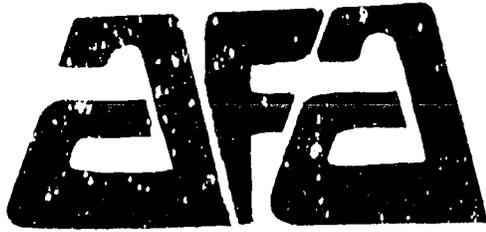


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**ANITA F. ALLEN ASSOCIATES, INC.**

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**DOMINICAN REPUBLIC**

**URBAN MIGRATIONS, LABOR MARKETS AND FREE TRADE ZONES**

**International Science and Technology Institute, Inc.**

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**DOMINICAN REPUBLIC**  
**URBAN MIGRATIONS, LABOR MARKETS AND FREE TRADE ZONES**

**PREPARED FOR:**  
**AGENCY FOR INTERNATIONAL DEVELOPMENT**  
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## **EXECUTIVE SUMMARY**

Since the late 1960's, the demographic profile of the Dominican Republic has been radically altered. Fertility dropped from one of the highest levels in Latin America to the average for the region while the gross death rate was cut in half. As a consequence of these changes, life expectancy at birth increased significantly by 10 years.

This demographic transition reflects the intense process of urbanization which occurred in the country over the last two decades: the share of Dominicans living in urban centers increased from two-fifths to three-fifths of the total population in less than two decades. The migration to cities, mainly Santo Domingo, is selective by both gender and age with females and young adults comprising the main category of migrants. As a result, rural areas show a low masculinity index and an increasing average age of the population.

The demographic profile of the Dominican Republic is also affected by international migrations, both of nationals leaving the country for the US and of Haitians who enter the country in search of better economic opportunities.

During the 1970's, the labor force grew at a rate two-thirds above the average population growth rate as a result of the lag between birth and entry in the labor market and the structure of age-specific participation rates. However, the Dominican Republic successfully absorbed this fast increase in the labor force. Remarkably, the size of the informal sector, which could have been expected to increase, shrank over the period. Employment creation was made possible by a strong performance of the formal sector, particularly the private sector, which created three out of four jobs.

This apparent economic success story was conditioned by strong terms of trade and the implementation of an import-substituting strategy with stringent protectionist policies. From the mid-seventies, the decrease in the growth rates was an indication of increased strains in the strategy. Once the terms of trade fell in the late 1970's, the Dominican economy faced the possibility of a collapse which could only be avoided either by a radical change in policies or by recurring to massive international borrowing. The latter solution was chosen and the economy stumbled along until 1982.

The recession which followed the international financial crisis dealt a blow to the labor market. Unemployment went up sharply and the size of the informal sector increased, an additional indication that the modern sector's performance did not allow it to maintain the job creation rate of the 1970's. As a consequence of the decreased quality of employment, real wages fell.

The past demographic growth implies that some 90,000 individuals join the labor force every year. As an attempt to face this reality as well as to generate needed foreign exchange, the government of the Dominican Republic has promoted the development of Free Trade Zones to attract foreign capital. Although successful in the number of jobs created in the last few years, the FTZs appear to be mainly a short term solution to a long run problem. The lack of backward linkages to the rest of the economy and the relatively low value added in the production of these exports does not contribute much to the economy except foreign exchange and low-skill jobs. Furthermore, the existence of a number of explicit or implicit subsidies for

the FTZs leads one to wonder about the actual cost of the jobs created or the foreign exchange generated.

In rural areas, the labor market seems to be characterized by a high level of labor surplus, further accentuated by permanent and temporary immigration of Haitian workers. The large number of very small exploitations leads to a high level of underemployment, constant competition for available jobs and depressed wages.

## 1 - DEMOGRAPHIC TRENDS: A SIGNIFICANT TRANSITION

- 1.01** From 1970 to 1988 the Dominican population increased by 55%, from 4.4 million to an estimated 6.9 million, at an average annual growth rate of 2.5%.<sup>1</sup> Although still relatively high, this annual rate is substantially below the 3.2% per year reached on average during the 1960's.<sup>2</sup>

Until the mid-1960's, the demographic situation of the Dominican Republic was characterized by high levels of fertility, mortality and natural growth, well above the averages for Latin America, but similar to those prevailing in Central America. Fertility conditions in the Dominican Republic were such that each woman could expect to give birth to 7.3 children at the end of her fertile age.<sup>3</sup> By comparison, the average fertility rate was 6.0 for Latin America and 6.9 for Central America. The high mortality rate implied that, at birth, each Dominican could expect to live about 53 years (i.e., four years below the average reached by that time in Latin America).

- 1.02** Over the 1965-1985 period, in Latin America, overall crude birth rates decreased by 9 points from 42 per thousand to 33 per thousand while gross death rates were reduced by 4 points from 14 per thousand.

During the same time span, the reduction of these variables was even more pronounced in the Dominican Republic. The crude birth rate decreased by nearly 16 points, from 49.4 per thousand to 33.6 thousand (i.e., one-third in relative terms), and the gross death rate was cut in half, from 14.7 per thousand to 7.5 per thousand. The changes in these demographic rates led to a temporary acceleration of population growth.

- 1.03** The reduction of fertility took place primarily during the 1970's and continued, although at a slower pace, during the present decade. Estimates for 1988 (based on a moderate fertility decline hypothesis) indicate that the hypothetical average number of children per female through her

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<sup>1</sup> The average growth rate for 1970-1988 results from a set of population projections based upon adjusted population figures (i.e., census data corrected for omissions and errors) estimated by the National Bureau of Statistics (ONE) and the Latin American Demographic Center (CELADE). The census omission rate as calculated by these institutions was 9.4% for 1970 and 3.2% for 1981. The unadjusted 1970-1981 intercensal figures show, therefore, a higher population growth rate (2.9%) than the rate based on the adjusted data (2.5%).

<sup>2</sup> These rates include the effect of (negative) net migration. Natural growth rates (i.e., crude birth rates minus gross death rates) for the same periods were higher, at 2.7% and 3.4%, respectively.

<sup>3</sup> This refers to the global fertility rate, which estimates the number of children that would be delivered by a female belonging to a hypothetical cohort of women who through their fertile age would give birth according to the observed fertility rates, without being exposed to any death risks until the end of their fertile age.

fertile years decreased from 6.2 in 1970 to 3.9 at the present time.

On the other side of the demographic equation, life expectancy at birth, which reflects mortality conditions, is now 65.2 years (63.2 for males and 67.3 for females), i.e. an increase of nearly seven years since 1970.<sup>4</sup>

- 1.04 These significant and rapid changes in basic demographic trends between the mid-1960's and the mid-1980's can be favorably compared to the rest of Latin America.

While Latin Americans reduced their average family size (at the end of their reproductive age) by 1.7 children, Dominican females decreased their global fertility rate by 3.1 children. While for the whole region life expectancy at birth increased about seven years, the gain for the Dominican Republic was above ten years.

As a consequence of this dramatic demographic transition, the Dominican Republic now shows levels of fertility, mortality and natural growth similar to those prevailing, on average, in Latin America and considerably lower than those reached in Central America.

- 1.05 These significant declines in fertility and mortality rates reflect the intense urbanization process experienced by the country during this period. Since urban fertility rates generally tend to be significantly below rural ones, this single factor explains an important part of the overall decline in fertility.<sup>5</sup>

However, rural-urban fertility differentials narrowed during the period. Until the mid-1970's, fertility in rural areas had remained almost constant, while in urban areas it had declined significantly over the previous two decades. Since then, rural fertility rates have fallen very rapidly while urban fertility has stabilized. This change in relative fertility may be related to the high rate of rural-urban migration for young rural women. As a result of these trends, although rural females had an average of three children more than their urban counterparts in 1970-1975, the urban-rural fertility differential decreased to only 1.3 children by the mid-1980's.

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<sup>4</sup> However, despite a significant improvement, infant mortality, which obviously influences life expectancy at birth, remains very high at 68.8 per thousand. In 1970 it was 99.3 per thousand.

<sup>5</sup> Among various factors accounting for why fertility is lower in urban areas, the following deserve mention:

- (a) The reduction and eventual disintegration of the household as a unit of production, leading to a lesser economic role for children.
- (b) The reduction of mortality, with the consequent increase in the population of children reaching adult ages and, therefore, reduction of the need for large numbers of them;
- (c) The growing female participation in the labor market, which competes with child-bearing; and
- (d) A higher level of education among the urban population.

- 1.06 Rural-urban migration has been and continues to be a major social phenomenon in the Dominican Republic. Between 1970 and 1988, the share of urban to total population grew from 40.3% to an estimated 58.4%, i.e. at an average rate of a full percentage point per year.

The average urban population growth rate over this period was 4.6% per year, four-fifths above the national average and almost ten times the growth of the rural population.<sup>6</sup>

- 1.07 The majority of internal migrants move to the big cities, especially the capital, Santo Domingo. According to the 1981 Population Census, two-thirds (67.6%) of the inter-provincial migrants counted in urban areas were concentrated in Santo Domingo and nearly one-half (48.2%) of the capital's residents were immigrants. The latter figure is comparable to the finding of a 1978 migration survey indicating that 49.3% of the residents in the capital city were born elsewhere.

Survey also reveal that slightly over one-half of the migrants to Santo Domingo originated in smaller urban centers, while about 45% originated in rural areas. In Santiago, (where the share of migrants to total population was 43%), two-thirds of the migrants departed from the countryside and only one-third from other urban areas. These differences in patterns of migration by size of city suggest a step-by-step migratory process, from rural to small urban center to major city.

- 1.08 Migration to the principal cities is highly selective by both gender and age, with females and young adults comprising the main categories of migrants. In 1978, 56% of migrants to Santo Domingo were female and 78% of migrants had moved before reaching the age of 25. In Santiago, the equivalent rates were 57% and 73%.

The combination of both factors made the index of masculinity significantly low in urban areas, especially among young adults. For the 15-24 years age group, the masculinity index was 10% below the average in Santo Domingo, and almost 30% the average for Santiago.

- 1.09 But Dominicans do not migrate only internally. A relatively significant number of Dominicans relocate abroad, mainly in the U.S. and, to a much lesser extent, in countries like Venezuela and Curacao. Because much of the Dominican immigration to these countries is illegal -- i.e., the relocation is done without a proper immigrant visa -- , the magnitude of the outgoing flows is difficult to assess. Different estimates of the number of Dominicans living in the U.S., range from 200,000 to 800,000 and even more. The figure of half a million is probably the most common.<sup>7</sup>

- 1.10 The only official sources providing information on this subject are the U.S. population censuses, the 1981 Dominican population census, the Dominican statistics on international passengers and the U.S.I.N.S. and Consulate statistics on permanent and non-resident visas issued to Dominican

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<sup>6</sup> The rates are based on adjusted population figures. Unadjusted data show higher intercensal growth rates both in the urban (5.7%) and rural (1.1%) areas.

<sup>7</sup> E. Larson (1987) finds that out of 23 citations of Dominicans living in the U.S. and abroad reported since 1981, has estimated their number at 500,000.

citizens.

All these sources indicate the increasing importance of the outgoing flows. U.S. resident visa issues, for instance, increased from an annual average of one thousand over the 1960's to 12.7 thousand through the 1970's and 15 thousand during the early 1980's. The total of resident visas issued between 1961 and 1983 amounted to 265.3 thousand, with two-thirds granted over 1971-1983.<sup>8</sup>

- 1.11 According to the U.S. population censuses (which probably include mostly legal residents and therefore may undercount actual Dominican residents), the number of Dominicans living in the United States increased from less than 12 thousand in 1960 to 61.2 thousand in 1970 and 169.7 thousand in 1980. While this estimate may be biased downward because of the possible unaccounted undocumented aliens, the fourteen-fold increase over just two decades is certainly impressive. In addition, it should be noted that almost one-third of Dominican immigrants in the U.S. counted in 1980 had left their country in the previous five years.

On the basis of a question asked to females about the place of residence of their children, the 1981 Dominican population census reported 418,000 persons living abroad.<sup>9</sup> Assuming that 80% of them live in the U.S. and that the estimate is correct, this figure suggests that the ratio of undocumented to legal residents would be approximately one-to-one.

- 1.12 International movements are not only outgoing. A significant (and presumably increasing) number of Dominicans who settled abroad return to the country after having improved their economic and social status.<sup>10</sup> The only available source for estimating their volume are the statistics on international entries and exits of Dominicans with permanent residence abroad. According to this source, the net balance over 1960-1984 amounted to 267,000 persons, a figure that may be compared with a negative balance of 425,000 for travelers with permanent residence in the Dominican Republic.<sup>11</sup>

On the other hand, there are significant inflows of Haitians, who supply most of the low-cost labor for sugar, coffee and other crops. Because many, if not the majority, of Haitians permanently settled in the Dominican Republic are undocumented, their number is unknown. However, a field survey conducted by ONAPLAN in 1980 in the sugar mills and among coffee

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<sup>8</sup> 210,790 immigrants were admitted to the U.S. over the 1961- period, while 217,985 visas were issued during the same interval.

<sup>9</sup> Larson (1987) doubts the validity of this figure, based on an apparently incorrect treatment of missing values from the original census data. He suggests that the stock of Dominicans living abroad would have been around 209,000 during 1980-1981; however, this figure implies that illegal migration would have been almost nil, which would be hard to believe.

<sup>10</sup> A survey of returning migrants (Baez et al, 1985) reported that 35% of them returned to the D.R. as entrepreneurs or high-ranking employees. Their share before emigration was only 14.5%.

<sup>11</sup> The reliability of these statistics is doubtful. They indicate that, during the 1980-1984 period of severe economic crisis in the D.R., the (positive) net balance of those with permanent residence abroad would have exceeded the (negative) net balance of those with permanent residence in the country.

growers estimated their number at 200,000, of which about 115,000 were living in rural areas.

- 1.13** Although migratory inflows and outflows involve large numbers of individuals, the net impact of international migrations on the demographic growth rate appears relatively small when compared to the influence of fertility and mortality rate changes. Based on the same sources, ONE and CELADE projections estimate the net migration rate at 2.5 per thousand per year, about one-tenth of the current natural growth rate.

## 2 - URBAN LABOR MARKETS

- 2.01** Although demographic growth has slowed since the early 1970's to a relatively moderate rate, the Dominican Republic labor force has kept growing steadily at a fast and increasing rate. Over the 1970-1981 intercensal period, the average labor force growth rate was 4.0% per year, nearly two-thirds above the average population growth rate over the same time span. As a result, the labor force increased by one-half, from slightly over 1,200,000 in 1970 to more than 1,900,000 in 1981. The annual average increase (61,500) was 60% higher than during the 1960's (38,300).

Estimates for the 1980's based on household surveys suggest that the labor force growth rate has decelerated slightly, to an average of 3.6% per year between 1981 and 1988. However, it remains substantially above the rate of population growth, which now stands at less than 2.4% per year.

- 2.02** This significant difference between labor force and total population growth reflects primarily the time lag between birth and entry into the labor market. A deceleration of population growth does not significantly affect the labor force until a decade-and-a-half later. The current Dominican labor force growth rate is still being influenced by the rate of population growth of a decade-and-a-half ago.

However, labor force growth is determined not only by past population growth but also by the age structure of the population and, perhaps more importantly, by age-specific labor force participation rates in the short run. Thus, a deceleration of total population growth may coincide with an acceleration of active population growth. In particular, this is likely to happen if more women enter the labor market.

- 2.03** Gross female participation rates increased from 25.1% in 1970 to 28.0% in 1981. As a consequence, the female labor force growth rate (5.2% per year) was one-third faster than the already high overall rate and nearly one-half above the rate for the active male population. Through the intercensal period, one out of three net entrants to the labor market was a woman.

But, as already suggested by the discussion on internal migrations, the global labor force increase was not evenly distributed between rural and urban areas. On the contrary, it was highly concentrated in the urban centers. Between 1970 and 1981, three-quarters of the total increase of the Dominican active population originated in the cities, mostly in Santo Domingo and Santiago, with average annual growth rates as high as 6.0%. This trend implies that over a time span barely longer than a decade, the number of persons either working or seeking a job in the urban centers almost doubled. The average annual net increase of the urban labor force (45,700) was almost two-thirds above that of the 1960's.

- 2.04 Under any circumstances, it is hard to provide enough jobs for such a rapidly increasing active population. However, the Dominican economy performed extraordinarily well during the 1970's.<sup>12</sup>

Over the intercensal period, urban employment creation grew at an annual average rate of 6.9%, almost one percentage point above the urban labor force growth rate. Out of a total of 504,000 net entrants to the urban labor market, 461,000 (or 92%) were able to find jobs. As a result of this notable performance, between 1970 and 1981 those employed in urban centers increased their share of the total occupied population from 45.6% to 55.8%. Four-fifths of the jobs created in the Dominican Republic over the 1970's were urban.

- 2.05 Given the extraordinary increase of the labor supply during the last decade, it could have been expected that many of these new jobs actually were a mere shelter against open unemployment, thus concealing a serious underemployment problem. However, unlike most urban experiences in Latin America, this has not been the case in the Dominican Republic.

The urban informal sector, which to a large extent defines the survival strategy of those belonging to the labor surplus, decreased in relative importance over the 1970's. Although in absolute terms the number of informal workers grew by 70% or 5.0% per year, it shrank vis-a-vis the expansion of the formal sector. While in 1970 the informal sector (exclusive of domestic servants) represented one-fourth of total urban employment, in 1981 its share had fallen to one-fifth.

If domestic servants are added to the informal sector, the conclusion is similar: in 1970 these workers constituted 8.8% of the urban employed population and in 1981 they comprised 6.5%. Therefore, the proportion of those working either in informal activities or in domestic services dropped from 34.0% in 1970 to 27.3% in 1981.

