then the value of the variable is zero. Unusual events associated with quarterly or monthly data (such as seasonal variation) may be accounted for by means of a dummy variable. So equation 2 becomes

$$M = f(Y, P, P_y, D) \tag{6}$$

The general idea of listing the various possibilities of independent variables in the import-demand function is to highlight the fact that income and prices are not the only pertinent variables.

Next, tariffs play a central role in the formation of customs unions. The demand for imports will depend not only on relative prices but indirectly on tariffs via their effects on relative prices, especially where the size of the tariff is large. The discriminatory tariff against nonmembers is expected to result in trade diversion or a curtailment of imports from the low cost producer.

Furthermore, aggregate data for imports do not reflect the complex relationships that appear to govern the behavior of imports over the business cycle in terms of cyclical sensitivity. Machinery imports may be more cyclically sensitive than food imports. These differences may be captured empirically by estimating import-demand functions separately for each product group or category.[4]

Finally, the data for the time period covered by this study are available in annual figures. Although quarterly data would provide more observations which would increase the degrees of freedom and, hence, the statistical preciseness of the results, they do not allow for enough time for adjustment of import-demand for changes in the independent variables. Various lag techniques have been used with varying degrees of success to deal with the problem of adjustment. However, annual data represent time frames sufficiently long to allow for the adjustments to take place.

Annual data may not consist of sufficient observations. This would cause problems such as insufficient degrees of freedom and instability of the parameters, and make hypothesis testing for reliability difficult.

Functional Form of the Equation

The general functional relations for the demand for imports with the two basic variables as in equation 2 is

$$M = f(Y/P_y, P_m/P_y)$$

where

M = quantity of imports

Y/P_y = real income

P_m/P_y = relative price of imports

This demand function is assumed to be linear as in equation 7, and log-linear, as in equation 8.

$$M = a + b(Y/P_y) + c(P_m/P_y) + u \tag{7}$$

$$\log M = \log a + b \log (Y/P_y) + c \log (P_m/P_y) + \log u \tag{8}$$

or

$$M = a(Y/P_y)^b (P_m/P_y)^c u \tag{9}$$

In general, for a linear equation such as equation 7, a is the intercept or constant term which means that a level of import will result if real income is zero; b is the marginal propensity to import; and c is the import coefficient of relative prices, and u is the error term that reflects other minor effects, and is assumed not to be correlated with the independent variables. It is clear that in equation 7, income and price elasticities depend on the levels of these variables, and in equation 8 the elasticities are measured by the exponents c and b which are taken directly from the regression analysis.

In this study, equation 7 is rewritten as in equation 9, which is for the current values in the formal form

$$M = f(Y, P_m/P_y, D, CU) \tag{10}$$

or

$$M = a_1 + a_2Y + a_3 (P_m/P_y) + a_4D + a_5 CU + u \tag{11}$$

$$M = a_1 + a_2Y + a_3P_m + a_4P_y + a_5D + a_6 CU + u \tag{12}$$

where

M_p = Panamanian export to the CACM

Y = the income of the CACM

P_m = import price index of Panamanian goods

P_y = price index of CACM goods

CU = capacity utilization.

Obviously, changes in price due to tariffs will have an impact on exports from Panama to the CACM. The bilateral agreements between Panama and some of the CACM members previously discussed indicate that tariffs on Panamanian exports were declining because of trade liberalization policies. As a result, exports from Panama to the CACM displayed a steady rise over the time span from 1965 to 1968.

The advantage of using regression analysis for determining the effects of the CACM on Panama is that the effects of tariffs on prices of Panamanian exports can be directly incorporated into the analysis. This holds true for determining the effects of integration on the members of CACM. Furthermore, the results of the regression can be tested for statistical significance.

Much has been said about income, price of the domestic goods, the price of imported goods, and not about imports. This section is concerned with the impact of the formation of the CACM on Panama. This can be interpreted by observing the changes in imports for changes in demand for Panamanian exports to CACM.

Ideally, all the SITC groups and some subgroups should be analyzed. Particular groups, such as SITC 3, mineral fuels, lubricants and related material; SITC 0 and 1, foods and beverages and tobacco, and some manufactured items that experienced strong increases in demand, would seem particularly important. On the other hand, there is no demand for SITC 4, animal and vegetable oils and fats. However, the lack of disaggregated data prevented the more detailed analysis that could have been done.

Three independent variables, namely income, consumer price index, and the import price index, are used in the regression. Since the data are aggregated, the index of GNP is assumed to be the appropriate demand proxy, and the CPI and the import price index satisfactory price substitutes for supply prices.

The period under analysis is 1950 to 1968. The preintegration period from 1950 to 1959 was characterized by high tariffs. The integration period 1960 to 1968 represents a time when trade barriers were collapsing as the nations, with a series of aggreements and protocols, eliminated or

reduced quotas and tariffs among themselves. It was during this period that the common market was formed. It meant the elimination or gradual reduction of tariffs among members and a common tariff against nonmembers.

Since prices and income are in index numbers, the imports from Panama are also expressed in index form. Hence, the coefficients of the independent variables are the percentage point changes of the dependent variable resulting from a percentage point change in each independent variable.

Computation of Trade Diversion

This section deals with the method of computing trade diversion loss of Panama caused by the formation of the CACM. The first step is to determine the coefficient of the CACM price variable by regressing Panama's exports M_p on the CACM P_c. This evidently shows the relationship between changes in CACM prices including tariffs to changes in Panamanian exports to the CACM. Hence, for a given percentage decrease in CACM tariffs stemming from the formation of the common market, there will result a determinate percentage decrease in imports from Panama.

To facilitate computation, the tariff change is assumed to occur uniformly over the period 1960 to 1968. To obtain the hypothetical value of Panamanian exports, the index is cumulatively raised each year. Thus, the value of export trade lost by Panama per year is determined. Summing

these losses over gives the total value of export trade loss for the period. The difference between actual exports and hypothetical exports equals the net cumulative loss in trade.

Empirical Results

Various results of equation 12 are shown in Table 18. The dummy variable in the equations is designed to capture the effects of the bilateral trade agreement between the CACM and Panama. This will cover a period of 5 years, from 1965 to 1969.

The capacity utilization variable (CU) puts a constraint on the volume of exports from Panama and it is also used to deal with a realistic finite supply of Panamanian export goods.

The "t" values of the four demand equations are shown in parentheses. The R-squared for each equation indicates that more than 85% of the variations in the demand for Panamanian goods is explained by the independent variables, i.e., income or gross national product (GNP), import price (MPRICE), the consumer price index (CPI) for the CACM, energy consumption (ENCOM) and the dummy variable (DUM). Accordingly, the "t" values of the coefficients of the constant term, the CPI and the dummy variable are statistically insignificant at the 5% level of significance. The other independent variables in the equation are statistically significant. All the coefficients but the coefficient of the dummy variable have

TABLE 20

DEMAND FOR IMPORTS FROM PANAMA

Dependent Variable	Independent Variables									
Imports From Panama	Constant	GNP	Import Price	CPI	Energy Cons	Dummy	Relative Price	R^2	Dw	N
(13)	-267.50 (0.23)	7.68* (1.97)	-8.13 (-1.97)	2.58 (0.28)	743.95* (2.14)	-77.60 (-1.14)		0.93	2.22	19
(14)	35.92 (1.26)	2.64 (1.31)	-11.06* (-2.55)	1.93 (0.38)	-0.58 (-0.49)	-1.08* (2.36)		0.88	1.86	19
(15)	42.53 (1.74)	2.06 (1.31)	-11.92* (-3.10)	2.06 (0.41)		1.02* (2.38)		0.87	1.82	19
(16)	39.97 (2.06)	0.84 (0.74)				0.78 (1.61)	-8.21* (-2.43)	0.86	2.03	19

Equations 14, 15 and 16 are log forms of equation 13.

* Indicate coefficients that are statistically significant at the 5% level of significance.

correct signs. The R-squared of equation 13 shows that 93% of the imports of Panamanian goods is explained by the independent variables. At 5%, the Durbin-Watson test indicates that the residuals are not serially correlated.

Equation 14 is a log-linear version of equation 13. Only the import price and the dummy variable are significant at the 5% level of significance. Eighty-eight percent of the dependent variable is explained by the independent variable, and at 5% the Durbin-Watson test is inconclusive.

In equation 15, after dropping the energy consumption variable of equation 14, the sign of the dummy variable was improved and the constant term became statistically significant.

Using the coefficient of the import price in equation 13, the effect of a 28% change in price on the demand for Panamanian goods by the CACM can be computed. A 28% reduction in tariff among members of the CACM is equivalent to an increase in the import price of Panamanian goods by the same amount.

The following computation from equation 13 leads to a change in output of 2.28 (= .28 x 8.13) or 228%. The export change per year is estimated at 25.3%. The actual export value in 1968 was $2,786,000. Since the drop in import demand is 2.28, the hypothetical import was $9,138,000

(= 2.786,000 x 3.28). Hence, the loss in trade to Panama in 1968 was the difference between the actual and the hypothetical imports, or $6,352,080. The loss in trade experienced by Panama was 70% of the hypothetical exports.

Equation 16 is important because the relative price coefficient shows that a reduction in internal CACM tariff increases the relative price and lowers imports from Panama. This suggests that Panamanian exports to Central America experienced some "trade diversion" in the CACM trade as demand shifted to partner goods.