- 2.06 Obviously, the relative decrease of these sectors is the counterpart of vigorous growth in the formal sector. Combining the government and non-government establishments employing at least five persons, employment in the urban formal sector more than doubled, from 283,000 in 1970 to 647,000 in 1981. Almost four-fifths of the new jobs created in urban centers during the 1970's were generated by the formal sector, and its share of total urban employment increased from 66.0% in 1970 to 72.7% in 1981.<sup>13</sup>

- 2.07 In part, this growth was the consequence of a significant expansion of government activities. Employment in general government (i.e., central administration, autonomous institutions and local governments) increased from slightly less than 100,000 in 1970 to almost 194,000 in 1981, i.e. at an average annual rate of 6.3%.

But public employment accounted for only 26.0% of jobs created in the urban formal sector

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<sup>12</sup> The performance of the Dominican economy in the 1970's was achieved at the cost of serious macroeconomic distortions.

<sup>13</sup> With respect to the Dominican labor force (including rural workers), employment in the urban formal sector grew from 22.9% to 33.8% between 1970 and 1981. Excluding the unemployed, the increase was from 30.1% in 1970 to 42.7% in 1981.

between 1970 and 1981 and nearly three-quarters of the jobs were generated by non-governmental activities.<sup>14</sup> Of an average of 33.1 thousand jobs created annually by the urban formal sector, 24.5 thousand were non-government and only 8.6 thousand were government positions.

Clearly, urban non-government formal activities led employment creation during the 1970's, not only at the urban level (58.4% of new urban jobs), but also at the national level (46.6% of the total employment increase).

- 2.08 Notwithstanding this remarkable performance, open unemployment remained at extraordinarily high levels. In 1981, after more than a decade of fast employment growth, the urban open unemployment rate was still 18.2% (according to the population census). Although the situation had improved compared to the 1970 rate of 24.0% (again taken from the population census), the high level of open unemployment was rather surprising.

Moreover, four household surveys conducted in Santo Domingo between 1973 and 1980 show a relatively stable picture, with the unemployment rate averaging about 21% (ranging from a minimum of 19.3% to a maximum of 24.2%).

- 2.09 Given the rapid long-term growth of the urban labor force, a relatively high level of unemployment could have been expected. However, the rate reported by the censuses and the household surveys seems extremely high, at least compared to the unemployment rates prevailing in almost every major Latin American urban area during the same period.

This paradox of "increasing absorption with persistent unemployment" illustrates the inappropriateness of using a category like open unemployment uncritically in the context of a segmented labor market. An exercise of disaggregation of "unemployed workers" as reported in the 1980 survey into various categories will illustrate the pitfalls in the uncritical acceptance of the unemployment figures.

- 2.10 According to the 1980 survey, the unemployment rate for the urban primary labor force (mostly males and heads of households) was 9.1%, less than half the rate observed for the urban labor force as a whole (19.0%). Since primary workers are responsible for the economic maintenance of their families,<sup>15</sup> they feel compelled to reduce the length of period of idleness and to accept a wide range of jobs, which tends to lower their actual unemployment rates.<sup>16</sup>

In addition, when the unemployed primary workers were asked about how they managed to survive, 61.5% of them answered that they were earning some money from occasional jobs. This implies that, in fact, only slightly over one-third of the workers considered unemployed from this group (equivalent to a scant 3.5% of the primary labor force) were "truly" unemployed. This

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<sup>14</sup> It should be pointed out that the non-governmental formal sector includes publicly owned enterprises, such as those of CORDE, CEA, Rosario Dominicana and the public financial institutions.

<sup>15</sup> Their contribution to household income is about 80%.

<sup>16</sup> An additional factor is that they are more experienced and have a better knowledge of the labor market.

figure is far below the one uncritically reported by the censuses and household surveys.

- 2.11** In contrast, members of the secondary labor force (non-heads of households) may have a greater freedom to choose from a wide spectrum of employment alternatives, depending not only on the availability of job opportunities, but on the family strategy for maximizing income and welfare. Thus, unlike primary workers, they are not as compelled to necessarily hold a job, but can afford to search for the one which matches their expectations. In the meantime, they can rely on the support of the primary worker in the household. This greater flexibility is obvious in the fact that only 18.2% of the secondary unemployed work on some occasional jobs and 73.5% receive some monetary aid from their families.

This greater flexibility of secondary workers also explains why their unemployment rate of 23.7% is two-and-a-half times that of the primary labor force. Secondary workers constitute 84.5% of the reported unemployed. However, when the head of household loses his job -- and the flexibility of the job search is lost -- the unemployment rate among the secondary members of the family drops dramatically, to less than 7%.<sup>17</sup>

- 2.12** Additional facts reinforce the characterization of secondary worker unemployment as "soft core". One out of two unemployed secondary workers (versus one out of 15 among primary job seekers) has no work experience, and only one-third are seeking a full-time job. The other secondary workers want a part-time job (30%), or just do not care (33%).

The latent desire for a job in the secondary labor force may be more an expression of the desire for a higher family income rather than an indication of actual unemployment. The reasons underlying the persistence of a high reported unemployment rate throughout the 1970's were more related to income levels and income distribution than to a critical scarcity of employment opportunities.

- 2.13** The economic bonanza of the 1970's came to an end in the early 1980's. The consequence appears to have been a deterioration of labor market conditions. Unfortunately, because of the lack of regular employment surveys, the exact evolution of employment and incomes cannot be ascertained.

The latest available survey, conducted only for Santo Domingo in 1983,<sup>18</sup> indicated that open unemployment at a level of 21.4% remained in the range consistently reported throughout the 1970's. Among heads of households, however, unemployment increased to 11.6%. Given their role as principal breadwinners, this statistic implies a worsening of the social situation.

- 2.14** In a major change from the trends of the past decade, employment in the urban informal sector expanded much more rapidly than employment in the formal sector according to the 1983 survey.

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<sup>17</sup> This rate is based on the 1973 Santo Domingo survey. The unemployment rate among total secondary workers was 26%.

<sup>18</sup> Two national surveys conducted by the Central Bank in 1986 and 1987 have not yet been processed.

Between June 1980 and February 1983, the formal sector employment grew at an annual rate of only 2.0% while the informal sector created jobs at a rate of 14.8% per year. The informal sector served as a shelter during the crisis. In the absence of this adjustment mechanism, open unemployment -- particularly among primary workers -- would have been significantly higher. The urban informal sector contribution to the employment situation has been an annual growth rate of .5% in total employment rather than a potential fall in the number of employed workers.

However this growth in employment probably masks an increase in underemployment<sup>19</sup> and a decrease in the quality of employment. On average, average real wages fell 6.2% between 1980 and 1983, with public servants experiencing the larger drop in real income (7.0%).

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<sup>19</sup> From a labor utilization point of view, the change of trends may be expressed as follows: while over the 1970's rapid economic growth induced a reduction of underemployment without substantially decreasing unemployment, through the 1980's (at least during the first half of the decade), the deceleration of economic growth did not imply an increase of unemployment but a significant rise of underemployment. The latter, not the former, is the adjustment variable.

### 3 - FREE TRADE ZONE JOBS AND WORKERS

#### FTZ Jobs Growth

- 3.01 Over their first sixteen years of operation, the Free Trade Zones (FTZs) in the Dominican Republic increased steadily the number of jobs within their jurisdiction, averaging 1,931 new jobs annually over 1970-1985 (Table D-1).

After a robust period of job creation during the mid to late 1970's, the rate of growth tailed off sharply in the early 1980's, due to large hikes in petroleum import costs and the onset of the global recession. Since 1986, however, the Dominican Republic has recorded the fastest rate of growth in the world for FTZs as measured by new employment, number of firms and exports and has been only recently surpassed by Mauritius.<sup>20</sup>

As of August 1988, there were twelve FTZs (seven private) and seven special zones in operation, with a total of 212 firms employing 82,840 people. This figure represents approximately 3% of the total labor force and 6% of the urban labor force.<sup>21</sup>

Over 20,000 new jobs were created in 1986 alone (a 65.8% increase from 1985), surpassing the total jobs created in the zones over the previous eight years. From 1986 to the present, an average of 25 new firms and 17,313 new jobs have been created annually. Net foreign exchange earnings rose from \$43 million in 1985 to \$98 million in 1987, with \$140 million projected by year-end 1988 (Table D-1).

#### Reasons for Rapid FTZ Expansion since 1986

- 3.02 In the early 1980's, the overvaluation of the peso which had been maintained at parity with the U.S. dollar for several decades constituted a major constraint on further FTZ development. In 1982, a multiple exchange rate system was introduced, but the official exchange rate of DR\$1.00/US\$1.00 was still maintained. The parallel rate increased gradually from DR\$1.46 in 1982 to DR\$3.11 in January of 1985. While firms were required to cover local expenses with Central Bank transactions at the official rate, the tendency to use the black market for actual conversions increased as the spread with the parallel market widened. This trend became strong enough, in fact, to account for the decrease in foreign exchange receipts from the zones recorded by the Central Bank in 1984-1985 (Table D-2).
- 3.03 In 1985, the Dominican government and the IMF agreed on a stand-by loan that called for the unification of the official and parallel rates, and the peso was devalued to DR\$3.26/US\$. Since

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<sup>20</sup> Interview with Carl Goderez, free trade zone specialist at The Services Group, in Santo Domingo, October 14, 1988.

<sup>21</sup> Mission estimates.

then, the Dominican Republic government has maintained a free-floating exchange rate regime that allows for depreciation of the peso in line with any parallel market divergences. There have been three unifications with the parallel rate in 1988 (Table D-2).

The 1985 peso devaluation spurred foreign investment and jobs growth because it made Dominican wage costs more competitive in dollar terms relative to other potential investment sites. For the labor-intensive export assembly production processes employed throughout free trade zones, relative wage costs represent a key element of the foreign investment site decision. Moreover, the unification of the official and parallel rates increased foreign exchange receipts for the Central Bank as zone firms no longer had an incentive to resort to black market dollar conversions.

- 3.04** Another aspect of cost efficiency centers on the improving productivity of the Dominican workforce. Prior studies have indicated that Dominican FTZ workers showed average productivity levels at 70-80% of those of similar workers in the U.S.<sup>22</sup> A recent study by CODETEL, the state telephone company, showed that the Dominican labor force in electronic industries was 99% as productive as their American counterparts.<sup>23</sup> This productivity performance enhances a profit performance already made attractive through the payment of low wages.
- 3.05** In January 1984, the Reagan Administration initiated the Caribbean Basin Economic Recovery Act to support economic development and foreign investment in the Caribbean. The main provision of the CBERA ( or Caribbean Basin Initiative: CBI) granted duty-free access to the U.S. market for a broad range of finished products provided that their raw materials were of American origin and that local value-added requirements (35%) were met. Although certain types of products, such as sugar, for which the Dominican Republic has a significant comparative advantage were not covered under the CBI, the D.R. has nonetheless been a major beneficiary, as demonstrated by the increase in foreign investment and exports.
- 3.06** A Commerce Department survey of 134 companies showed that total investment under the program equaled US\$321 million, of which nearly 50% was by American firms. In 1987 registered foreign investment in the Dominican Republic was US\$68 million with more than half of the amount from US companies.

FTZ exports to the U.S. increased over 58%, from US\$205 million in 1985 to US\$323 million in 1987, and 92% of all FTZ exports went to the U.S. Furthermore, 35 U.S. firms took advantage of the Section 936 tax incentives to establish "twin plants" in the Dominican Republic with affiliates in Puerto Rico. Also, textile quotas have encouraged Southeast Asian firms to develop textile production facilities in the D.R. which qualify under the CBI.<sup>24</sup>

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<sup>22</sup> See Joekes, op cit., pp. 47-48.

<sup>23</sup> Interview with Arelis Rodriguez, Executive Director of the Investment Promotion Council, October 14, 1988.

<sup>24</sup> United States Department of Commerce, Caribbean Basin Investment Survey Results, memo to USAID, August 19, 1988.

## Indirect Employment

- 3.07** There are no official measures of the indirect employment generation attributable to the existence and activities of the FTZs, and there are a wide range of assumptions used in setting policy.

The Central Bank (FIDE) assumes a ratio of three indirect jobs for every direct FTZ job in seeking approval for World Bank and AID financing.<sup>25</sup> The Economics and Development Foundation uses a figure of 1.5 indirect jobs for every direct job. The Free Trade Zone Users Association assumes .33 indirect jobs for every direct job. The differences in the estimates originate in the estimation techniques but also in the definitions of indirect FTZ-generated employment.

The actual impact of the FTZs on the Dominican economy cannot be accurately assessed without a quantification of the number and types of accessory jobs created by foreign investment in FTZs. At this time, the range of values taken by the multiplier -- from 3 to 0.33 -- makes all computation of the global returns of the FTZs impossible or seriously subject to skepticism.

## Characteristics of FTZ Workers

- 3.08** It is unfortunate that data on the FTZs labor force with the exception of the growth in the number of jobs are so scarce. Statistics on the characteristics of zone workers are hard to come by, as neither the government nor the zone administrations collect them on a regular basis. Although there is a growing consensus on the need to maintain a labor force database (as both a promotional tool to attract foreign investment and a management tool to monitor the quality of the labor force), only a few zones have developed this capacity to date. Thus, the assessment of the zones' impact on Dominican labor markets must rely on sketchy and often dated information.

- 3.09** Available information makes it clear that women have benefitted most from the FTZs. Women represent 70-75% of free zone workers. In the 1980's, the zones have provided formal sector employment opportunities, particularly for younger women, which most likely would not have been available otherwise.

The FTZs were developed and grew at a time when female participation rates experienced dramatic increases. Over the 1970-1980 period, the overall female participation increased from 27.0% to 37.5% (Table D-3). The rate among rural women climbed even more sharply, from 24.3% to 49.3%. These rates easily surpassed those for the male and overall labor force over the same period.

There is no implication of a causal relationship between the development of the FTZs and the changes in female participation. Rather, it would appear that the FTZs development provided a timely (although partial) outlet for the demands created by a major social change.

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<sup>25</sup> Interview with Ing. Francisco Rivas, Manager of Industrial Projects, Central Bank, October 7, 1988. This figure is likely very optimistic.

- 3.10 The 1975 National Fertility Survey indicate that 76% of women aged 25 to 49 years had married before age 20, with 17 the median age at first marriage.<sup>26</sup> Many of these marriages were a consensual rather than formal union, a widely followed practice in the Dominican Republic. This trend no doubt contributes to the relatively high divorce and separation rates among younger women, since consensual unions tend to dissolve more easily than formal ones. The low preponderance of birth control techniques implies that many of these women have children and find themselves heads of household at the time of the dissolution of the union.

These trends combine to create a climate of economic vulnerability for these women, prompting their entry into the labor force.

- 3.11 Although the zones did not absorb all of the new female entrants into the labor force, it is estimated that they generated between 78.4% and 85.1% of the total jobs created in the industrial sector during 1970-79.<sup>27</sup> It is also currently estimated that the FTZs employ between one-fifth and one-third of the female workforce in manufacturing.<sup>28</sup> It is thus safe to say that they provided important employment opportunities for many of these women, especially for younger workers without a great deal of education.

- 3.12 A survey of the female labor force conducted by the Center of Investigation for Female Action (CIPAF) in 1981 assessed the characteristics of zone workers and compared the workforce in the zones with that of similar domestic, non-zone industries.<sup>29</sup>

A total of 529 female workers, 298 from domestic industries and 231 from the free zones, were interviewed. Only three zones--La Romana, San Pedro and Santiago--were fully operational at the time the survey was compiled and thus are the sole sources of the free zone data. Although the small sample size precludes drawing broad conclusions, the data do provide some indication of differences in the characteristics of labor in both sectors.

- 3.13 FTZs' workers tend to be younger than their domestic counterparts: 47.7% of the FTZ workers were under age 25, compared to 17.1% of the domestic workers (Table D-4). Over half of the zone workers (56.7%) were in their 20's, versus less than one-third (28.8%) of the domestic workers. The mean age of the FTZ workers, 26.9 years, fell substantially below that of women in the domestic industries (35.4 years).

The youthfulness of free zone workers implies as well that, for the most part, they had little experience or advanced educational qualifications to offer prospective employers and, therefore, little in the way of alternative opportunities in the formal sector.

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<sup>26</sup> See Q. Reyes, Comparative Study of Dominican Women Workers in Domestic and Free Trade Zone Industries, 1987, p. 34.

<sup>27</sup> Ibid, p. 23.

<sup>28</sup> Joeke, p. 68.

<sup>29</sup> Although the information is somewhat dated at this point, this survey remains one of the major source of data on FTZ workers.

**3.14** Differences in levels of education were less pronounced than those of age among the women of both sectors. The domestic workers showed a slightly higher proportion of women who attended primary school (59.1% versus 56.3%), while the zone workers had a small edge (38.5% versus 33.6%) in the proportion of those who attended secondary school (Table D-5). Both groups had tiny minorities who attended college (3.8% for the entire survey sample). It is likely that, for both groups, educational preparation was sufficient for production-level jobs, but insufficient for entry or advancement into higher-level positions without many years of experience.

**3.15** In terms of marital status, both sectors showed high proportions of currently or formerly married (consensually or formally) women, totaling 78.2% in the domestic industries and 77.9% in the zones (Table D-6).

Marital status, of course, represents a significant aspect of head of household status, a worker characteristic for which the CIPAF survey used an open-ended definition. Under criteria such as knowing and controlling everything about the family and socially representing the family, 31.3% of domestic workers and 28.2% of free zone workers rated themselves as the head of household (Table D-7).

Regardless of head of household status, 45.8% of domestic workers and 37.7% of free zone workers were the main income earners for their households, compared to 26.1% and 30.3%, respectively, for their husbands.