The data in Table 21 show the effects of the discriminatory tariff on the expected value of imports from Panama. The internal tariff reduction was 28% and the relative price coefficient of equation 16 is 8.21. Annual change in Panamanian exports is estimated at 25.3%. Hence, the export change is computed by multiplying the relative price coefficient by the drop in the tariff, i.e., the export change is 2.30 (= 8.21 x .28), or 230%. Trade diversion is the difference between the actual and the hypothetical exports. Thus, trade diversion for Panama is $17,282.5 over nine years. This is the increment in Panamanian exports to the CACM that was never realized because of the presence of a discriminatory tariff.

TABLE 21

COMPUTATION OF TRADE DIVERSION

($1000)

Year	Actual Value Of Exports	Percentage Change	Expected Value Of Exports
1960	59	25.5	74.0
1961	150	51.1	226.6
1962	226	76.7	399.3
1963	449	102.2	907.9
1964	853	127.8	1943.1
1965	1000	153.3	2533.0
1966	2101	178.9	5859.7
1967	1844	204.4	5613.1
1968	2786	230.0	9193.8
TOTAL	$9468		$26750.5

Source: Data computed from equation 16 in Table 20.

Since the reduction in tariff within the CACM was 28% by 1968, this tariff decrease was related to a 65% decrease in Panamanian exports.

From the preceding analysis, it is concluded that from 1960 to 1968 the export loss to Panama from the common market was 65% of Panama's expected exports to the Central American Common Market. I believe that the loss of exports would have been more severe had the Central American Republics not formalized a series of bilateral agreements with Panama after integration.

These static results are consistent with James A. Merrill's study on the "Effect of the European Economic Community on Trade with Denmark" (1976) in which the author concludes that the empirical tests demonstrate significant trade diversion from Denmark by the EEC. In addition, the test in this study, together with Merrill's results, confirms the theoretical expectation that customs unions cause losses of trade diversion for nonmembers.

The computation of the overall effect of integration is based on the relative price coefficients of equations 17 and 19 which are based on equation 10. The equations are shown in Table 21.

As before, the "t" values of the equations are shown in parentheses. At the 5% level of significance, the constant term in all the equations, the relative prices in equations 17, 18 and 19, plus the dummy variables in equations 18 and 19 are statistically insignificant. They are, however, statistically significant at 10%. The number of observations in these equations cover the period from 1950 to 1968, or 19 years. The Durbin-Watson tests for equations 17, 18, and 19 are inconclusive at the 5% level. R-squared for all the equations indicates that a high percentage of imports is explained by the independent variables.

All the equations were computed from "processed" data. These are data that were extrapolated backwards and forwards for years when other data could not be found (see the data in the Appendix).

The results of the regression analysis and the computation of trade creation are shown in Tables 22 and 23. The coefficient of the relative price of equation 18 is statistically significant at the 10% level. The negative sign of the relative price is consistent with theoretical expectation. Equation 18 is in log form, and, therefore, the coefficient is the elasticity of demand for imports.

The coefficient of the relative price of equation 18 was used to compute the value of trade creation in the CACM that resulted from integration of the region from 1960 to 1968. Since the average reduction in tariff from 1960-1968 was 28%, the change in imports was 0.26 (= 0.92 x .28). This was equivalent to an annual import change in demand of 2.9%. The amount of trade creation was $959.9 million, or greater than expected.

The coefficient of the relative price of equation 20 was used to compute the value of trade diversion in the CACM that resulted from integration of the region from 1960 to 1968. With a 28% tax reduction the change in imports from the rest of the world was .08 (=0.29 x .28). This was equal to a yearly import change in demand of .009.%. The amount of trade diversion was $288 million, or 5% of actual imports.

The results of the regression analysis and the computation shown in Table 21 are consistent with the theory that Panama experienced the effects of trade diversion as a result of the formation of the CACM.

TABLE 22

CACM IMPORT DEMAND

Dependent Variable	Independent Variables						
Total Imports	Constant	GNP	Relative Price	Dummy	R^2	Dw	N
(17)	40.37 (0.80)	1.20* (9.18)	-0.49** (-1.44)	19.09* (3.31)	0.98	1.42	19
(18)	2.74 (0.75)	1.37* (8.75)	-0.92** (-1.41)	0.05 (0.67)	0.96	1.00	19
(19)	40.76 (0.78)	1.15* (8.42)	-0.46 (-1.30)	6.94 (1.15)	0.97	1.34	19
(20)		1.33* (19.87)	-0.27* (-5.49)		0.95	2.26	19

* Indicates coefficients which are significant at the 5% level of significance.

** Indicates coefficients which are significant at 10%.

TABLE 23

COMPUTATION OF TRADE EFFECT--TRADE CREATION

(Million of U.S. $)

Year	Actual Value Of Imports	% Change	Expected Value Of Imports
1960	$ 514	2.9	$ 499.5
1961	496	5.8	468.8
1962	552	8.7	507.8
1963	653	11.7	584.6
1964	770	14.6	671.9
1965	889	17.5	756.6
1966	937	20.4	778.2
1967	1030	23.3	835.4
1968	1046	26.9	824.3
TOTAL	$6887		$5927.1

Source: Data computed from equation 18 in Table 22. The expected value computed by discounting the actual value of imports by percentage change (example: 514/1.029 = 499.5).

Although the price coefficient of imports in equation 16 was used to compute the value of trade diversion against Panama, the results are not conclusive. However, the analysis highlights the possibility that if the tariff discrimination were not implemented, Panama's exports to the CACM would have been 3.4 times greater than actual output. This is approximately 0.8% of Panama's GNP (not terribly important to the country's wellbeing, it would appear). The main point is that the formation of the CACM did impair Panama's exports to the region.

Overall the CACM benefitted from integration. Table 23 shows that the actual total imports were 16% (= 6887 - 5927.1/5927.1) greater than they would have been without a discriminatory tariff. Table 24, on the other hand, shows that total imports from the rest of the world were 5% (= 6104 - 5816/6104) less than they would have been in the absence of a discrimnatory tariff. Thus, the CACM experienced a net gain from integration. This result is consistent with previous tests for the effects of integration (except market shares analysis) and with the theory of customs unions.

The trade diversion as shown in Table 21 means that the drop in Panamanian output would lead to a displacement of workers in the export sector. Bale[5] dealt with trade-displaced workers by looking at their characteristics and their displacement costs.

TABLE 24

TRADE DIVERSION

(Million of U.S. $)

Year	Actual Value Of Imports	% Change	Expected Value Of Imports
1960	$ 481	.009	$ 485
1961	459	.018	467
1962	506	.027	519
1963	580	.036	601
1964	664	.045	694
1965	754	.054	795
1966	762	.063	810
1967	816	.072	875
1968	794	.081	858
TOTAL	$5816		$6104

Source: Data computed from equation 20 in Table 22. The expected value was computed by taking the actual value of inputs (example 481 x 1.009 = 485).

In this study we will be concerned solely with the displacement cost of labor in Panama due to integration in Central Ameria. We will posit that output is a function of labor and capital and that exports will (following Lamfalussy's[6] idea) have a positive effect on output. This functional relationship is shown in equation 22 below.

$$Y = f(K, L, X) \tag{22}$$

where

Y = GNP

K = Capital

L = Labor

X = Exports

A variant of equation 22 is equation 23 which shows the relationship between labor and output, capital, and exports.

$$L = f(K, Y, X) \tag{23}$$

The procedure for the analysis of the displacement of labor and its costs is based on the results of the import price of equation 14. The coefficient of the import variable is the price elasticity of demand for Panamanian imports. Thus, the 28% change in tariff leads to a 310% (= .28 x 11.06) change in quantity demanded. Next, the import elasticity of output (GNP) had to be determined. This was calculated

to be 0.11 from equation 24. So the change in GNP was 34% (= 3.10 x 0.11). Finally,the output elasticity of employment is 0.04 from equation 25. Thus the percentage change in output of 34% results in a decline in employment of 1% (= .34 x 0.04).

Equation 24, shown in Table 25, was used to determine the effects of a change in imports (exports) on GNP in Panama. The "t" values are shown in parentheses. All the coefficients of the independent variables but the employment variable are statistically significant at the 5% level of significance. Since the equation is a log-linear regression the coefficients are elasticities. Thus, the import (export) elasticity of output is equal to 0.11. The R-squared shows that there is almost perfect correlation between the independent variables and the dependent variable, so that 97% of the change in output is accounted for by changes in the independent variables of the equation. The Durbin-Watson test is inconclusive at 5%, but the R-squared shows a very strong correlation between the dependent variable (labor) and the independent variables (GNP and GFCFOR). Equation 26, which is the result of Cochrane-Orcutt iterative techniques, is not an improvement over equation 25--none of the coefficients are significant at the 5% level of significance. The last equation is another variant of equation 25. It is not a log linear regression. Only the constant term in this equation is statistically significant at 5%. The R-squared shows a

TABLE 25

CACM PRODUCTION AND PANAMANIAN LABOR FUNCTIONS

Dependent Variables	Independent Variables							
	Constant	Labor	Gross Fixed Capital Formation	Imports from Panama	GNP	R^2	Dw	N
(24) Gross National Product	4.63* (4.39)	0.80 (1.53)	0.47* (4.01)	0.11* (3.83)		0.97	1.43	15
(25) Labor	-2.17* (-6.40)		0.18* (2.46)		0.04 (0.42)	0.96	1.76	15
(26) Labor	-1.01 (-1.31)		0.02 (0.24)		0.03 (0.26)	0.97	1.60	15
(27) Labor	0.57* (7.78)		-0.002 (-1.62)		0.0 (0.97)	0.97	1.39	15

Equations 24 and 25 are log forms of equation 26.