**3.16** A survey of 146 female free zone workers conducted in 1981 by Corten and Duarte<sup>30</sup> showed that 30.6% of the women were the sole providers of food for their households, while an additional 31.9% provided food in conjunction with other members. Moreover, 88.4% of the female heads of household (a group defined as women who lived with their children without spouses and women who lived with spouses but were the main income earners) were the sole food providers (Table D-8).

However, the CIPAF data demonstrate just as clearly that the benefits of zone employment do not extend beyond those derived from holding a production-level job. The occupational profile of the survey respondents (Table D-9) shows that 68.0% of the free zone women were unskilled workers and that the total share of unskilled and semi-skilled laborers, including custodians, reached 81.9%.<sup>31</sup>

**3.17** The overall level of previous experience was low as well; 68.0% of the free zone women and 68.9% of the domestic industry women reported no prior formal sector experience (Table D-10). Additionally, 68.3% of the women who worked in the zones had been employed for less than three years. Although this statistic may suggest a high level of turnover, this may result more from the nature of the laborers (i.e., women who take time off to give birth and raise children) than from the jobs themselves. The older workers in the domestic sector likely have more seniority (no data were available) due to more union activity in the domestic sector and to labor laws that

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<sup>30</sup> See I. Duarte, Trabajadores Urbanos, 1986, Ch. 4.

<sup>31</sup> These findings conform with those from the Joekes study (p. 45), which put at 81% the share of production positions among total free zone jobs.

make the dismissal of employees with more than six months on the job a difficult process. It has also been argued that the youthfulness and inexperience of the zone workers inhibits their desire to organize and engage in union activity.<sup>32</sup>

**3.18** The labor force in the FTZs appear also very disciplined. The 1988 Itabo survey reports rates of absenteeism and turnover of 2.5% and 2.6%, respectively. Other evidence suggests low turnover as well as satisfactory levels of worker productivity. Females are often perceived as superior in this regard because of greater reliability and dexterity and because their economic vulnerability makes them more committed to levels of performance necessary to maintain employment.<sup>33</sup>

**3.19** Apart from the CIPAF survey, more recent data were obtained from zone administrations on the characteristics of their labor forces. The Las Americas free zone provides an interesting example in that it has yet to begin operations. Data were collected on the labor force from towns within a 15-km radius of the zone, an area referred to as the zone of influence. This represents the only effort encountered by the mission to assess the impact of a proposed zone on its surrounding area.

With a 30.0% unemployment rate (Table D-11) among the 13,371 economically active residents surveyed, this area became a suitable candidate for a free zone. Surveys of a subsample of 1,573 active adults (Table D-12) revealed that 20-24 year olds constituted the highest age-group share of the active population, followed by 25-29 year olds and 15-19 year olds. Only 14.5% of females and 17.4% of males had completed high school, with 42.1% and 31.3%, respectively, having completed primary school.

**3.20** Similar labor force data (Table D-13) are available from the Itabo free zone, which compiles such data as part of its screening and recruitment process -- labor is hired by companies in the zone from a general pool selected and trained by the zone administration.

Of a total of 1,941 employees as of August 1988, 71% were female and 78% had had no prior formal work experience. The workforce originated from three surrounding areas: the smaller urban areas of Haina and San Cristobal and the metropolitan area of Santo Domingo. Males from Santo Domingo reported higher levels of education than males from the other areas, where females were substantially more likely to have at least some high school. These figures likely reflect the tendency for rural males to drop out of school and look for work earlier than females.

**3.26** The data from the Las Americas and Itabo samples closely resemble that from the CIPAF survey in terms of labor force structure and education in the zones. Although these samples are small and provide no basis for generalization, there is certainly no basis for asserting that labor force trends have changed since the compilation of the CIPAF survey in 1981. Indeed, given the operational structure of the zones (i.e., their international raison d'etre) and the structure of the Dominican active population, it seems likely that zone labor forces will be shaped along these lines for some time to come.

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<sup>32</sup> See Reyes, p. 43.

<sup>33</sup> See Joekes, pp. 47-49.

### FTZ Effects on Internal Migration Patterns

**3.27** Although scarce, data on interregional migration in the Dominican Republic, provide some clues as to how the free zones as important sources of new jobs in the manufacturing sector have altered migratory patterns. Data are available from the 1970-1981 intercensal period and from a 1978 study of the characteristics of arrivals to Santo Domingo and Santiago. Since only the three oldest zones--La Romana, Santiago and San Pedro--had reached a mature stage of operation by 1981, a look at zone effects on internal migration must focus on these areas.

**3.28** Data on migration by region and sub-region (Table D-14) suggest that emigration has decreased in the areas where the zones were established. For example, in the Yuma sub-region, site of the La Romana and San Pedro zones, the ratio of emigrants to total population declined in 1981 compared to 1970. A similar decline took place in the Central Cibao sub-region (in which Santiago is located).

While the declines were fairly small in absolute terms, it is important to note that in all other sub-regions (excluding Valdesia, where Santo Domingo is situated) (1) the ratio increased over the 1970-1981 intercensal period, and (2) the ratio in 1981 was higher than in Yuma and Central Cibao.

The data suggest that the zones dampened migration out of their host sub-regions, attracting migrants who would have journeyed elsewhere to these regional clusters of industrial activity instead. This view conforms with the step-by-step theory of migration discussed earlier, but with the following refinements: (1) the presence of the zones has created new steps (i.e., La Romana, San Pedro) and (2) along with Santiago, these steps represent more permanent stops along the migratory path.

**3.29** The 1978 survey of migrants to Santo Domingo and Santiago indicated that females comprised roughly 57% of all migrants. An age-group breakdown of the data shows that, for both cities, the 15-24 group had the highest proportional share of female migrants. Indeed, for Santiago, males represented just 39.0% of migrants in this age group. This age and sex breakdown of migrants mirrors the description of the majority of free zone workers, particularly at the production level.

Among the Duarte and Corten sample of 146 female free zone workers (taken from the three oldest zones), approximately 68.5% of them had migrated (Table D-15). In the CIPAF survey, over 70% of female workers from both the free zone and domestic sectors reported having migrated, but there was a large disparity in terms of when the migration took place: 34.8% of the zone workers had migrated within the previous five years, compared to just 5.2% of the domestic sample, and 61.9% of the zone workers had migrated within the previous ten years, versus 20.3% among the domestic females.

While the small sample size precludes drawing definite conclusions, the survey seems to suggest that the FTZs constituted a major source of formal employment for migrant women.

- 3.30 The Duarte and Corten study<sup>34</sup> provides some detail as to the characteristics of the migrant free zone workers.

Among the women who declared themselves heads of household, 82.6% had migrated, a probable testimony of the economic motive underlying the migration decision and the economic appeal of the FTZs.

The survey also points out distinct regional patterns of migration. In the eastern part of the Dominican Republic, which includes agricultural tracts used for sugar and other crops and which surrounds the industrial centers of La Romana and San Pedro de Macoris, families as a whole were less likely to migrate. Instead, women migrated primarily alone or with older children, or commuted between home and work on a daily or weekly basis. On the other hand, Santiago featured a greater proportion of entire families in search of a new permanent residence as migrants: 11.4% of Santiago women workers did not live with any or all of their children, less than half of the proportion of women in the other two zones (Table D-16).

#### Characteristics of FTZ Jobs—A Wage Comparison with the Domestic Sector

- 3.31 A salary survey completed by the Dominican research firm of Ingenieria y Productividad, C.x A. (INPROCA) in August 1988 provides a basis for comparing wages and benefits in the free zones versus the non-zone domestic industrial sector. Data from 22 companies in the FTZs and 19 domestic firms operating in a variety of industries--pharmaceuticals, textiles, electronics and services--were collected for a total of 54 job positions grouped into four categories: Administrative/Managerial, Technical/Middle Management, Secretarial/Support Staff and Operation/Production Workers. 10,548 free zone employees (81% female) and 15,577 domestic sector employees (22% female) were surveyed.<sup>35</sup>

Before commenting on the findings of the survey, it is worth pointing out some potential flaws in the survey. Serious questions may be raised as to the comparability of the FTZ and domestic sector samples. The complete reversal between male and female ratios may by itself be a source of bias in the findings. Moreover, it was not possible to ascertain if the companies samples for the FTZs and for the domestic sector were similar in terms of sector of activity and size. All findings of the survey should be interpreted with these caveats in mind.

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<sup>34</sup> See Duarte, op. cit., Ch. 2.

<sup>35</sup> The sharply different proportional breakdowns of the labor forces with respect to sex suggests an important consideration that must be kept in mind as the survey results are interpreted: Since men traditionally receive higher wages than women, even for comparable positions, the sexual composition of the two labor forces (not just the sector of employment) probably plays an important role in determining the relative wage levels.

**3.32** The survey provides interesting information on the structure of remunerations within the companies in the FTZs.<sup>36</sup> For production workers at the lowest end of the pay scale, there are few differences in wage levels between different industries in the free trade zones. In the production operator position, for example, workers in all four sectors report wages approximating the zone average of 523 Dominican pesos a month (the minimum wage in the D.R. is 500 pesos per month). The same trend applies to the messenger, machine operator and junior quality control inspector positions (Table D-19). For secretarial workers, the majority of whom are female, differences in wages are generally minimal between zone industries.

However, production-level workers with technical expertise command salaries considerably above the minimum wage: The average junior maintenance mechanic earns double the minimum wage, while senior mechanics earn up to three times the minimum. Maintenance electricians and electronic technicians also command similar earnings potential.

This pattern of remuneration originates in the high demand for these skilled positions, especially in the garment industry, and the relative scarcity of workers to fill them.<sup>37</sup> The lack of available vocational/technical training (reflecting the inability of the educational system to adjust thus far to the demands created by the industrialization process) is cited as a major reason for this scarcity and represents a current bottleneck to future zone expansion.

**3.33** Pharmaceutical firms pay consistently higher salaries than firms in other sectors, especially for buyers, keyboard operators and bilingual executive secretaries. As might be expected, there is a premium on bilingual versus non-bilingual secretaries and clerks. Pharmaceuticals are also more lucrative for technical/middle managers, paying at or above the average salary for 11 out of 11 positions.

The textile and electronics industries, on the other hand, were consistently at or below the average (in ten and nine positions, respectively, with only two above the average in sewing and three in electronics). Two factors likely account for this difference: (1) the higher technical sophistication of the pharmaceutical industry compared to sewing and labor-intensive electronic component assembly; and (2) the presence of Fortune 500 pharmaceutical companies such as Eli Lilly, Baxter and Bristol-Myers in the "blue-chip" Itabo free zone.

**3.34** Since data are also included for domestic pharmaceutical firms, this sector represents a useful point of comparison between the free zone and domestic sectors. A look at worker salaries in the production category reveals that domestic sector employees are better paid than their free zone counterparts. The average monthly income of domestic production operators, for example (711 pesos), is 40.5% higher than in the free zones (Table D-19). Workers in several domestic sector jobs--warehouse clerk, senior quality control inspectors, maintenance mechanics and truck lift operators--report substantially higher salaries than in the free zones; only drivers among free

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<sup>36</sup> Of the 22 free zone firms surveyed, eight are from Itabo, seven operate in San Pedro de Macoris, five are in La Romana and two are from San Isidro (Table D-17 lists the firms by industry).

<sup>37</sup> According to many of the people interviewed, it is common in zones with heavy concentrations of garment assembly firms to have frequent raids of top mechanics among competing firms. Such raiding, actively discouraged by free zone managers, is non-existent with respect to production workers.

zone production workers receive higher salaries.

For secretarial employees, the opposite holds true. Free zone secretaries and clerical workers consistently earn more than in the domestic sector. Pharmaceutical keyboard operators in the free zones, for example, report an average monthly salary (1,255 pesos) 48.0% higher than similarly employed domestic workers.

This pattern is even more pronounced in the technical/middle management category: For every position in which comparative data are available, free zone workers have higher salaries. In some cases, such as quality control supervisors (157.4%), production supervisors (41.5%) and maintenance supervisors (260.0%), the income advantage of working in the free zones is considerable.

- 3.35** It may be hypothesized that the need to maintain international export competitiveness dictates the low production wages paid by free zone firms attempting to operate at minimum cost; protected firms in the domestic sector do not face the same cost minimization pressures.

International competitiveness may also explain why technical/middle managers are more highly paid in the free zones than in the domestic sector. Apart from cost savings, the other key criterion to successful international product competition is quality: efforts to achieve and maintain high product quality must be rewarded accordingly. Free zone pharmaceutical firms employ this basic tenet in their salary structure, emphasizing the technical/middle management level. Domestic firms, facing few competitors in a protected local market, may not feel compelled to reward quality because it is simply not as much of a priority under current conditions of limited competition. After all, if domestic firms were able to meet international standards for product quality and cost efficiency, there would be no need to resort to free zones as a means of promoting exports for pharmaceutical products. Moreover, free zone firms would presumably utilize local inputs were they of sufficient quality to allow them to do so.

- 3.36** It is important to keep in mind that (1) pharmaceutical firms constitute only a tiny proportion of all free zone firms and (2) the high-paying technical/middle management jobs in free zone pharmaceuticals comprise only a small minority of all positions. Thus, the superior salaries for these free zone jobs are clearly the exception rather than the rule.

The overall salary data indicate that the domestic sector pays better than the free zones, especially in large and/or state firms.<sup>38</sup> The only free zone positions offering consistently competitive salaries vis-a-vis the domestic sector are in sectors emphasizing high technology and quality output or in positions for which there are high demand and a shortage of qualified personnel.

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<sup>38</sup> It should be noted that the salaries and bonuses of large firms are generally more attractive than those of small firms because their greater resources allow them to compensate employees more generously. Public and private large domestic firms are listed in Table

### Bonuses and Fringe Benefits

- 3.37** Among free zone production workers, employees in the textile industry report the highest median bonus compensation, at 42.58% over regular salary, compared to a zone average of 33.05% (Table D-20).<sup>39</sup> This high figure no doubt reflects the overtime hours and/or production incentives commonly featured in this industry. Pharmaceuticals award the highest bonuses for secretarial and administrative staff, while the textile industry has the highest bonuses for technical/middle managers.

A comparison between the free zone and domestic pharmaceuticals shows that the latter give higher bonuses across the board: Administrators and production workers receive almost double the benefits in the domestic pharmaceuticals, and secretarial staff and technical/middle managers also enjoy substantially higher bonus income than in the free zones.

Median bonuses for the free zones as a whole pale in comparison to those of the large domestic firms. Administrators, for example, receive 14.72% in the free zones and 40.88% in the domestic sector, while secretaries receive 17.03% and 45.07%, respectively. Though not as large as these spreads, differences between free zone and domestic pharmaceuticals for the other two employment categories are also substantial.

- 3.38** The CIPAF survey provides comparative information on fringe benefits as well. Although the criteria used to assess fringe benefits were vague and depended too much on the number of favorable responses, the collected data do point to some clear trends. In three areas--medical insurance, vacations and Christmas bonuses-- positive response rates were high for both the free zone and domestic sectors. However, for all other benefits listed (e.g., retirement payments, safety equipment, scholarships), domestic workers had a much higher rate of favorable responses (Table D-21).

The proportion of firms offering specific benefits (Table D-22) also illustrates a large discrepancy between zone and domestic employers. For all four job categories, the domestic firms provide a broader range of benefits on a more frequent basis: 63% of the domestics provide transportation or a transportation allowance to production workers, for example, compared to 23% of zone firms. There are also important differences in life and accident insurance coverage and employee/family tuition assistance for production workers. The disparities for these and other benefits tend to be just as large or larger for other employees. Medical plan coverage is generally superior in the domestic sector (Table D-23).

- 3.39** Thus, in terms of salary plus bonuses and benefits, employment quality appears superior in the domestic sector. There are various possible explanations to the differential between the two sectors.

It is possible that the wage differential between domestic sector and FTZs could be a statistical fallacy, the result of a difference in gender and age structure. Males, as the traditional heads of household, tend to earn more than females. The significantly higher proportion of males in the

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<sup>39</sup> It should be noted that the INPROCA survey bonus statistics include benefits apart from regular salary (e.g., medical and pension plans, vacations) as well as extra payments (typically derived from production incentives and/or overtime) for each position.

domestic sector than in the FTZs could bias the estimates of average wages between sectors. In the same way, the younger average age of FTZs workers may be an additional source of bias in the estimates of relative wages. The proper comparison should take into account these population differences and compare similar age groups and positions.

It is also possible that labor laws and unions could be pushing wages and benefits up in the domestic sector. It has been reported -- although not confirmed -- that FTZs firms only give six months contracts renewable to their workers to avoid the burden of Dominican labor legislation which is applicable after half a year of steady employment.

- 3.40 Future trends, however, may lead to higher wages for skilled labor positions in the free zones. A training needs survey of free zone administrators and managers<sup>40</sup> points to a consensus opinion that lack of available skilled labor constitutes the primary obstacle to expanding zone operations and worker productivity. Specific jobs cited include supervisory personnel (especially with human relations and quality control training), industrial mechanics and bilingual secretaries. As noted earlier, this personnel shortage reflects deficiencies in Dominican technical education and job training; given the lag involved in addressing these deficiencies, these shortages are likely to continue in the foreseeable future, especially with projections of rapid short-term zone growth. This trend implies short- and medium-term wage increases for these positions in the free trade zones.

### Working Conditions

- 3.40 Data on working conditions are scarce, but there are some indications of the work environment for both domestic and free zone production operators. CIPAF assessed overtime requirements in three survey items (Table D-25). While just under one-half of the domestic workers reported having to work overtime, almost three-quarters of the zone workers did so. For both groups, when overtime was necessary, it came frequently: 39.8% of domestic and 58.1% of zone workers reported having to work overtime on a daily or weekly basis. Finally, 32.6% of zone workers, versus 18.2% of domestic workers, were required to work overtime, as opposed to working overtime on a voluntary basis.