* Indicates coefficients that are statistically significant at the 5% level of significance.

a very high correlation between the dependent variable and the independent ones. The sign of the gross fixed capital formation variable is negative which is contrary to expectation. The Durbin Watson test, significant at 5%, shows that the disturbance term is not serially correlated.

The worker displacement cost and the displaced workers for the period are shown in Tables 26 and 27. It should be noted that the cumulative displacement in labor would be less in the export sector because of the resumption of trade in 1965 between Panama and some CACM countries made possible by the bilateral trade agreements alluded to before.

The cost figures shown in Table 27 are very optimistic because wages in manufacturing in developing countries tend to be higher than wages in agriculture. However, the analysis provides an indication of the effect of integration on employment and income in Panama.

Data in Table 26 show that by 1968 the total number of Panamanian workers displaced by the CACM was 3,636. This loss in employment translates to a cost of $5,809,688.06, as shown in Table 27.

Data for hours of work in manufacturing were available from 1964 to 1968. Therefore, cost figures from 1960 to 1963 are not shown in Table 27.

There are a number of critiques of the methodology employed here in analyzing labor displacement costs. One problem is that no recognition was given to the reallocation

TABLE 26

LABOR DISPLACEMENT

(1000)

Year	Employment	Annual % Change	No. of Displaced Workers
1960	307	0.001	.307
1961	316	0.002	.632
1962	328	0.003	.984
1963	339	0.004	1.356
1964	338	0.005	1.750
1965	350	0.006	2.232
1966	372	0.007	2.695
1967	385	0.008	3.080
1968	404	0.009	3.636

Source: Employment figures are shown in Table 13. Computation of the annual percentage change in employment used equations 14, 24, and 25. Number of displaced workers obtained is the product of the employment and annual percentage change columns.

TABLE 27

LABOR DISPLACEMENT COST

Year	No. of Displaced Workers	Wages in Manufacturing[a]	Costs
1960	307	--	--
1961	632	--	--
1962	984	--	--
1963	1356	--	--
1964	1750	0.63	$2,360,232
1965	2232	0.65	3.168,547
1966	2695	0.67	3,995,542
1967	3080	0.70	4,501,728
1968	3636	0.73	5,809,688

[a] Source: Statistical Abstract of Latin America: Vol 17 (1976) p. 160.
Note: Panamanian Labor Law requires employers to give employees one month off every year--workers work 48 weeks per year. Hours of work in manufacturing from 1964 to 1968 was 44.6, 45.5, 46.1, 43.5, and 45.6, respectively.

of displaced labor to other industries in the export and nonexport sectors. In addition, the period of unemployment was ignored. The lack of data for reallocated displaced workers and for the period of unemployment of such workers preclude this analysis. Thus, the analysis of displaced workers shown in Tables 26 and 27 overestimates the actual number and cost of unemployment in Panama due to the CACM.

In summary, equation 16, shown in Table 20, was used to compute the loss of exports in Panama due to the presence of the CACM. Unlike the results from using Balassa's and Lamfalussy's methods, regression analysis resulted in losses to Panama of $17.3 million from 1960 to 1968. These results are shown in Table 21.

The loss to Panama was not just a reduction in output, but also a displacement of workers and the cost associated with such loss of employment in the export sector.

Equations 18 and 20, shown in Table 20, were used for trade creation and trade diversion, respectively. The results are depicted in Tables 23 and 24. Actual imports were $6,887 million after integration, but would have been $5,927.1 million in its absence. So trade creation was $960 million or 16% greater than expected. Trade diversion, on the other hand, was $288 million or 5% less than expected. Thus, the CACM resulted in a net gain of $672 million. These results are consistent with the theory of customs unions discussed earlier.

In an absolute sense and ignoring the effects of the bilateral agreements between Panama and CACM partners, and periods of unemployment and reallocation of displaced workers, the number of displaced workers was 3.6 thousand or about 1% of the labor force. The total associated with that level of unemployment is $5,809,688, which is a small proportion of Panama's GNP of $869 million in 1968.

FOOTNOTES

[1]Edward E. Leamer and Robert M. Stern, Quantitative International Economics (Boston: Allyn and Bacon, Inc., 1970), p. 9.

[2]Ibid., p. 10.

[3]Ibid., p. 114.

[4]F. G. Adams, An Econometric Analysis of International Trade: An Interrelated Explanation of Imports and Exports of OECD countries (Paris, OECD Publications, 1969), p. 15.