These data suggest that overtime is more burdensome for zone workers. As previously seen, many of these young females are heads of household or at least have a major household role, especially where child care is concerned. The implications of these overtime requirements cannot be positive in situations where adequate alternative care arrangements are hard to come by, which is frequently the case. Unfortunately, there are no data available on the impact of these working situations on the welfare of the children involved (84% of the workers surveyed by Duarte and Corten had at least one child).<sup>41</sup> Clearly, for mothers forced to commute, the ability of relatives to provide adequate child care becomes a major determinant in the welfare of these children.

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<sup>40</sup> A. Cuervo et al, ISTI, May 1988.

<sup>41</sup> Duarte, p. 226.

## 4 - RURAL LABOR MARKETS

- 4.01 Concepts and definitions originally developed for one mode of production tend to produce misunderstandings and erroneous analysis when applied to another mode of production. In particular, the concept of labor force as it is generally applied to the rural labor market has no clear meaning in the context of a traditional rural economy. The concept of labor force has a definite relevance in a mode of production where labor services are traded in the market place as any other commodity. Within a capitalistic organization, the pattern of ownership of factors of production allows a clear distinction between supply of and demand for labor.

In turn, this distinction yields a definition of the labor force as the number of persons willing to work at the prevailing wage rate (i.e., the quantity of labor services available in the market). On the other hand, the number of jobs available at a given wage and level of aggregate demand defines the demand for labor. The comparison between these two concepts and further refinements permit the definition of underemployment and unemployment and the analysis of labor market segmentation, as developed in a previous section.

- 4.02 In a traditional rural setting, these distinctions are extremely difficult to make. Perhaps the main characteristic of traditional agricultural production is the lack of an organized labor market as it exists in urban areas. Because the household concentrates consumption as well as physical production decisions, a significant amount of economic activities do not go through the marketplace.

Under these circumstances, it is not possible to differentiate clearly the supply from the demand for labor. The concept of rural labor force becomes fluid and it is not possible to define rural labor force in the same manner as in urban labor markets.

- 4.03 The issue is made even more complex by the seasonal nature of agricultural production. The need for labor services is not evenly distributed during the year: it increases during the planting and harvest seasons and decreases in the interim with the variations in the marginal productivity of labor. During the slack season, the low marginal productivity of labor reduces the demand for labor services from larger land holdings at the same time as it tends to increase the offer of labor from small farmers. During planting and harvest, the need for labor from large farms offers the opportunity for cash income to small farmers: to take advantage of the increased marginal productivity of labor on their land holdings and the utility of cash income, their family members are mobilized into the labor force.

These expansions and shrinkages of the labor force are not properly considered by the Rural Employment Surveys, where anyone who has participated in some economic activity during the year is considered a permanent member of the labor force. As a result, the size of economically active rural population is overestimated, as are rural unemployment and underemployment.

- 4.04 With these caveats in mind, it is now possible to talk about the labor situation in the rural areas of the Dominican Republic. The estimated rural population in 1970 of 2.66 million people represented 60.3 percent of the total population. By 1980, rural population had increased to 2.79 million people but its share of total population had declined to 49.1 percent. Estimates for 1985

indicate that the rural population comprised 2.84 million people and its share of total population only 44.3 percent. These figures represent a cumulative annual growth rate of 0.43 percent from 1970 to 1985. Since total population for the same period expanded at 2.5 percent per year, the low rural growth rate implies that at least 68 thousand people left the rural areas every year <sup>42</sup>.

- 4.05 The rural masculinity index shows a higher proportion of males than females living in rural areas. This phenomenon confirms findings from migration surveys that indicate that a majority of the rural-urban migrants are women. It also suggests that women, who constitute the largest share of unpaid family workers, changed their status by moving and finding gainful employment in urban centers, if only as domestic servants.

A comparison between the 1970 Population Census and the 1980 National Survey of the Rural Labor Force indicates that the average age of the rural population has increased. Two factors provide an explanation for this aging: (1) the decline in rural fertility rates, and (2) the fact that migrants generally belong to the younger generations. In 1970 25-44 year olds represented 19.8 percent of total migrants; this share was down to 18.3 percent in 1980.

If this age group had grown at its average national rate, the total number of rural people in this category would have been 727,000 persons. Since the actual number was only 528,000, there was a migration of 199,000 individuals at earlier ages.

- 4.06 It has been estimated that in 1980 1.85 million rural individuals were of working age. This number represents the absolute maximum for the size of the labor force.

Using the methods criticized above (i.e., considering anyone who worked for some time during the year as a member of a labor force), the 1980 rural labor force survey estimated the labor force at 58.6 percent of the population older than 10 years of age. Using the mission estimates of rural population, the rural labor force would have been 1.08 million people. However, 48.8 percent of these individuals were classified as non-permanent workers, seasonal workers or workers without a clear job description. Therefore, during the year, the labor force may vary from a minimum of 527,000 workers to a maximum of 1.08 million people.

Since the average size of a household in the rural areas was 5.9 persons<sup>43</sup>, there were approximately 474,000 rural households. Therefore, in the low season each household uses approximately 1.11 workers; in the harvest season, labor requirements reach 2.29 laborers per household.

- 4.07 The same rural labor force survey distinguished between primary and secondary workers. The former were defined as male heads of household between the ages of 25 to 54 years. The unemployment rate among these workers was only 7.6 percent, while for secondary workers it was 33.1 percent.

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<sup>42</sup> Fertility rates are higher in the rural areas than in the urban areas, making the natural rate of growth of the rural population higher as well. Therefore, this estimate is conservative.

<sup>43</sup> The average size of a rural household was 6 persons according to the Income and Expenditures Survey of 1975-1976. A similar survey conducted in 1984 gave an average size of 5.74. The mission estimate is based on an average of these two figures.

The size of the primary rural labor force was estimated at 298,000 individuals. Since the number of rural households can be estimated at 474,000, the number of primary workers appears to be seriously underestimated by the failure to include female heads of household or heads of household younger than 25 years of age or older than 54. The mission believes that a more comprehensive estimate of the actual number of primary workers would reach the number of households (475,000) or the number of permanent workers (527,000).

In summary, the core of the labor force comes from heads of households and additional labor services provided either by family laborers or hired workers.

- 4.08 The dynamic of rural labor markets and the economic situation of rural households is heavily conditioned by the distribution of land, which gives rise to labor market segmentation by establishing technological differences among farmers. This process is analogous to the urban labor market, where differential access to capital also generates segmentation. Small peasants, from an analytical perspective, are similar to informal workers because they tend to have a low marginal productivity of labor combined with a relatively high marginal productivity of land (or capital in the urban areas).

Seasonality and international emigration, as well as internal rural-urban and rural-rural migrations, help maintain the status quo.

- 4.09 The distribution of land is highly concentrated in the Dominican Republic. In 1981, plots smaller than 5 hectares constituted 81.7 percent of total exploitations and used only 12.2 percent of the land. These data point to a worsening of the situation since 1971, when small exploitations occupied 12.9 percent of the land and amounted to 77.1 percent of total exploitations. The increased land concentration is best illustrated by the Kuznets measure of overall concentration, which was calculated at 1.28 in 1971 and 1.39 in 1981 <sup>44</sup>.

A corollary of this skewed land distribution is the small size of the exploitations. In 1981, 16 percent of all farms were under half a hectare, with an average size of only a fifth of a hectare; the next category--one-half to five hectares--comprised 65.7 percent of all exploitations and only occupied 11.7 percent of the land; in this case the average size was 1.23 hectares.

The ratio of land to labor shows an enormous disparity: for plots under 10 hectares it was 4.34 hectares per man and for those above 10 hectares it reached 150.4 hectares per man. This disparity in size generates vast differences in the technological capabilities and economic operation of these farms.

- 4.10 The survival strategy of small peasant families (defined as having plots below 0.5 hectares) depends on the sale of some of their labor services outside the family unit at the going wage rate. Lozano (1985, p. 21) estimated that in these exploitations, 60 percent of their labor services were used outside the family unit.

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<sup>44</sup> The Kuznets measure of concentration is the summation of the absolute value of the difference between the proportion of exploitations in each size category and their share in total area. The coefficient varies between 0, which indicates perfect equality, and 2, which indicates perfect inequality.

However, wages for agricultural work are low. From a 1975-1976 study by the Secretaria de Agricultura, the monthly wage income for agriculture could be estimated at RD\$ 60. With an average of 1.1 permanent worker per household, the total household monthly wage income could not have been higher than RD\$ 66 (or US\$ 66). Other income such as the value of self-consumption and possible sales from home production, the levels of income for these households appear quite low.

An estimate of the number of people in this condition can be derived from the number of plots in this category: assuming that each plot is owned by one household, there were 61,670 families living under these conditions. Based on the average family size of 5.9 members, the total number of people reaches 364,000, comprising 13 percent of the rural population.

- 4.11 Under these circumstances, there is an increasing tendency toward the exploitation of land to the point of exhaustion. The main crop grown by these small peasants is coffee: 30,023 farms dedicated to coffee occupy a total area of 6,832 hectares, approximately 55 percent of the area held by this category of farms.

Generally, these exploitations are located in relatively high and steep areas and tend to become easily exhausted because of the intensity of cultivation on poor soil. Once a plot becomes unproductive, often because of soil erosion, the family moves into another equally small plot, where the same process happens again<sup>45</sup>.

From an intertemporal point of view this situation sounds irrational, but, given the extraordinarily high time preference rate observed in subsistence situations, the exploitation of these plots until exhaustion is quite rational from a private point of view. The increasing deforestation of the Dominican Republic can be explained by this logic.

According to the IDB, "the lack of a technical and rational management of resources has generated an irrevocable loss of forests, a reduction in fertility of land, which, added to loss of soil, has accelerated the sedimentation of dams and canals." The bank also reports that "approximately 300,000 hectares have been incorporated into production from 1971 to 1981. This increase has been done at the expense of a reduction of the area dedicated to perennial crops (140,000 hectares) and forests (160,000 hectares), [implying] a reduction of 50 percent of the forest area."<sup>46</sup>

- 4.12 In 1981, farms between 0.5 and 5 hectares in size represented 65.7 percent of all holdings and occupied 11.7 percent of total area. The average size of a plot was 1.23 hectares and the average land-labor ratio was approximately 3.5 hectares per man. In 1976, family labor represented 74.5 percent of total laborers in these farms, with the remaining 25.5 percent hired outside the family unit (Lozano 1985, p. 207).

These figures are not surprising because 51.5 percent of these farms are dedicated to coffee. They represented 56.6 percent of the total areas planted with coffee in 1980. During the harvest season, these small farmers must hire seasonal workers because the household is unable to provide all of the labor services required.

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<sup>45</sup> See the 1988 IDB report, p. 120.

<sup>46</sup> Ibid. The same argument may be used to explain the deforestation of Haiti.

For half of the farms in this category, labor services and land are dedicated to subsistence agriculture (Lozano 1985, p. 187). However, the larger size of their plots certainly improves the household income level compared to the small peasant category.

A rough estimate of the average annual income derived from coffee for 1980 is RD\$ 1,944.23 (i.e., RD\$ 162 per month)<sup>47</sup>. A household needed at least RD\$ 193 to have an adequate caloric intake; this income level is only 21 percent above that minimum. Thus, it is quite likely that some family members would work outside the family holding during the coffee off-season.

- 4.13 Farms larger than 5 hectares operate quite differently compared to smaller farms. Perhaps the two most striking differences are the percentage of labor services hired outside the family unit and the kind of crops grown. For example, farms larger than 5 but smaller than 30 hectares hire 47.6 percent of their labor services in the open market; for farms larger than 30 hectares, the open-market share of labor is 71 percent.

In terms of the crops grown, farms larger than 5 and smaller than 50 hectares use more than 40 percent of their labor inputs for export crops. Farms larger than 50 hectares devote 74 percent of their labor to export crops. Along the same lines, the land/labor ratio increases dramatically, from an average of 2.95 for farms smaller than 5 hectares to 73, on average, for farms above this limit.

- 4.14 There are substantial differences in the income levels of small peasants and small farmers as compared to those of medium and large coffee farmers. Lozano and Baez (1985, p. 23) report yields of 40 quintals per hectare for farms of 18 hectares. Lozano (1985, p. 207) also reports that these farms hire 47.6 percent of their labor services outside the family unit; therefore, 3,427 cajas have to be paid to outside workers. At a rate of RD\$ 1.32 per caja, the total cost becomes RD\$ 4,524. Net income for the exploitation is RD\$ 93,828 per year; although this figure is overestimated because it does not consider intermediate inputs such as fertilizers, bags and possibly the cost of workers living on the farm, it points to substantial income differences between farm sizes.

At any rate, the difference in yield--5.55 times higher on average for medium and large farms--by itself generates important differences in income levels. In this category are all the sugarcane plantations and mills, which, given their highly seasonal production cycle, need large amounts of

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<sup>47</sup> Lozano and Baez (1985, p. 23) report that the yield in small coffee plots is about 7.2 quintals per hectare (1 quintal = 46 kilograms). The farmgate price of coffee was RD\$ 136.60 per quintal in 1980; therefore, total income per hectare amounted to RD\$ 989.52. But this production cannot be obtained by family labor; some additional labor has to be hired. Hired labor is paid on a piecemeal basis, the unit being the "caja." Ten cajas make a quintal; thus, in one hectare 72 cajas are gathered, of which 27.5 are done by outside labor and 44.5 by family workers. This division of labor was estimated by the Secretaria de Agricultura in its study for 1975-1976. The price paid per filled caja was RD\$ 1.32, so that net income per hectare would be RD\$ 947.22. However, since no intermediate input costs have been deducted, this figure is overestimated. Small farms between 0.6 and 6.1 hectares comprise 74,861 hectares and 36,472 farms, which the mission equated to households. Average annual household income would thus be RD\$ 1,944.23, or RD\$ 162 per month.

workers for only part of the year. The sugarcane harvest runs from December to July with the highest level of activity in the months of March, April and May.

- 4.15 As the size of the farms increases, the requirements for external labor services grow. As discussed above, small peasants with farms under 0.5 hectares will supply 60 percent of their labor services into the open market. The next group, farms from 0.5 to 5 hectares, will hire approximately 25 percent of their labor needs, but mainly during the coffee season. Medium-sized farmers (6 to 30 hectares) will hire 48 percent of their labor needs, and large farms will hire 71 percent of their workers.

The availability of labor for the needs of larger farms is assured when one considers, in addition to the supply provided by small peasants, the 181,000 workers without land, of whom 144,000 are considered seasonal workers; the 114,500 non-permanent workers in agricultural activities; and a number of workers without clear job descriptions.

According to the Secretaria de Agricultura study, the total demand for labor during the agricultural year was approximately equal to 481,600 person/year. The mission estimated the annual core labor force in agriculture to be 326,000 workers<sup>48</sup>; therefore, the sector needs 155,600 additional person/year to meet its needs<sup>49</sup>. Given the estimate of the number of potential seasonal workers, it looks like the labor needs of the Dominican agriculture are amply met.

- 4.16 Seasonality patterns add to the complexities of the rural labor market. Although sugarcane and coffee are complementary, that is not the case regarding the use of labor in farms of different size.

The Secretaria de Agricultura study reported seasonal variations in the demand for labor services; unfortunately, their indices are not correctly calculated. The mission re-estimated them using the figures for day/worker as correct. The total demand for labor reached a peak of 120.24 in December and a trough of 74.28 in July; the standard deviation was 12.24.

- 4.17 The most interesting aspect of seasonality involves the origin of the workers in the peak season. The coefficient of correlation between the labor requirements of large farms (i.e., bigger than 30 hectares) and seasonal workers paid in a piecemeal fashion was calculated by the mission to be 87.8; the high correlation suggests that sugarcane and coffee farms use most of the seasonal laborers and that large farms comprise most of the sugar and modern coffee plantations.

The correlation between the labor requirements of large farms and those of small farms, however, was only 42.8; in other words, the crops cultivated by small peasants and farmers complemented the labor needs the big farms. This is an indication of the presence of a "latifundio/minifundio" complex by which small-farmers provide labor services to large ones.

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<sup>48</sup> This figure is derived from the estimate of 527,000 primary workers in rural areas adjusted by the estimate of 201,000 permanent workers in non-agricultural activities

<sup>49</sup> The sugarcane harvest is heavily concentrated from January to June, while that of coffee is from August to November. The latter sector requires less seasonal workers than the former.

**4.18** In the functioning of the Dominican rural labor market, there is an additional factor that tends to keep rural wages extremely low and cultivation technologies backward. This factor is the important seasonal migration of Haitian workers for the sugarcane harvest and, increasingly, for coffee. Historically, the Dominican government kept a policy of closed borders when the price of sugar was high; however, when the price of sugar began to drop in 1976, the government changed its immigration policy and opened the border for seasonal workers (Lozano and Baez, 1985, p.69). This change in policy is probably the result of intense lobbying from sugarcane producers who faced a very serious profit squeeze at the set minimum wage, and wanted to find either cheap labor or maintain a cap on the minimum wage by increasing the availability of labor.

**4.19** ONAPLAN (1981) estimated the number of workers living in the 16 Dominican sugar plantations at 34,000 during the low season (September), of which 26,000 were Haitians; the agency also estimated that there were 9,000 Haitians working in other crops. In the coffee harvest, Lozano and Baez (1985, p. 136) estimated the number of Haitian workers at 13,400 for 1984-1985, of which 75 percent had worked in the sugarcane harvest. Therefore, in 1980 the total number of Haitian workers living in the Dominican Republic was around 45,000. To this number should be added approximately 16,000 new imported Haitian laborers for the sugarcane harvest. In total, since 1976, Haitians added 73,500 permanent and temporary workers to the Dominican agricultural labor force.