[5]M.D. Bale, "Estimates of Trade Displacement Costs for U.S. Workers," Journal of International Economics 6 (1976), pp. 245-250.

[6]Alexandre Lamfalussy, The United Kingdom and the Six: An Essay on Economic Growth in Western Europe (London: MacMillan and Co. Ltd., 1963), pp. 45-62.

CHAPTER VIII

SUMMARY AND CONCLUSION

The Central American Common Market grew out of the failure of political unification and was bolstered by a need to promote the development of the countries forming the union. The countries that make up the CACM are poor. In the early 1950s, some economists believed that the road to development lay in the direction of integration. It was argued that trade between developed and developing countries generally favored the developed countries. To overcome this disadvantage, it was suggested that the poor countries would have to adopt an inward-looking policy, i.e., they would have to import-substitute. It was felt that import substitution was the means to the industrialization of the poor countries and industrialization was equated with development.

To achieve this objective, a common market was established in the early 1960s. There were two forces at work in integration, one was cooperation and the other was protection. Cooperation resulted from the removal of internal tariffs within the integrated area. Cooperation also involved the planned allocation of integration industries among

the partners. Protection emerged from the common external tariff set up against the rest of the world. Protection belies the pure theory of international trade argument which holds that free trade is superior to restricted trade. However, since the real world is far removed from the conditions of free trade, the perceived gains from protection associated with integration were the results of an alternative solution referred to in the trade literature as the theory of the second best.

In theory, before integration all exports come from the lowest cost producer, namely the rest of the world. After integration all imports are assumed to flow from partners. In the first instance, the result is what is generally referred to as trade creation, in the latter case the outcome is trade diversion. The objective of the study was to analyze which of the two effects of integration was dominant within the CACM and Panama.

The actual formation of the CACM had the aid of the ECLA and a number of forward-looking officials who were educated abroad and who believed in taking positive economic steps to raise the standard of living of the people.

A number of protocols were signed during the early 1960s and by 1962, with the ratification of the General Treaty by Costa Rica, the CACM was established.

The formation of the CACM was not without problems. The poorer countries, like Honduras and Nicaragua, believed

that they should be given preferential treatment because they felt capital and industries would migrate to the more developed countries in the region, i.e., El Salvador and Guatemala.

It will be remembered that data in Tables 6 and 7 showed that in terms of GNP, Guatemala followed by El Salvador appeared to be better off than the other members of the CACM. Outside of the CACM, Panama showed a higher degree of economic advancement in both GNP and per capita GNP. Within the common market Costa Rica had the highest per capita income. The data do not clearly suggest any impact of integration on income.

The data in Tables 8 and 9 showed a distinct impact of integration on the rate of growth of GNP and per capita GNP. The rates of growth for the period 1962-1968 were higher than rates of growth of the periods 1956-1962 and 1968-1974, i.e., the pre- and post-integration years.

Rates of growth disguise the underlying causes of the increase in income. To ascertain the effects of integration on output, the results of equation 2 for the aggregate production function for the CACM were analyzed. The results were shown in Tables 10, 11, 12 and 13. Since the coefficients of the dummy variable were statistically significant at the 5% level of significance, we inferred that integration had a positive effect on income.

The trade balances and balance of payments of the Central American countries were shown in Tables 14 and 15. They were used to analyze the effect of integration on the CACM countries. Countries with relatively more favorable trade balances were assumed to have benefitted from integration. In that regard, Guatemala and El Salvador were the main beneficiaries of integration; after Costa Rica joined the common market, her balance of trade improved in 1964, but dropped steadily afterwards. In terms of the balance of payments shown in Table 15, the main beneficiary of integration seems to have been Costa Rica. These informal analyses seem to suggest improvement to the countries after integration but this conclusion cannot be categorically established from the data. Tables 16 and 17 showed the results of the income propensity to import analysis of trade creation and trade diversion in the CACM. Data in Table 16 showed that each country realized gains from integration; and Guatemala, Honduras and Nicaragua showed negative trade diversion. The welfare effects shown in Table 16 were positive for trade creation, but Costa Rica, El Salvador, and Guatemala manifested negative welfare effects of trade diversion.

However, the net benefit for each country from integration was positive. The analysis lends support to the hypothesis that integration can have a positive welfare effect on the participating countries.

Data in Table 17 showed the distribution of the gains from integration. The distribution of the benefits showed Costa Rica, Guatemala, and Honduras receiving the largest shares. The ex post income elasticities analysis was used to ascertain the presence of trade creation or trade diversion in the CACM from integration by SITC groups of commodities. Data in Table 18 showed the presence of trade creation in intra-regional trade, except for beverage and tobacco, and crude materials, inedible, except fuel. For extra-regional trade, just the opposite results were shown. These results are consistent with customs union theory.

Data in Table 21 showed a positive effect of the Common Market on Panama. The same result was obtained using Lamfalussy's methodology for Panama. This inconsistency with theory may have been caused by the bilateral agreements between Panama and Costa Rica and Nicaragua in 1965. These agreements had the effect of augmenting Panama's exports to the CACM.

The use of regression analysis is more appealing because the coefficients of the relative price indexes can be tested for statistical significance. The income elasticity approach lacks this feature. Although regression analysis is the preferred method, both tests were used to determine the effect of integration of the Central American Republics on Panama.

Data in Table 21 showed the value of the trade loss suffered by Panama by the formation of the CACM. The results support the hypothesis that the formation of the customs union would have adverse effects on the rest of the world in the sense of reducing such trade. Data in Tables 22 and 23 showed the value of trade creation and trade diversion in the CACM. The net effect of integration was positive.

Finally, for Panama, it was necessary to analyze the impact of the CACM on employment in Panama. Data in Table 26 showed the number of displaced workers and data in Table 27 showed the later displacement costs to Panama.

It must be pointed out that this study does not encompass all the effects of integration on the CACM partners or on the outsider--Panama. This is largely because of the lack of data for the period preceding integration. The data used are aggregate figures. Disaggregate figures for SITC groups 1-8 were available for 1960 and onward. However, neither aggregate nor disaggregate data were available for intra/extra area trade.

Ideally, the analysis of the effects of integration should attempt to cover a host of other effects such as the various dynamic effects alluded to throughout the study but not analyzed because of data problems. Such an analysis would have been particularly meaningful if time series data were available.

In the final analysis, the study has demonstrated that developing countries may benefit from economic integration. Whether these benefits are substantial and sustainable in the longrun cannot be generalized. In the case of the CACM, further investigation is warranted in order to determine the viability and the desirability of its continuance. Future studies, it is hoped, will address and resolve these issues.

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APPENDIX

TABLE 1

GROSS NATIONAL PRODUCT, INDEX NUMBERS, 1963 = 100
(CACM)

Year	GNP
1950	54
1951	58
1952	59
1953	63
1954	66
1955	68
1956	71
1957	74
1958	79
1959	82
1960	88
1961	88
1962	94
1963	100
1964	106
1965	112
1966	118
1967	125
1968	134

Source: Statistical Abstract of Latin America, Volume 18 (1977) the data are in constant dollars of 1970, parity exchange rate 1950-1974.

TABLE 2

PANAMANIAN EXPORTS TO CACM, INDEX NUMBERS 1963 = 100

Year	Exports
1950	37
1951	39
1952	37
1953	40
1954	48
1955	56
1956	48
1957	55
1958	51
1959	54
1960	13
1961	33
1962	50
1963	100
1964	190
1965	223
1966	468
1967	411
1968	620

Source: United Nations, Year Book of International Trade Statistics, annual data in U.S. dollars and Intergracion en Cifras, SIECA.

TABLE 3

IMPORT PRICES, INDEX NUMBER, 1963 = 100

Year	Import Prices
1950	91
1951	92
1952	93
1953	94
1954	93
1955	92
1956	97
1957	99
1958	99
1959	97
1960	102
1961	102
1962	99
1963	100
1964	103
1965	104
1966	101
1967	109
1968	109

Source: United Nations, Year Book of International Trade Statistics (1968) and other issues. Figures for Guatemala were not available.

TABLE 4

CONSUMER PRICE, INDEX NUMBERS, 1963 = 100

Year	Price
1950	84
1951	85
1952	86
1953	89
1954	91
1955	96
1956	96
1957	94
1958	97
1959	97
1960	97
1961	97
1962	98
1963	100
1964	103
1965	103
1966	103
1967	104
1968	107

Source: IMF International Financial Statistics, 1977 Supplement, annual data 1952-1976.

TABLE 5

TARIFF ON IMPORTS

CACM(%)

Year	Rate
1950	22
1951	26
1952	25
1953	25
1954	20
1955	23
1956	23
1957	22
1958	23
1959	24
1960	23
1961	23
1962	21
1963	19
1964	16
1965	15
1966	14
1967	12
1968	11

Source: U.N., Year Book of International Trade Statistics, various issues.

TABLE 6

TOTAL ENERGY CONSUMPTION
(Million of Metric Ton)
Coal Equivalent

Year	Energy Consumption
1950	.24
1951	.27
1952	.35
1953	.35
1954	.32
1955	.35
1956	.31
1957	.38
1958	.47
1959	.49
1960	.50
1961	.50
1962	.50
1963	.50
1964	.50
1965	.60
1966	.70
1967	.70
1968	.80

Source: Statistical Abstract of Latin America, Vol. 18 (1977).