Haitians workers represented half of the needs for seasonal workers .

**4.20** Compared to the theoretical rural-urban migration among Dominicans of 68,000 persons a year, the Haitian influx is not as significant. However, the reduction in the rural population of 25 to 45 year olds has been about 21,000 a year. The stock of Haitian workers has been growing fast since the border was opened in 1976: The Haitians immigration rate of 12,200 workers per year thus represents 58 percent of the loss of prime working-age Dominican workers experienced by the country's rural areas.

**4.21** The most obvious effect of the Haitian workers on the labor market has been a tendency toward a reduced wage rate in the open market. The monthly rate received by the Haitians in the coffee harvest was RD\$ 41.33. In the sugarcane harvest, the wage rate varies from RD\$ 33 to RD\$ 55 per month<sup>50</sup>.

In 1980 per capita income in Haiti was about US\$ 290. Therefore, assuming that a Haitian worked 6 months in sugar and 4 in coffee, he would have earned RD\$ 429.32; this is US\$ 340 converting the pesos at the parallel market rate. In other words, to the degree that the income received in the D.R. is higher than in Haiti, they are willing to migrate and offer their services at a lower rate than the minimum wage for the Dominican Republic, which at the time was RD\$ 77 per month<sup>51</sup>.

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<sup>50</sup> All of these figures refer to 1980.

<sup>51</sup> It should be noted that, according to the 1984-1985 Lozano and Baez survey, 37.3 percent of the Haitian migrants reported having belonged to the informal sector, having been unemployed or having had an odd job prior to migrating. At the same time, 25.4 percent were peasants. It is the mission's opinion that the income level of these workers was below Haiti's per capita average of US\$ 290 in 1980.

In summary, Haitian migrants have helped to keep the wage rate in the rural areas quite low by Dominican standards and thus have pushed rural Dominicans into the urban areas.

**4.22** Besides the workers in agricultural activities, there is an important segment of rural workers who perform non-agricultural jobs. Of these workers, 201,000 have some type of permanent job while 76,200 have non-permanent jobs. Approximately one-fourth of them work for the government and on educational services. Domestic service represents 8.3 percent and private enterprises and commerce account for 65.8 percent (ONAPLAN 1984, pp. 49 - 53). In terms of occupational category, at least 55 percent of them could be considered as members of the informal sector (i.e., the self-employed, non-paid family workers and piecemeal workers). These workers constituted 84 percent of private enterprises and commerce.

**4.23** The evolution of agricultural income through time must be assessed by looking at sectoral value added. Total value added measured in real terms (i.e., RD\$ of 1980), grew at an annual rate of 1.04 percent from 1970 to 1985<sup>52</sup>. The sectoral composition did not change during the period: on average, crops represented 69.2 percent, cattle raising 27.8 percent and forest and fisheries 2.6 percent. Crop volume did not expand, while cattle raising exhibited a real annual growth rate of 3.1 percent and forest and fisheries 4.6 percent.

The growth rates of per capita real value added showed an even darker picture: trend growth for the sector as a whole was only 0.6 percent and trend growth for crops, particularly export crops, was zero or negative. The comparison between the agricultural sector and the rest of the economy repeats the picture of backwardness previously seen. The ratio of per capita agricultural value added to per capita GDP diminished at a rate of 1.1 percent per year from 1970 to 1985, dropping from 47.8 percent to 40.4 percent, respectively.

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<sup>52</sup> Aggregate figures on the agricultural sector are based on the World Bank's Dominican Republic: An Agenda for Reform, published on January 21, 1987. This report recalculated some important sections of the country's national accounts at a sectoral level in a way that appears satisfactory to the mission. Dominican Republic national accounts are not compiled according to any United Nations criteria; therefore, the accounts for the domestic private sector, the government, and the external sector do not match.

## 5 - EVOLUTION OF GENERAL INCOME LEVELS

- 5.01** The Dominican Republic exemplifies the general Latin American trend of strong economic performance until 1979 and stagnation since then. In countries such as the D.R. with high population growth, this situation is particularly serious. Measured in 1980 Dominican pesos, per capita GDP was RD\$ 763.39 in 1970 and RD\$ 1,119.69 in 1979, implying a 4.2% annual growth rate over the period. However, from 1980 until 1987, per capita GDP showed a 1.0% annual decline, from RD\$ 1,083.76 to RD\$ 1,053.41, and remained below the 1979 level.
- 5.02** A more accurate measure of income evolution centers on the concept of personal income (defined as GDP minus net factor payments from abroad minus central government taxes--direct and indirect--plus government transfers and remittances from migrants)<sup>53</sup>. In the Dominican case, this figure is always smaller than GDP because the country is a net foreign debtor and part of government expenditures are used for public foreign debt payments. In 1970, personal income equalled RD\$ 668.02 in terms of 1980 purchasing power; by 1979, this aggregate had reached RD\$ 1,028.50, for an annual growth rate of 4.8%. As in the case of GDP, the 1980's have been a period of stagnation: Personal income, which dropped to RD\$ 998.43 in 1980 and remained at RD\$ 966.09 (below the 1979 peak), declined by 1.1% per year.
- 5.03** An interesting aspect of the evolution of personal income in the Dominican Republic involves the importance of workers' remittances, a phenomenon noted in some Central American countries. Actual remittance data are not available. The Central Bank estimates remittances assuming that Dominican workers send back an average of SDR 44 per month (i.e., approximately US\$ 600 per year). The 1984 income and expenditure survey gives an annual level of US\$ 165 million, US\$ 40 million lower than the balance of payments account. Given problems of unreported income in the survey and the fact that these remittances were converted into pesos at the parallel market, the Central Bank estimate seems more plausible<sup>54</sup>.

According to the balance of payments data, remittances were not really important until 1976, when they jumped to US\$ 124.23 million from US\$ 36.06 million the previous year. (It is likely that prior to 1976 the figure was not correctly estimated.) Since then remittances have constituted, on average, 4.5% of per capita personal income. More importantly, they grew at a yearly rate of 2.1% from 1976 to 1987; as a share of personal income, remittances grew by 2.6% per year over the

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<sup>53</sup> The definition of personal income used here is different from the standard of National Income Accounting: it is similar to disposable income. However, it should be noted that depreciation and corporate profits have not been deducted nor dividends and net interest payments added. It is not possible to make the right adjustment because the national accounts of the Dominican Republic are not disaggregated by economic agents.

<sup>54</sup> The figure of US\$ 600 per year sets the number of Dominican workers abroad at 342,000; with a participation rate of 0.65, the total number of Dominicans living abroad (i.e., in the U.S.) would be around 526,000, which approximates what is generally regarded as the most reliable estimate.

same period because of the sharp decline in personal income.

- 5.04 The level of absolute poverty declined during the 1970's and has remained constant since then, although perhaps with some deterioration. To measure absolute poverty, the mission estimated the minimum required caloric intake for the Dominican Republic, adjusting for the age composition of the population; this minimum equals 2,100 calories per capita per day. The mission estimated the yearly per capita income needed to buy a minimum food basket at RD\$ 262.31 in 1980 pesos<sup>55</sup>.

The evolution of absolute poverty can be assessed using the number of minimum food baskets that a measure of average income could buy. Both per capita personal income and per capita GDP showed a trend of lessening absolute poverty: in 1970, they could buy 2.54 and 2.91 baskets, respectively, while in 1978 they could buy 3.98 and GDP 4.32 baskets, respectively. Meanwhile, per capita value added in agriculture, although showing some improvement in 1978-1979, yielded an almost constant purchasing power of 1.6 baskets over the period.

- 5.05 A poverty line does not indicate the percentage of the population below and above it and how income is distributed among different segments of the population. The assessment of these issues involves looking at the relative distribution of income. The Dominican government has conducted two income and expenditures surveys, one in 1976-1977 and the other in November 1984.

These surveys showed two disturbing problems: (1) expenditures for the poorest 50 percent were higher than income and (2) total income derived from the surveys underestimated national income from national accounts, by 50 percent in 1976-1977 and 10 percent in 1984. Although in both cases the authorities claimed to have estimated self-consumption properly, the first problem suggests that they did not. The underestimation of income is probably due to a high degree of under-declaration among the higher income groups.

- 5.06 The mission re-calculated the level of income given by the surveys by assuming that income equalled expenditure in the poorest percentiles and by adding to the top 30 percent of the distribution whatever income was lacking, according to the national accounts distributed by each group's participation in that class of income. The adjusted 1976-1977 income and expenditure survey sets at 20 percent the percentage of households living under the poverty line. The situation showed apparent improvement by 1984, when only 15 percent of the households had income levels below the poverty line.

In terms of the overall distribution of income, the adjusted data show improvement from 1976-1977 to 1984: the Kuznets coefficient of concentration went from 0.8814 to 0.674 over the period. Interestingly enough, the Kuznets coefficient also showed an improvement in the distribution of expenditures, as it dropped from 0.56 in 1976-1977 to 0.522 in 1984.

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54 The calculation of a value for this basket was based on the price of one calorie for the poorest 30 percent of the population. The income and expenditure survey of 1976/77 gives the number of calories consumed by each income group and the total expenditure in food and beverages. In prices of those years, one calorie cost RD\$ 0.000263; converted into prices of 1980 using the consumer price index, this value became RD\$ 0.000347. Therefore, the daily cost of 2,100 calories is RD\$ 0.728 in pesos of 1980.

**ANNEX A**  
**FREE TRADE ZONES**

## FTZ STRUCTURE AND REGULATORY FRAMEWORK IN THE DOMINICAN REPUBLIC

A free trade zone (FTZ) is a physically or administratively defined area offering liberalized tax, tariff and/or regulatory conditions designed to attract foreign investment, promote manufactured exports and related infrastructural development and generate foreign exchange earnings. Zone facilities are primarily utilized by foreign firms which have established an offshore manufacturing base to take advantage of the abundant cheap labor and favorable business climate, but domestic manufacturing firms may also set up operations in an FTZ.

FTZs can take different forms:

- \* industrial free zones, also known as export processing zones, convert raw materials into finished manufactures for export, usually through assembly operations;
- \* commercial free zones include the traditional storage and transshipment zones found in ports of entry and are commonly known as "bonded warehouses";
- \* enterprise zones offer tax and regulatory relief to indigenous firms in underdeveloped regions; and
- \* specialized zones cater to specific sectors of the economy, such as agroindustry, duty-free shopping, data processing or financial services.<sup>56</sup>

FTZs have proliferated the past decade in newly industrializing countries that have adopted export-led growth strategies. In countries like Taiwan, there has been successful integration with the local economy, as over 40% of the inputs for FTZ manufactures are of local origin. Unlike Taiwan and other free zones in the Far East where these "backward linkages" are more common, Caribbean and Central American free zones have extremely limited backward linkages.

This problem characterizes Dominican FTZs as well, as local suppliers have demonstrated an inability to provide quality products on timely delivery schedules at internationally competitive prices.<sup>57</sup> These inefficient domestic industries, protected under tariff barriers instituted under the previous import substitution regime, simply cannot compete internationally.

While the labor-intensive export assembly processes typically employed in the FTZs utilize the Dominican Republic's comparative advantage in cheap labor, the lack of backward linkages minimizes both the technology transfer (e.g., marketing and distribution strategies associated with vertical integration) to domestic firms and the benefits to the country's industrial sector as a whole. Until local suppliers develop the ability to provide a major part of the inputs and tariff barriers are reduced for domestic businesses, an enclave situation is bound to persist for FTZ industries

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<sup>56</sup> Free Zone Authority, Ltd., Strategy for Free Zone Development in the Dominican Republic, July 1986, p. 7.

<sup>57</sup> Ibid, p. 12.

in the Dominican Republic.

### A Short History of FTZs in the Dominican Republic

La Romana, the first Dominican FTZ, was created in 1969 as a private, non-profit company by Gulf and Western to provide employment for displaced sugar workers. Over the next fifteen years three more FTZs were established: Santiago, a non-profit zone with mixed private and public ownership (1973); San Pedro de Macoris, a public zone (1974); and Puerto Plata, another public zone (1983).

La Romana recently exhausted its original infrastructural capacity and expanded its operations to La Romana II, which operates as a for-profit enterprise. The Santiago zone is the largest in terms of employees and has yielded positive returns since its second year. Completely owned by the government, the San Pedro zone is the largest zone in terms of number of firms. The Puerto Plata zone was originally conceived as a mixed FTZ like Santiago, but has not been able to attract private investment to date.

Two private zones established during 1986--Itabo and San Isidro--have inaugurated some interesting trends in the development of Dominican FTZs. One such trend is the increasing investment by Fortune 500 multinationals, many of which have twin plant operations in Puerto Rico. There are now 35 firms in the Dominican Republic with twin plant operations, which enable them to benefit from U.S. income tax deferral.<sup>58</sup> In Itabo, for example, eleven of the twelve operating plants also have twin plants in Puerto Rico (Table A-2).

Another trend in these zones involves the installation of higher-technology production processes in industries such as pharmaceuticals and electronics, in which the value added is 25-30%, versus the traditional zone textile operations, which have approximately 15% value added. For example, Itabo has over 70% of its businesses in pharmaceuticals and electronics and San Isidro has over 80% of its firms concentrated in electronics and data processing. While these zones are newer and much smaller in terms of number of firms and employees, the expansion into more sophisticated areas of production could represent a significant long-term trend.

Furthermore, these newer private zones contrast sharply with the established public zones in terms of gearing management and personnel practices and lease agreements toward the needs of large multinational investors. The Itabo personnel department (itself a departure from prior public zone practice, in that the public zones do not have personnel departments) prescreens the zone labor pool, providing a profile of potential workers and their results on different tests (e.g., dexterity). Itabo firms hire their workers exclusively from this pool.

These zones also seek to ensure top-quality communications and maintenance services, which were evident after visits to both facilities. San Isidro, for example, features a satellite earth station to attract electronic and or telecommunications-based industries. (Currently, Caribbean Data

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<sup>58</sup> Under Section 936 of the U.S. Internal Revenue Code, U.S. corporations with twin plant arrangements for production of goods in Puerto Rico, where 65% of a product's labor value must be added, are entitled to a tax credit for Puerto Rico sourced income. Furthermore, Puerto Rico grants additional tax exemption status of up to 90% of income for approved projects for periods ranging from 10 to 25 years. The combination of these two provisions in essence exempts corporations from income tax on their Puerto Rico sourced income. (Source: Investing in the Dominican Republic, Investment Promotion Council, June 1988.)

Processing, a subsidiary of American Airlines, is the largest firm at San Isidro with 600 employees.)

Both the Itabo and San Isidro zones charge their rents in dollars. Itabo's leases range from \$4.00-4.25 per square foot for a six-year term with no prepayment. The initial investment at Itabo was \$12 million, financed by the President of the zone, private Dominican investors (including the construction company that built the facilities) and GTE with an OPIC guarantee. The zone developers expect to break even on their investment by 1990.<sup>59</sup> San Isidro was financed by Grupo Financiero Nacional, a multinational financial corporation. San Isidro charges \$4.00-6.00 per square foot for a four-year term with no prepayment.<sup>60</sup> Both zone administrators expressed discontent at the subsidized leases that the public zones offer, but admitted that they seek a higher-caliber investor than that typically found in the public zones.

### Institutional Structure

The institutional structure and regulatory framework for Dominican free trade zones has been criticized as being very fragmented due to the numerous laws, resolutions and decrees that apply. For every zone and firm operating within a zone, presidential approval is needed. Before it can be obtained, however, several agencies must participate in the process:

- (1) Secretariat of Industry & Commerce--A technical-economic evaluation is conducted by the Industrial-Technical Department, which then submits the application to the National Council of FTZs;
- (2) National Council of FTZs--Appraises the application, informs other government agencies of the application (but has no final decision-making power), then submits it to the President.
- (3) The President--Approves (disapproves) proposed zones and firms via decree. Currently, thirty zones have received Presidential approval.
- (4) Dominican Center for Export Promotion (CEDOPEX)--Grants export licenses.
- (5) Investment Promotion Council--Aids in the promotional aspects for investors (e.g., brochures, seminars).

The Investment Promotion Council has recently drafted a comprehensive package which will consolidate the fragmented rules under one legal framework and extend tax and regulatory relief for longer periods.<sup>61</sup> This draft legislation was not available to the mission since it needs approval from the Dominican Congress before it is made public. Tax and regulatory relief for export-oriented "Class A" FTZ firms is primarily encompassed under Law 299, Industrial Incentives and Protection. The major features for "Class A" enterprises are highlighted below:

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<sup>59</sup> Interview with Mr. Manuel Tavares, President of the Itabo FTZ, October 6, 1988.

<sup>60</sup> Investment Opportunity: Free Zones in the Dominican Republic, Investment Promotion Council, September 1988.

<sup>61</sup> Interview with Robert Brown, USAID long-term advisor to the Investment Promotion Council, October 13, 1988.

- \* Duty and tax free importation of all machinery and raw materials;
- \* Complete exemption from corporate income taxes for 8-20 years;
- \* Freedom from foreign exchange controls, except payment of local expenses at the official exchange rate;
- \* Unrestricted repatriation of profits;
- \* Ability to sell up to 20% of production to local market; and
- \* Financial reporting only for local expenses.

Firms also have preferential access to the U.S. market through such programs as the Caribbean Basin Initiative, the Generalized System of Preferences, and Items 806.3/807 of the U.S. Tariff Schedules.

### **FTZ Financing**

Lack of financing has been cited as a major constraint to FTZ development in previous reports. The regulations differ for the financing of FTZs and the firms within the zones. The Investment Fund Department at the Central Bank (FIDE) approves financing for private zones, establishes the rates, selects intermediary banks and arranges disbursement.