TABLE 7

WEIGHTED AVERAGE INDUSTRIAL TARIFFS, 1958, AND 1968

(Percent)

Tariffs	1958	1968
Based on Import Value Weight		
Legal Tariffs		
Guatemala	53.8	28.1
El Salvador	25.2	28.9
Honduras	34.4	28.5
Nicaragua	30.7	25.5
Costa Rica	52.9	28.9
Based on Consumption		
Value Weights		
Guatemala	79.5	59.6
El Salvador	27.7	57.4
Honduras	56.7	60.4
Nicaragua	52.5	54.9
Costa Rica	69.5	54.8

Source: William R. Cline and Enrique Delgado, ed. Economic Integration in Central America (Washington, D.C.: The Brookings Institution, 1978), p. 80.

TABLE 8

CACM IMPORTS, INDEX NUMBERS, 1963 = 100

SITC 1-8

Year	CACM Total	Extra Area
1950	34	34
1951	41	41
1952	48	48
1953	50	50
1954	57	57
1955	61	61
1956	71	71
1957	79	79
1958	77	77
1959	71	71
1960	79	82
1961	76	79
1962	85	87
1963	100	100
1964	118	114
1965	136	130
1966	143	131
1967	158	141
1968	160	137

Source: Total CACM imports appear in UN Year Book of International Trade Statistics, 1968. Imports both total and extra for 1960-1968 are from Integracion en Cifras, published by SIECA, Guatemala.

TABLE 9

CACM - GNP 1970 = 100

Year	Total	%
1953	2307	5.0
1954	2388	4.0
1955	2479	4.0
1956	2608	5.0
1957	2794	7.0
1958	2870	3.0
1959	2976	4.0
1960	3064	3.0
1961	3175	7.0
1962	3381	6.0
1963	3606	7.0
1964	3793	5.0
1965	4045	7.0
1966	4215	4.0
1967	4511	7.0
1968	4793	6.0
1969	5019	5.0
1970	5288	5.0

Source: Statistical Abstract of Latin America, Vol. 18, (1977).

TABLE 10

INDUSTRIAL WAGE INDEX

CACM

Year	Index	%
1952	48	
1953	49	2.1
1954	54	10.2
1955	59	9.3
1956	60	1.7
1957	60	.0
1958	62	3.3
1959	64	7.8
1960	69	1.4
1961	70	5.7
1962	72	-2.7
1963	76	5.6
1964	78	2.6
1965	84	10.5
1966	87	3.6
1967	92	5.7
1968	96	4.3
1970	100	4.2

Source: Statistical Abstract of Latin America, Vol. 18, (1977).

TABLE 11

GROSS FIXED CAPITAL FORMATION, CACM

(Million)

Year	Total	%
1952	240.94	
1953	206.16	-0.14
1954	250.11	0.21
1955	280.62	0.12
1956	357.65	0.27
1957	386.89	0.08
1958	718.24	0.86
1959	341.33	-0.52
1960	368.14	0.08
1961	360.26	-0.02
1962	407.65	0.13
1963	474.08	0.16
1964	540.87	0.14
1965	592.96	0.10
1966	596.78	0.01
1967	677.34	0.13
1968	675.08	0.30
1969	742.95	0.10
1970	816.92	0.10

Source: International Financial Statistics (1977) Supplement, Annual Data (1952-1976), Vol. XXX, No. 5, May 1977.

TABLE 12

PANAMA'S GNP

Year	GNP
1960	401.9
1961	453.2
1962	495.6
1963	550.8
1964	595.5
1965	644.0
1966	702.7
1967	778.0
1968	836.1
1969	920.1
1970	1019.4
1971	1125.7
1972	1264.1
1973	1430.2
1974	1779.7
1975	2128.2

Source: International Financial Statistics (1977) Supplement, Annual Data (1952-1976), Volume XXX, No. 5, May 1977.

TABLE 13

LABOR SUPPLY FOR PANAMA

(Million)

Year	Labor
1960	.307
1961	.316
1962	.328
1963	.339
1964	.350
1965	.372
1966	.385
1967	.404
1968	.420
1969	.433
1970	.436
1971	.449
1972	.464
1973	.487
1974	.462

Source: ILO Yearbook of Labor Statistics (various issues).

TABLE 14

GROSS FIXED CAPITAL FORMATION

(Panama - Million)

Year	Gross Fixed Capital Formation
1960	61.4
1961	80.4
1962	85.4
1963	96.6
1964	87.8
1965	100.1
1966	142.1
1967	152.7
1968	173.5
1969	200.7
1970	255.6
1971	300.7
1972	383.0
1973	410.3
1974	422.1
1975	567.2

Source: International Financial Statistics (1977) Supplement, Annual Data (1952-1976), Volume XXX, No. 5, May 1977.