As long as proposed FTZs can create new employment and contribute to the economic development of the region, they qualify for FIDE financing. There must be a minimum of 51% of local capital provided and a feasibility study must accompany the application. Financing is available for infrastructural development and the construction of shells and administrative offices. However, only DR\$4 million, or US\$636,942, is available for each FTZ, with just under US\$800,000 available for zones in very underdeveloped areas. The FTZ will have ten years to pay back the loan with four years grace; in the underdeveloped regions, the zones will have 15 years with 7 years grace. The interest rates are 17% for zones in Santo Domingo and Santiago, 14% for zones on the border with Haiti, and 15% in the rest of the country. The intermediary makes 5%, 7%, and 5%, respectively, for each of the above loan packages, and takes all of the credit risk.<sup>62</sup>

The insufficiency of FIDE's resource base has severely limited its activities in financing private zones. Recall that the Itabo zone was financed in 1986 with US\$12 million of private capital and will only break even after four years, despite charging market lease rates. Keep in mind as well that the maximum annual lending limit is 24% and that there is a negative interest rate environment (current inflation is much higher; 1988 inflation was estimated at 58% from August to the end of the year).<sup>63</sup> Nevertheless, due to the developmental purpose of the zones, FIDE personnel have resisted the urgings of USAID and the World Bank to charge market interest rates

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<sup>62</sup> Programa de Financiamiento Para Empresas de Zonas Francas, FIDE/Central Bank, February 1988.

<sup>63</sup> USAID/Santo Domingo memo from Kenneth Beasley, Program Economist, dated October 11, 1988.

that reflect the real cost of money in the current inflationary environment.<sup>64</sup>

Due to these financing constraints to private zone development, both USAID and the World Bank have provided funds. In 1986 USAID disbursed a grant totalling DR\$12 million, or nearly US\$4 million, for three zones; a pending DR\$20 million loan (US\$3.18 million) is awaiting final approval from FIDE before disbursement.

The approach to financing differs substantially between public and mixed zones and the private zones. The strategy at the public zones emphasizes cost minimization to attract the most cost-conscious investors, usually textile firms. Government subsidies are used to offer investors below-market lease rates.

For example, lease rates are between US\$.84-1.80 per square foot for a four-year term at the San Pedro de Macoris free zone (the land for which was donated by the local government). However, they usually request a down payment as high as 100% of total costs. Santiago charges US\$1.80 per square foot and requires prepayment of 39 months for new tenants, but has struggled with lease contracts written in the early 1970's that fixed rents at DR\$.07 per square foot for years 1-5, DR\$.09 for years 6-10, and DR\$.11 for years 11-15.<sup>65</sup> Given that one peso equals US\$.16 at current exchange rates, the leases therefore charge the equivalent of only a few pennies per month. Furthermore, this prepayment, when discounted at current interest rates, is up to 20% less than the rates charged by the private zones.

Serious problems may result from the government policy of subsidizing public zones. Critics maintain that free trade zones should charge economic rates on their leases to cover their costs.<sup>66</sup> Clearly, there are hidden subsidies with construction financing at the public zones, as well as open subsidies with land grants. The risk in the future is that the government will continue to incur losses in subsidizing the public zones, thereby increasing the public sector deficit, and that the public zones may even crowd out the private zones with their subsidized lease rates.

The World Bank has drafted a policy statement for the Dominican government advocating a market-oriented cost structure in the public zones that would cover their expenses and reduce the subsidies. Part of the problem in controlling public costs associated with the zones involves the failure of the government to conduct cost-benefit analyses for proposed zones on a regular basis. It is recommended that this type of analysis be undertaken to identify direct and hidden costs to the government in the public zones, as well as any such costs arising in the private zones. At the same time, the effects of the zones on indirect employment generation, technology transfer and foreign investment warrant further study.

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<sup>64</sup> Interview with Mr. Robert J. Asselin, Jr., Director of the Private Sector Office, USAID/Santo Domingo, October 7, 1988.

<sup>65</sup> Interview with Mrs. Eddy Diaz de Luna, General Manager at the Santiago FTZ, October 12, 1988.

<sup>66</sup> Interview with Mrs. Eddy Diaz de Luna, General Manager at the Santiago FTZ, 10/12/88

## Firm Financing

Financing is available from FIDE for machinery for private firms whose capital is at least 90% owned by Dominicans. As with the zones, a feasibility study and a credit review must be completed. The criteria for selection are based on employment generation, impact on the balance of payments and the type of industry. The available funding ranges from a minimum of DR\$10,000 to a maximum of DR\$1.5 million, or US\$1,592 and US\$238,853, respectively. The terms are for a minimum of three years and a maximum of 12 years, with a grace period of no more than five years, depending on each project. The interest rates are the same as for the zones, with the same regional differentiation.<sup>67</sup>

These rules are not practical for two reasons: the maximum limit is too low and the ownership rule is too restrictive. Only 18 firms, for example, comprising less than 15% of the firms established in the zones, have total Dominican ownership, and only three are joint ventures (with the U.S., Puerto Rico and Korea).<sup>68</sup> Thus, as in the case of its zone financing, FIDE's contribution has been minor, and the major financing mechanism for zone firms has been through intercompany loans from multinational corporate parents.

Section 936 financing mechanisms have been ineffective at financing new investment in the Caribbean, as approximately US\$14 billion in available funds remains on deposit with Puerto Rican banks instead of being used to finance projects. Even the numerous twin plants that have been established in the Dominican Republic have not benefitted from these funds. One explanation for this unused capital lies in the absence of a tax information exchange treaty between most Caribbean countries, including the Dominican Republic, and the U.S. To address this situation, AID has proposed a program, which will need Congressional approval, whereby the agency will assume up to 100% of the credit risk of investments in the Caribbean.<sup>69</sup>

In October 1988 the World Bank conducted a final appraisal mission for a \$30 million credit for financing private free trade zones at market interest rates. Part of this effort will be devoted to technical assistance designed to strengthen the regulatory and administrative functions of the National Council of Free Zones, as well as streamline procedures at FIDE. Coupled with the efforts of USAID through the Investment Promotion Council, this aid program will hopefully yield needed improvements in both the institutional structure of the free trade zone regulatory process and the information gathering capabilities of these institutions.

In 1988 an interagency committee was set up to develop a national plan for FTZ development and thereby address another area of needed reform: The ad hoc zone approval process currently based on Presidential decree. The committee consists of the Ministry of Finance, the National Council of Free Trade Zones, the Industrial Finance Corporation, the Central Bank, Customs, CEDOPEX and the Investment Promotion Council. While several good ideas and a regional plan have been discussed, the deliberations seem to be waiting for the Ministry of Industry's action. The Investment Promotion Council in particular has conducted two seminars to educate public officials

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<sup>67</sup> Programa de Financiamiento para Empresas de Zonas Francas, FIDE/Central Bank, February 1988.

<sup>68</sup> Investment Promotion Council Survey of Firms in IFZs, June 1988.

<sup>69</sup> "AID Propone Manejar Fondos 936", Listin Diario, Santo Domingo, October 8, 1988.

on FTZs, and the result has been to discourage two zones from being established since they were not viable.<sup>70</sup> In other words, there is a conscious effort to limit the creation of FTZs in areas where lack of infrastructure or lack of access to port or other transportation facilities dampens their prospects for success.

The different stages of FTZ development were described by Manuel Tavares, President of the Association of Free Trade Zones and President of the Itabo zone, in a speech presented to the American Chamber of Commerce in Santo Domingo on October 12, 1988. The first phase (1970-1985) was characterized by very light, low value-added manufacturing activities, primarily textiles. The second phase, which began in 1986 and continues today, features investments in higher value-added manufacturing, such as pharmaceuticals, and a greater emphasis on computer- and telecommunications-based information services, with data entry (such as the Caribbean Data Services operation at San Isidro) the prime example.

The third phase stresses the integration (backward linkages) of FTZ firms with domestic industries, through the provision of raw materials, spare parts and services (e.g., financial services, insurance, shipping). This phase, toward which Dominican business and government leaders must orient future zone development, will also seek to integrate management and technology between the zones and local industries. Finally, the fourth phase will have local managers and engineers actually designing much more sophisticated products and manufacturing processes, as well as arranging marketing and distribution.

### Outlook for the Future

According to the Investment Promotion Council, there will be five more zones in operation by the end of the year: Chen Tech (private, for-profit), Barahona (public), Esperanza (private, not-for-profit), Las Americas (private, for-profit) and Moca (public). Six new firms opened in October brought the total of new firms commencing operations in 1988 to 28 and the total of zone firms to 218. The government has granted approval for 44 firms for the year, so it seems that projections of 20,000 new jobs created during the last quarter of 1988 may be realistic.

The boom of the FTZs has been very pronounced since 1985, and it appears that in 1989 the momentum will continue. In addition to the five zones that should be completed by the end of the year, there are six more under construction and eight planned for development. The new zones, together with ongoing construction in existing zones, have led to forecasts for 50,000 new jobs to be created in 1989.<sup>71</sup>

The outlook for continued growth, although favorable in the near future, depends greatly upon factors external to the Dominican economy. If the CBI is emphasized by the Bush administration, foreign direct investment should continue in the Dominican Republic, and the FTZs will continue to grow. However, if the U.S. is hit by recession, a repetition of the bleak FTZ performance of the early 1980's would be inevitable. Dominicans must also count on continued access to the U.S. market and the ability of the Bush administration to resist protectionist pressures.

Moreover, before the Dominican Republic can achieve greater local integration with and benefits

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<sup>70</sup> Interview with A. Rodriguez, IPC, op cit.

<sup>71</sup> Ibid.

from the FTZs, the serious constraints described above will need to be addressed. The extremely high level of tariffs in the domestic industry must eventually be reduced, a goal toward which the government and business should work as a common strategy. Other constraints are primarily financial and institutional, and USAID and World Bank efforts have been geared toward effecting reforms in these areas.

TABLE A-1  
DOMINICAN REPUBLIC: FREE TRADE ZONE CHARACTERISTICS, 1969-1988

Zone (Start-Up Date)	Ownership structure	Number of firms	Number of employees	Industrial breakdown	
La Romana I (1969) La Romana II (1988)	private; FP	29	14,115	Textiles	85.8%
				Elec.	7.1%
				Other	7.2%
Santiago I (1973) Santiago II	mixed; NFP	58	30,000	Textiles	66.0%
				Tobacco	12.0%
				Leather	5.0%
				Shoes	9.0%
				Other	8.0%
San Pedro de Macoris (1974)	public	72	27,000	Textiles	55.5%
				Shoe/Leather	19.4%
				Elec.	4.2%
				Food	4.2%
				Jewelry	5.6%
				Other	11.1%
Puerto Plata (1983)	public	11	1,898	Textiles	60.0%
				Shoes	20.0%
				Others	20.0%
Itabo (1986)	private; FP	7	1,550	Elec.	43.0%
				Pharm.	29.0%
				Textiles	14.0%
				Other	14.0%
Bani (1986)	private; NFP	8	1,900	Textiles	75.0%
				Furniture	12.5%
				Other	12.5%
San Isidro (1986)	private; FP	5	443	Elec.	60.0%
				Data Proc.	20.0%
				Textiles	20.0%
La Vega (1987)	public	13	2,600	Textiles	85.0%
				Shoes	7.5%
				Elec.	7.5%
Villa Mella (1988)	private; FP	1	84	Furniture	100.0%
Villa Altagracia (1988)	private; NFP	1	250	Sports Gear	100.0%
Special zones		7	3,000	Agroindustry	
TOTAL		212	82,840	Textiles	63.0%
				Elec.	6.0%
				Shoes/Leather	12.0%
				Other	19.0%

Key  
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FP--For profit  
NFP--Not for profit

SOURCES: National Council of Free Trade Zones; Investment Promotion Council

TABLE A-2  
 DOMINICAN REPUBLIC: ITABO FIRMS WITH  
 TWIN PLANT OPERATIONS, 1986-1988

Corporation/Start-Up Date -----	Number of Plants -----	Twin Plant -----
Eli Lilly & Co. (1988)	1	yes
Bristol Myers (1988)	1	yes
Johnson & Johnson (1988)	1	yes
Hoover Industries (1988)	1	no
Baxter Travenol (1987)	2	yes
Hanes (1987)	1	yes
Westinghouse Elec. (1986)	5	yes

SOURCES: Zone administration; IPC Study, 1988

**ANNEX B**  
**POPULATION**

**TABLE B-1**  
**DOMINICAN REPUBLIC: TOTAL POPULATION BY GENDER AND ANNUAL**  
**POPULATION GROWTH RATE, 1970-1988**  
**(thousands)**

Year -----	Total -----	Male -----	Female -----	Growth rate per thousand -----
1970	4422.7	2244.6	2178.1	
1971	4546.9	2307.9	2239.0	28.1
1972	4671.3	2371.3	2300.0	27.4
1973	4796.2	2434.9	2361.3	26.7
1974	4921.8	2498.9	2422.9	26.7
1975	5048.5	2563.5	2485.0	25.7
1976	5175.6	2628.2	2547.4	25.2
1977	5302.8	2693.1	2609.7	24.6
1978	5431.4	2758.6	2672.8	24.2
1979	5562.3	2825.3	2737.0	24.1
1980	5696.9	2893.9	2803.0	24.2
1981	5835.7	2964.6	2871.1	24.3
1982	5977.8	3037.0	2940.8	24.4
1983	6122.6	3110.8	3011.8	24.2
1984	6269.1	3185.4	3083.7	23.9
1985	6416.3	3260.3	3156.0	23.5
1986	6564.9	3335.9	3229.0	23.2
1987	6715.6	3412.7	3302.9	23.0
1988	6867.3	3489.8	3377.5	22.6

SOURCE: Mission estimates based on ONE/CILADE,  
 Estimaciones y Proyecciones de Poblacion 1950-2025

TABLE B-2  
DOMINICAN REPUBLIC: POPULATION BY GENDER AND AGE GROUP, 1970-1988

Age groups -----	1970 ----	1975 ----	1980 ----	1985 ----
<b>Both Sexes</b>				
<b>Total</b>	4,422,755	5,048,498	5,696,855	6,396,386
0 - 4	801,843	815,065	844,834	930,636
5 - 9	707,697	775,787	795,074	828,595
10 - 14	583,594	698,442	766,969	786,373
15 - 19	463,068	569,673	683,941	751,312
20 - 24	371,981	447,363	552,957	665,333
25 - 29	295,040	358,236	432,632	536,352
30 - 34	249,241	284,304	346,662	419,742
35 - 39	211,177	241,794	276,485	337,936
40 - 44	189,396	204,312	234,476	268,600
45 - 49	133,205	181,985	196,691	226,213
50 - 54	115,265	126,019	173,134	187,560
55 - 59	96,105	107,007	117,505	162,806
60 - 64	73,161	86,624	97,118	87,038
65 - 69	56,167	62,771	75,183	85,129
70 - 74	38,587	44,580	50,661	61,583
75 - 79	22,579	26,981	31,768	36,818
80 and over	14,649	17,555	20,765	24,860
<b>Males</b>				
<b>Total</b>	2,244,637	2,563,450	2,893,871	3,260,301
0 - 4	407,109	413,882	429,545	473,452
5 - 9	358,637	393,204	403,236	420,533
10 - 14	295,619	353,849	388,671	398,784
15 - 19	235,147	289,194	347,123	381,426
20 - 24	189,064	228,169	281,691	338,756
25 - 29	149,311	182,553	221,129	273,735
30 - 34	125,448	143,819	176,585	214,454
35 - 39	105,320	121,849	140,003	172,285
40 - 44	96,785	102,209	118,428	136,285
45 - 49	68,333	93,423	98,750	114,628
50 - 54	60,033	64,950	89,060	94,343
55 - 59	51,378	55,692	60,425	83,265
60 - 64	38,350	46,013	50,138	54,670
65 - 69	28,399	32,375	39,351	43,287
70 - 74	18,376	21,958	25,550	31,540
75 - 79	10,733	12,403	15,102	17,901
80 and over	6,595	7,908	9,084	10,937
<b>Females</b>				
<b>Total</b>	2,178,118	2,485,048	2,802,984	3,136,085
0 - 4	394,734	401,183	415,289	457,184
5 - 9	349,060	387,583	391,838	407,542
10 - 14	287,975	344,593	378,298	387,589
15 - 19	227,921	280,479	336,818	369,886
20 - 24	182,917	219,194	271,266	326,577
25 - 29	145,729	175,683	211,503	262,617
30 - 34	123,793	140,485	170,077	205,288
35 - 39	105,857	119,945	136,482	165,651
40 - 44	92,611	102,103	116,048	132,315
45 - 49	64,872	88,562	97,941	111,585
50 - 54	55,232	61,069	84,074	93,217
55 - 59	44,727	51,315	57,080	79,541
60 - 64	34,811	40,611	45,980	52,368
65 - 69	27,768	30,396	35,832	41,842
70 - 74	20,211	22,622	25,111	30,043
75 - 79	11,846	14,578	16,666	18,917
80 and over	8,054	9,647	11,681	13,923

SOURCE: ONE/CELADE, Estimaciones y Proyecciones de Poblacion, 1950-2025

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TABLE B-3  
DOMINICAN REPUBLIC: POPULATION GROWTH, 1960-1985  
(thousands of persons per year)

Period	Births (a)	Deaths (b)	Natural Growth (c = a-b)	Migration (d)	Population Growth (e = c-d)
1960-1965	174	52	122	-7	115
1965-1970	185	50	135	-11	124
1970-1975	184	47	137	-12	125
1975-1980	187	45	142	-12	130
1980-1985	203	45	158	-14	144

SOURCE: ONE/CELADE, Estimaciones y Proyecciones de Poblacion 1950-2025

TABLE B-4  
DOMINICAN REPUBLIC: ESTIMATED DEMOGRAPHIC INDICATORS, 1960-1985  
(per thousand except where indicated)

Indicator	1960- 1965	1965- 1970	1970- 1975	1975- 1980	1980- 1985
<b>Fertility</b>					
Crude Birth Rate (a)	49.4	44.9	38.9	34.9	33.6
Global Fertility Rate	7.3	6.7	5.6	4.7	4.2
<b>Mortality</b>					
Gross Death Rate (b)	14.7	12.1	9.8	8.4	7.5
Infant Mortality Rate	117.5	105.0	93.5	84.3	74.5
Life Expectancy at Birth (years)					
Total	53.6	57.0	59.9	62.1	64.1
Male	52.1	55.4	58.1	60.3	62.2
Female	55.2	58.7	61.8	64.0	66.1
<b>Natural Growth</b>					
Natural Growth Rate (c = a-b)	34.7	32.8	29.1	26.5	26.1
<b>Migration</b>					
Net Migration Rate (d)	-2.0	-2.7	-2.5	-2.3	-2.3
<b>Population Growth</b>					
Population Growth Rate (e = c-d)	32.7	30.1	26.6	24.2	23.8

SOURCE: ONE/CELADE, Estimaciones y Proyecciones de Poblacion 1950-2025

**TABLE B-5**  
**DOMINICAN REPUBLIC: DEMOGRAPHIC CHANGES, 1970-1988**  
 (per thousand except where indicated)

Indicator -----	1970 (1) ----	1988 (2) ----	Change 1970-1988	
			Absolute*	Relative**
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<b>Fertility</b>				
Crude Birth Rate	41.9	32.2	-9.7	23.2
Global Fertility Rate	6.2	3.9	-2.3	37.1
<b>Mortality</b>				
Gross Mortality Rate	11.0	7.1	-3.9	35.5
Infant Mortality Rate	99.3	68.8	-30.5	30.7
Life Expectancy at Birth (years)				
Total	58.4	65.2	6.8	-11.6
Male	56.8	63.2	6.4	-11.3
Female	60.3	67.3	7	-11.6
Natural Growth	30.9	25.1	-5.8	18.8
Migration	-2.6	-2.5	0.1	3.8
Population Growth	28.3	22.6	-5.7	20.1

NOTES: \* = (2) - (1)

\*\* =  $(1 - \{(2)/(1)\}) * 100$

SOURCE: Mission estimates based on ONE/CELADE, Estimaciones y Proyecciones de Poblacion 1950-2025

**TABLE B-6**  
**COMPARATIVE NATURAL POPULATION GROWTH TRENDS IN LATIN**  
**AMERICA, CENTRAL AMERICA AND THE DOMINICAN REPUBLIC, 1950-1985**  
 (per thousand except where indicated)

Indicator -----	1950- 1955 ----	1955- 1960 ----	1960- 1965 ----	1965- 1970 ----	1970- 1975 ----	1975- 1980 ----	1980- 1985 ----
<b>Fertility</b>							
<b>Crude Birth Rate</b>							
Latin America	42.6	41.9	41.2	37.9	35.6	33.5	31.9
Central America	49.5	49.0	47.6	44.9	42.6	40.9	38.8
Dominican Republic	50.5	50.5	49.4	44.5	38.8	34.9	33.6
<b>Global Fertility Rate</b>							
Latin America	5.9	5.9	6.0	5.5	5.0	4.5	4.2
Central America	6.8	6.9	6.9	6.6	6.1	5.7	5.2
Dominican Republic	7.4	7.4	7.3	6.7	5.6	4.7	4.2
<b>Mortality</b>							
<b>Gross Death Rate</b>							
Latin America	15.7	13.8	12.4	11.0	9.8	8.9	8.2
Central America	19.9	17.6	15.4	13.2	11.3	9.7	8.4
Dominican Republic	20.3	17.4	14.7	12.1	9.8	8.4	7.5
<b>Life Expectancy at Birth (years)</b>							
Latin America	51.6	54.4	56.8	58.8	60.9	62.8	64.4
Central America	45.6	48.7	51.8	54.8	57.9	60.8	63.4
Dominican Republic	46.0	50.0	53.6	57.0	59.9	62.1	64.1
<b>Natural Growth Rate</b>							
Latin America	7.0	28.1	28.8	26.9	25.8	24.6	23.7
Central America	29.5	31.4	32.2	31.6	31.3	31.1	30.4
Dominican Republic	30.2	33.1	34.7	32.7	29.0	26.5	26.1

SOURCE: IEPD/CELADE, Republica Dominicana: Poblacion y Desarrollo  
 1950-1985, San Jose, 1988

TABLE B-7  
DOMINICAN REPUBLIC: INTERNAL MIGRATION,  
BY REGION AND SUB-REGION, 1970-1981  
(thousands)

Region/Sub-region	1970			1981			1970-1981			Ratio of emigrants/ total population		
	Immigration	Emigration	Net	Immigration	Emigration	Net	Immigration	Emigration	Net	1981/1970	1970	1981
NATIONAL	376.8	376.8	0.0	655.6	655.6	0.0	278.8	278.8	0.0	1.74		
Southeast	320.4	37.5	282.9	585.2	53.3	531.9	264.8	15.8	249.0	1.42		
Valdesia	350.8	47.3	303.5	634.5	64.7	569.8	283.7	17.4	266.3	1.37	5.2%	4.2%
Yuma	38.0	58.6	-20.6	40.6	78.4	-37.8	2.6	19.8	-17.2	1.34	15.4%	15.0%
Cibao	38.0	261.7	-223.7	50.0	428.2	-378.2	12.0	166.5	-154.5	1.64		
Central	60.7	224.0	-163.3	77.7	281.5	-203.8	17.0	57.5	-40.5	1.26	19.8%	18.7%
East	58.0	103.9	-45.9	55.0	186.1	-131.1	-3.0	82.2	-85.2	1.79	18.5%	24.2%
West	30.6	45.0	-14.4	31.2	74.5	-43.3	0.6	29.5	-28.9	1.66	21.3%	22.1%
Southwest	18.4	77.7	-59.3	20.4	174.2	-153.8	2.0	96.5	-94.5	2.24		
El Valle	12.4	54.0	-41.6	16.6	103.0	-86.4	4.2	49.0	-44.8	1.91	14.8%	19.3%
Enriquillo	16.7	34.3	-17.6	12.1	79.5	-67.4	-4.6	45.2	-49.8	2.32	14.9%	23.6%

NOTE: Regional totals may differ from sum of sub-regions to the extent that they exclude intra-regional movements (i.e., between sub-regions from the same region).

SOURCE: ONE, as reported in

**TABLE B-8**  
**DOMINICAN REPUBLIC: ESTIMATED URBAN-RURAL DISTRIBUTION**  
**OF POPULATION, 1970-1988**

	1970	1975	1980	1985	1988	
	----	----	----	----	----	
<b>Population (000s)</b>						
Total	4422.8	5048.5	5696.9	6416.3	6865.1	
Urban	1782.4	2276.9	2876.9	3573.9	3997.0	
Rural	2640.4	2771.6	2820.0	2842.4	2868.1	
<b>Distribution</b>						
Total	100.0%	100.0%	100.0%	100.0%	100.0%	
Urban	40.3%	45.1%	50.5%	55.7%	58.2%	
Rural	59.7%	54.9%	49.5%	44.3%	41.8%	
<b>Average annual growth rates</b>						
		1970-75	1975-80	1980-85	1985-88	
		-----	-----	-----	-----	
Total			2.7%	2.5%	2.4%	2.3%
Urban			5.0%	4.8%	4.4%	3.8%
Rural			1.0%	0.4%	0.2%	0.3%

SOURCE: Mission estimates based on ONE/CELADE and  
World Bank projections

**TABLE B-9**  
**DOMINICAN REPUBLIC: RURAL POPULATION, 1970-1985**  
**(000s)**

Year	Total Population	Rural		Rate of growth
		Population	% of total	
----	-----	-----	-----	-----
1970	4422.8	2666.9	60.3%	
1971	4547.0	2686.1	59.1%	0.7%
1972	4671.3	2703.5	57.9%	0.6%
1973	4796.2	2719.4	56.7%	0.6%
1974	4921.8	2733.9	55.5%	0.5%
1975	5048.5	2747.3	54.4%	0.5%
1976	5175.9	2759.4	53.3%	0.4%
1977	5302.8	2769.6	52.2%	0.4%
1978	5431.3	2779.1	51.2%	0.3%
1979	5562.3	2788.3	50.1%	0.3%
1980	5696.9	2797.7	49.1%	0.3%
1981	5835.6	2807.7	48.1%	0.4%
1982	5977.8	2817.6	47.1%	0.4%
1983	6122.7	2827.3	46.2%	0.3%
1984	6269.1	2836.1	45.2%	0.3%
1985	6416.3	2843.7	44.3%	0.3%

SOURCE: Mission calculations based on UNO and  
World Bank estimates.

**TABLE B-10**  
**DOMINICAN REPUBLIC: CHARACTERISTICS OF RURAL**  
**POPULATION, 1970, 1980 AND 1982**

**Age Composition**  
 -----

Age group (years)	1970		1980	
	% of total	Combined % of total	% of total	Combined % of total
0 - 4	17.8%		18.5%	
5 - 9	17.2%	35.0%	15.4%	33.9%
10 - 14	14.7%	49.7%	13.7%	47.6%
15 - 19	10.5%	60.2%	11.5%	59.1%
20 - 24	7.5%	67.7%	7.8%	66.9%
25 - 29	5.7%	73.4%	5.4%	72.3%
30 - 34	4.9%	78.3%	4.7%	77.0%
35 - 39	5.0%	83.3%	4.3%	81.3%
40 - 44	4.2%	87.5%	3.9%	85.2%
45 - 49	3.0%	90.5%	3.5%	88.7%
50 - 54	2.8%	93.3%	3.6%	92.3%
55 - 59	1.6%	94.9%	1.7%	94.0%
60 - 64	1.9%	96.8%	2.1%	96.1%
65 - 69	0.9%	97.7%	1.3%	97.4%
70 and over	2.3%	100.0%	2.6%	100.0%

**Masculinity Index**  
 (October 1980)  
 -----

Age group (years)	Index
-----	-----
10 - 19	109.2
20 - 29	100.0
30 - 39	104.1
40 - 49	103.0
50 and over	128.9

**SOURCES: 1970 Population Census;**  
**National Rural Labor Force Survey**

TABLE B-11  
DOMINICAN REPUBLIC: INTERNATIONAL ENTRIES AND EXITS  
OF DOMINICANS, 1960-1984

	1960- 1964	1965- 1969	1970- 1974	1975- 1979	1980- 1984
	----	----	----	----	----
<b>Dominicans with permanent residence in the D.R.</b>					
Entries	185,200	425,462	582,959	784,681	823,094
Exits	214,699	493,849	676,379	965,619	876,763
Balance	(29,499)	(68,387)	(93,420)	(180,938)	(53,669)
<b>Dominicans with permanent residence abroad</b>					
Entries	1,779	27,990	146,004	238,500	621,260
Exits	1,745	20,697	96,340	121,541	528,294
Balance	34	7,293	49,664	116,959	92,966
<b>Total</b>					
Entries	186,979	453,452	728,963	1,023,181	1,444,354
Exits	216,444	514,546	772,719	1,087,160	1,405,057
Balance	(29,465)	(61,094)	(43,756)	(63,979)	39,297

NOTE: \*--Passengers counted at official checkpoints only; illegal movements not included.

SOURCES: ONE, Estadística Demográfica and Republica Dominicana en Cifras, various issues.

TABLE B-12  
DOMINICAN REPUBLIC: LEGAL MIGRATION TO THE  
UNITED STATES, 1961-1983

Period	U.S. visas issued to Dominican citizens				Immigrants admitted to U.S.
	Resident		Non-resident		
	Total	Annual Average	Total	Annual Average	
-----	-----	-----	-----	-----	-----
1961-1970	91,354	9,135	231,423	23,142	69,212
1971-1980	126,631	12,663	333,510	33,351	141,578
1981-1983	47,237	15,746	125,143	41,714	----
Total	265,222	11,531	690,076	30,003	210,790

SOURCE: IRPD/CELADE, Republica Dominicana, Poblacion y Desarrollo 1950-1985, San Jose, 1988

**ANNEK C**  
**URBAN LABOR MARKETS**

TABLE C-1  
DOMINICAN REPUBLIC: LABOR MARKET SEGMENTATION, 1960-1981

	1960		1970		1981	
	(000) -----	% --	(000) -----	% --	(000) -----	% --
Labor Force	856.5	100.0%	1239.0	100.0%	1915.4	100.0%
Employed	685.2	80.0%	940.5	75.9%	1518.9	79.3%
Unemployed	171.3	20.0%	298.5	24.1%	396.5	20.7%
Urban Labor Force	284.4	33.2%	565.0	45.6%	1068.5	55.8%
Employed	227.5	26.6%	428.9	34.6%	890.1	46.5%
Formal	130.9	15.3%	283.1	22.8%	647.1	33.8%
Informal	69.2	8.1%	108.2	8.7%	185.3	9.7%
Domestic Service	27.4	3.2%	37.6	3.0%	57.7	3.0%
Unemployed	56.9	6.6%	136.1	11.0%	178.4	9.3%
Rural Labor Force	572.1	66.8%	674.0	54.4%	846.9	44.2%
Employed	457.7	53.4%	511.6	41.3%	628.8	32.8%
Modern	110.3	12.9%	167.4	13.5%	255.2	13.3%
Traditional	347.4	40.5%	344.2	27.8%	373.6	19.5%
Unemployed	114.4	13.4%	162.4	13.1%	218.1	11.4%

SOURCE: Mission estimates, based on Population Censuses of 1960, 1970 and 1981, and on PREALC, El Mercado Laboral en Cifras, 1980

TABLE C-2  
DOMINICAN REPUBLIC: AVERAGE ANNUAL LABOR FORCE GROWTH,  
BY SEGMENT, 1960-1981

	1960-1981		1960-1970		1970-1981	
	(000) -----	rate ----	(000) -----	rate ----	(000) -----	rate ----
Labor Force	50.4	3.9%	38.3	3.8%	61.4	4.0%
Employed	39.7	3.9%	25.4	3.2%	52.6	4.5%
Unemployed	10.7	4.1%	12.9	5.7%	8.8	2.6%
Urban Labor Force	37.3	6.5%	28.1	7.1%	45.7	6.0%
Employed	31.6	6.7%	20.1	6.5%	41.9	6.9%
Formal	24.6	7.9%	15.2	8.0%	33.0	7.8%
Informal	5.5	4.8%	3.9	4.6%	7.0	5.0%
Domestic Service	1.5	3.6%	1.0	3.2%	1.9	4.0%
Unemployed	5.7	5.6%	8.0	9.1%	3.8	2.5%
Rural Labor Force	13.1	1.9%	10.2	1.7%	15.7	2.1%
Employed	8.1	1.5%	5.3	1.1%	10.7	1.9%
Modern	6.9	4.1%	5.6	4.3%	8.0	3.9%
Traditional	1.2	0.3%	-0.3	-0.1%	2.7	0.7%
Unemployed	5.0	3.2%	4.9	3.6%	5.0	2.8%

SOURCE: Mission estimates, based on Population Censuses of 1960, 1970 and 1981, and on PREALC, El Mercado Laboral en Cifras, 1980

TABLE C-3  
DOMINICAN REPUBLIC: COMPOSITION OF LABOR FORCE GROWTH,  
BY SEGMENT, 1960-1981

	1960-1981		1960-1970		1970-1981	
	(000)	%	(000)	%	(000)	%
Labor Force	1058.9	100.0%	382.5	100.0%	676.4	100.0%
Employed	833.7	78.7%	255.3	66.7%	578.4	85.5%
Unemployed	225.2	21.3%	127.2	33.3%	98.0	14.5%
Urban Labor Force	784.1	74.0%	280.6	73.4%	503.5	74.4%
Employed	662.6	62.6%	201.4	52.7%	461.2	68.2%
Formal	516.2	48.7%	152.2	39.8%	364.0	53.8%
Informal	116.1	11.0%	39.0	10.2%	77.1	11.4%
Domestic Service	30.3	2.9%	10.2	2.7%	20.1	3.0%
Unemployed	121.5	11.5%	79.2	20.7%	42.3	6.3%
Rural Labor Force	274.8	26.0%	101.9	26.6%	172.9	25.6%
Employed	171.1	16.2%	53.9	14.1%	117.2	17.3%
Modern	144.9	13.7%	57.1	14.9%	87.8	13.0%
Traditional	26.2	2.5%	-3.2	-0.8%	29.4	4.3%
Unemployed	103.7	9.8%	48.0	12.5%	55.7	8.2%

SOURCE: Mission estimates, based on Population Censuses of 1960, 1970 and 1981, and on PREALC, El Mercado Laboral en Cifras, 1980

TABLE C-4  
DOMINICAN REPUBLIC: GENERAL GOVERNMENT EMPLOYMENT\*, 1970-1983

Year	Total	Index (1970=100)
1970	99,232	100.0
1971	101,526	102.3
1972	98,453	99.2
1973	100,841	101.6
1974	115,712	116.6
1975	117,045	118.0
1976	116,738	117.6
1977	122,013	123.0
1978	129,161	130.2
1979	169,972	171.3
1980	187,180	188.6
1981	193,947	195.4
1982	201,301	202.9
1983	204,299	205.9

NOTE: \*--Includes central and local governments and autonomous institutions.

SOURCE: Central Bank

TABLE C-5  
DOMINICAN REPUBLIC: APPARENT UNEMPLOYMENT RATES, 1970-1983

Year	National	Urban Areas	Rural Areas	Santo Domingo
----	-----	-----	-----	-----
1970 (1)	24.1%	24.0%	24.0%	24.9%
1973 (2)				20.0%
1977 (2)				24.2%
1979 (2)				19.3%
1980 (2)		19.0%	26.1%	21.4%
1981 (1)	20.7%	18.2%	22.8%	
1983 (2)				21.7%

SOURCES: (1) Population Censuses  
(2) Household Surveys

TABLE C-6  
DOMINICAN REPUBLIC: COMPOSITION OF UNEMPLOYED POPULATION  
AND UNEMPLOYMENT RATES, JUNE 1980

	Composition		
	Total	Primary workers	Secondary workers
	-----	-----	-----
Total	100.0%	15.4%	84.6%
Experienced workers	56.0%	14.4%	41.6%
Inexperienced workers	44.0%	1.0%	43.6%
	Unemployment rates		
	-----	-----	-----
Total	19.0%	9.1%	23.7%
Experienced workers	10.6%	8.5%	11.7%
Inexperienced workers	8.4%	0.6%	12.0%

SOURCE: ONAPLAN/ONE, La situación del empleo en la zona urbana en junio de 1980, Santo Domingo, 1982

TABLE C-7  
DOMINICAN REPUBLIC: COMPOSITION OF UNEMPLOYED POPULATION,  
BY MEANS OF SUBSISTENCE AND PRIMARY/SECONDARY SECTOR, JUNE 1980

Means of subsistence -----	Total -----	Primary workers -----	Secondary workers -----
Total	100.0%	100.0%	100.0%
Family aid	66.1%	25.9%	73.5%
Occasional jobs	24.8%	61.5%	18.2%
Other*	9.1%	12.6%	8.3%

NOTE: \*--Includes savings, rents, etc.

SOURCE: ONAPLAN/ONE, La situacion del empleo en la zona urbana  
en junio de 1980, Santo Domingo, 1982

TABLE C-8  
SANTO DOMINGO: EVOLUTION OF EMPLOYMENT AND LABOR INCOME,  
BY LABOR MARKET SEGMENT, FEBRUARY 1983

	Employment -----		
	Annual growth rate -----	Composition of employment growth -----	% change -----
Employed population (total)	6.5%	100.0%	-6.2%
Government	2.5%	9.0%	-7.0%
Formal Non-government	2.0%	10.9%	-1.6%
Informal	14.6%	64.3%	-4.0%
Domestic service	7.2%	12.7%	-5.2%
Other	3.5%	3.1%	--
Labor force (total)	6.9%		
Unemployed	8.3%		

SOURCE: PREALC, Empleo y politica economica de corto plazo, 1983

TABLE C-9  
 DOMINICAN REPUBLIC: AVERAGE SALARIES BY ECONOMIC ACTIVITY  
 AND INSTITUTIONAL SECTOR  
 1984 - 1986

A - Current Pesos

Date	Agriculture		Mining		Manufactures		Public Utilities	
	Public	Private	Public	Private	Public	Private	Public	Private
Oct. 1984	218.52	101.39	209.14	572.05	234.36	304.45	205.58	430.00
Apr. 1985	256.00	158.09	293.40	768.50	301.36	430.57	311.20	575.20
Oct. 1985	287.50	181.23	312.20	775.92	312.54	490.52	311.20	580.75
Apr. 1986	304.00	181.23	321.60	884.89	358.99	537.09	349.29	682.50
Oct. 1986	304.00	181.23	321.60	884.89	366.34	565.71	349.29	709.50

Date	Construction		Commerce		Transport		Financial Services	
	Public	Private	Public	Private	Public	Private	Public	Private
Oct. 1984	258.14	256.48	302.50	309.58	252.48	303.90	423.61	616.79
Apr. 1985	322.14	293.70	302.50	357.13	277.05	351.85	499.32	791.04
Oct. 1985	322.14	314.08	302.50	430.49	346.76	426.24	552.07	881.70
Apr. 1986	351.55	462.87	381.87	576.90	391.80	573.48	615.63	1068.78
Oct. 1986	351.55	462.87	381.87	653.83	391.80	574.75	615.63	1089.42

Date	Services		Average		
	Public	Private	Public	Private	Total
Oct. 1984	315.57	231.85	292.29	233.05	248.05
Apr. 1985	333.57	275.61	326.91	300.16	306.93
Oct. 1985	404.78	285.78	378.62	336.58	347.22
Apr. 1986	452.92	337.83	425.65	401.58	407.67
Oct. 1986	453.46	346.09	427.96	417.81	420.37

B - Real Salaries in RD\$ of 1980.

Date	CPI	Average		
		Public	Private	Total
		Oct. 1984	1.7693	165.20
Apr. 1985	1.9655	166.32	152.71	156.16
Oct. 1985	2.1660	174.80	155.39	160.30
Apr. 1986	2.3108	184.20	173.78	176.42
Oct. 1986	2.3006	186.02	181.61	182.72

Agricultural salaries.  
 RD\$ of 1980

Date	CPI	Public	Private
Oct. 1984	1.7693	123.51	57.31
Apr. 1985	1.9655	130.25	80.43
Oct. 1985	2.1660	132.73	83.67
Apr. 1986	2.3108	131.56	78.43
Oct. 1986	2.3006	132.14	78.78

**ANNEX D**  
**THE FITZS AND LABOR**

TABLE D-1  
DOMINICAN REPUBLIC: FREE TRADE ZONE GROWTH RATES  
AND EMPLOYMENT TRENDS, 1970-1988

Year	Number of firms	New firms per year	Employees	New jobs per year	Increase	Net foreign exchange (3) (\$US millions)	Increase
1970	2	2	126	126		1.4	
1971	5	3	362	236	187.3%	2.8	100.0%
1972	10	5	1,675	1,313	362.7%	4.8	71.4%
1973	15	5	1,826	151	9.0%	5.3	10.4%
1974	22	7	3,244	1,418	77.7%	9.8	84.9%
1975	29	7	5,072	1,828	56.4%	14.7	50.0%
1976	33	4	6,673	1,601	31.6%	19.5	32.7%
1977	39	6	8,975	2,302	34.5%	26.4	35.4%
1978	48	9	11,545	2,570	28.6%	32.7	23.9%
1979	61	13	14,160	2,615	22.7%	40.0	22.3%
1980	71	10	16,440	2,280	16.1%	44.5	11.3%
1981	77	6	18,317	1,877	11.4%	57.6	29.4%
1982	87	10	18,721	404	2.2%	61.1	6.1%
1983	101	14	19,255	534	2.9%	61.8	1.1%
1984	120	19	25,657	6,402	33.2%	52.1	-15.7%
1985	136	16	30,902	5,245	20.4%	43.1	-17.3%
1986	156	20	51,231	20,329	65.8%	55.1	27.8%
1987	190	34	66,012	14,781	28.9%	98.0	77.9%
1988 (Sept.)	212	22	82,840	16,828	25.5%	100.0	2.0%
1988 (Dec.) (1)	--	--	100,000	17,160	20.7%	140.0	40.0%
1989 (2)	--	--	150,000	50,000	50.0%	--	--
<b>Averages</b>							
-----							
1970-1985		9		1,931		29.9	
1986-Sept. 1988		25		17,313		84.4	
1986-Dec. 1988		--		17,275		98.3	

NOTES: (1) Estimated based on five new zones in operation by December.  
(2) Estimated.  
(3) Reflect costs of leasing space, wages, free zone fees, zone maintenance and services.

SOURCES: Investment Promotion Council; National Council of Free Trade Zones; CECOPEX

TABLE D-2  
DOMINICAN REPUBLIC: PESO EXCHANGE RATES WITH THE  
U.S. DOLLAR, 1982-1988

Year/month -----	Official Bid Rate -----	Parallel Rate -----
1982--January	\$1.00	
1985--January	\$3.26	\$3.26
1985--December	\$2.94	
1986--December	\$3.03	
1987--Jan.-June	\$3.79	
1987--November	\$3.50	\$4.08
1987--November	\$4.40	
1988--February	\$4.96	\$5.32
1988--April	\$5.10	\$6.10
1988--June	\$6.29	\$6.29
1988--September	\$6.28	

SOURCES: Central Bank;  
Investment Promotion Council

TABLE D-3  
DOMINICAN REPUBLIC: FEMALE PARTICIPATION RATES, BY AGE  
GROUP AND AREA OF RESIDENCE, 1960, 1970 AND 1980  
(percent)

Age group (years)	1960 ----			1970 ----			1980 ----		
	Total	Urban	Rural	Total	Urban	Rural	Total	Total	Total
TOTAL	11.0%	21.6%	5.0%	27.0%	29.7%	24.3%	37.5%	33.5%	49.3%
15 - 19	9.0%	18.4%	3.8%	22.6%	22.8%	22.5%	27.9%	19.4%	20.5%
20 - 24	12.2%	25.2%	4.7%	28.6%	33.7%	24.2%	45.3%	41.6%	50.9%
25 - 29	12.2%	25.0%	4.4%	28.8%	25.2%	23.4%	47.5%	45.6%	50.4%
30 - 34	12.2%	24.7%	5.1%	28.9%	34.8%	24.9%	46.2%	44.9%	49.8%
35 - 39	12.4%	23.3%	6.0%	28.1%	33.2%	24.1%	47.1%	46.2%	48.8%
40 - 44	12.6%	24.4%	6.0%	29.8%	32.7%	27.6%	40.9%	38.6%	43.3%
45 - 49	12.9%	22.9%	6.6%	27.9%	31.6%	24.9%	42.5%	37.2%	48.6%
50 - 54	10.9%	19.9%	6.0%	27.5%	28.8%	26.6%	29.7%	24.1%	36.6%
55 - 59	11.1%	18.7%	6.3%	26.9%	27.4%	25.3%	29.3%	28.9%	32.5%
60 - 64	9.3%	14.1%	6.8%	27.8%	25.7%	29.3%	26.5%	20.8%	35.1%
65 - 69	7.2%	10.8%	4.9%	20.9%	21.0%	20.8%	19.8%	11.7%	26.5%
70 - 74	4.5%	6.0%	9.8%	21.5%	17.0%	25.2%	17.1%	9.6%	22.9%
75 and over	2.2%	2.4%	2.2%	20.7%	16.9%	24.0%	9.6%	9.4%	11.6%

SOURCE: ONE, 1960 & 1970 Population Censuses;  
ONE and ONAPLAN, 1980 Urban and Rural Labor Force Surveys,  
as reported in Joeles, 1987.

TABLE D-4  
DOMINICAN REPUBLIC: AGE DISTRIBUTION OF FEMALE  
LABOR FORCE, BY INDUSTRY AND SECTOR OF EMPLOYMENT, 1981

Age group (years)	Total sample		Domestic industries		Free trade zones	
	Number	% of total	Number	% of total	Number	% of total
16 - 19	54	10.2%	19	6.4%	35	15.2%
20 - 24	107	20.2%	32	10.7%	75	32.5%
25 - 29	110	20.8%	54	18.1%	56	24.2%
30 - 34	91	17.2%	58	19.5%	33	14.3%
35 - 39	66	12.5%	45	15.1%	21	9.1%
40 and over	101	19.1%	90	30.2%	11	4.8%
Total	529	100.0%	298	100.0%	231	100.0%

Table D-4a: Workers' Mean Age by Sector and Industry

Total sample	--	35.4	26.9
Food processing	32.4	33.0	27.8
Apparel/textiles	31.6	35.5	26.8
Rubber products	36.5	39.7	31.3
Leather products	29.0	32.9	23.0
Others*	32.5	38.1	25.9

NOTE: \*--Sector includes laboratory, chemical, electronics (components), brushes, tobacco, diamond polishing, plastic toy and surgical equipment industries.

SOURCE: CIPAF survey data as reported in Reyes, 1987

TABLE D-5  
DOMINICAN REPUBLIC: EDUCATIONAL LEVEL OF FEMALE  
LABOR FORCE, BY SECTOR OF EMPLOYMENT, 1981

Level attended	Total sample		Domestic industries		Free trade zone	
	Number	% of total	Number	% of total	Number	% of tot
None	14	2.6%	9	3.0%	5	2.2%
Primary	306	57.8%	176	59.1%	130	56.3%
Secondary	189	35.7%	100	33.6%	89	38.5%
College	20	3.8%	13	4.4%	7	3.0%
Total	529	100.0%	298	100.0%	231	100.0%

SOURCE: CIPAF survey data as reported in Reyes, 1987

TABLE D-6  
DOMINICAN REPUBLIC: MARITAL STATUS OF FEMALE LABOR  
LABOR FORCE, BY AGE GROUP AND SECTOR OF EMPLOYMENT, 1981

Age group (years)	Single					
	Total sample		Domestic industries		Free trade zones	
	Number	% of total	Number	% of total	Number	% of total
16 - 19	40	34.5%	16	24.6%	24	47.1%
20 - 24	33	28.4%	19	29.2%	14	27.5%
25 - 29	32	27.6%	20	30.8%	12	23.5%
30 - 39	8	6.9%	7	10.8%	1	2.0%
40 and over	3	2.6%	3	4.6%	--	
Total/% of total sample	116	21.9%	65	21.8%	51	22.1%
	Common Law/Formal Marriage					
16 - 19	10	4.0%	1	0.8%	9	7.6%
20 - 24	53	21.2%	6	4.5%	47	39.8%
25 - 29	45	18.0%	19	14.4%	26	22.0%
30 - 39	92	36.8%	61	46.2%	31	26.3%
40 and over	50	20.0%	45	34.1%	5	4.2%
Total/% of total sample	250	47.3%	132	44.3%	118	51.1%
	Widowed/Divorced/Separated					
16 - 19	4	2.5%	2	2.0%	2	3.2%
20 - 24	21	12.9%	7	6.9%	14	22.6%
25 - 29	33	20.2%	15	14.9%	18	29.0%
30 - 39	57	35.0%	35	34.7%	22	35.5%
40 and over	48	29.4%	42	41.6%	6	9.7%
Total/% of total sample	163	30.8%	101	33.9%	62	26.8%
TOTAL SAMPLE	529	100.0%	298	100.0%	231	100.0%

SOURCE: CIPAF survey data as reported in Reyes, 1987

TABLE D-7  
DOMINICAN REPUBLIC: HEAD OF HOUSEHOLD STATUS AND INCOME  
PROVISION AMONG FEMALE WORKERS, BY SECTOR OF EMPLOYMENT, 1981

Person	Head of household					
	Total sample		Domestic industries		Free trade zones	
	Number	% of total	Number	% of total	Number	% of total
Female worker	151	30.0%	93	31.3%	58	28.2%
Husband	193	38.4%	99	33.3%	94	45.6%
Both spouses	16	3.2%	9	3.0%	7	3.4%
Worker's mother	57	11.3%	33	11.1%	24	11.7%
Worker's father	63	12.5%	40	13.5%	23	11.2%
Other	23	4.6%	23	7.7%	--	--
Total	503	100.0%	297	100.0%	206	100.0%

Person	Main income provider					
	Total sample		Domestic industries		Free trade zones	
	Number	% of total	Number	% of total	Number	% of total
Female worker	222	42.2%	135	45.8%	87	37.7%
Husband	147	27.9%	77	26.1%	70	30.3%
Worker's mother	20	3.8%	10	3.4%	10	4.3%
Worker's father	44	8.4%	28	9.5%	16	6.9%
Other	93	17.7%	45	15.3%	48	20.8%
Total	526	100.0%	295	100.0%	231	100.0%

SOURCE: CIPAF survey data as reported in Reyes, 1987

TABLE D-8  
DOMINICAN REPUBLIC: FEMALE FREE TRADE ZONE WORKERS'  
ROLE IN FAMILY FOOD PROVISION, BY HOUSEHOLD STATUS, 1981  
(percent)

Household category	Total sample		Worker alone		Worker and others		Worker not involved	
	Number	% of total*	Number	% of total*	Number	% of total*	Number	% of total*
Head of household	43	29.9%	38	88.4%	4	9.3%	1	2.3%
Living with parental family	55	38.2%	6	10.9%	20	36.4%	29	52.7%
Living with spouse	46	31.9%	0	0.0%	22	47.8%	24	52.2%
Total	144	100.0%	44	30.6%	46	31.9%	54	37.5%

NOTE: \*--By household category.

SOURCE: Survey data from Duarte & Corten, 1981

TABLE D-9  
DOMINICAN REPUBLIC: OCCUPATIONAL PROFILE OF FEMALE WORKERS,  
BY INDUSTRY AND SECTOR OF EMPLOYMENT, 1981  
(percent)

Domestic Industries  
-----

Occupation -----	Total sample		Food processing		Apparel/Textiles		Others**	
	Number -----	% of industry -----	Number -----	% of industry -----	Number -----	% of industry -----	Number -----	% of industry -----
Unskilled worker	229	76.8%	47	56.6%	113	86.3%	69	82.1%
Product inspector	25	8.4%	13	15.7%	10	7.6%	2	2.4%
Supervisor	12	4.0%	6	7.2%	5	3.8%	1	1.2%
Custodial	6	2.0%	4	4.8%	--	0.0%	2	2.4%
Others*	26	8.7%	13	15.7%	3	2.3%	10	11.9%
Total	298	100.0%	83	100.0%	131	100.0%	84	100.0%

Free Trade Zones  
-----

Occupation -----	Total sample		Food processing		Apparel/Textiles		Others**	
	Number -----	% of industry -----	Number -----	% of industry -----	Number -----	% of industry -----	Number -----	% of industry -----
Unskilled worker	157	68.0%	2	33.3%	111	78.2%	44	53.0%
Product inspector	18	7.8%	3	50.0%	8	5.6%	7	8.4%
Supervisor	24	10.4%	1	16.7%	15	10.6%	8	9.6%
Custodial	9	3.9%	--	0.0%	7	4.9%	22	26.5%
Others*	23	10.0%	--	0.0%	1	0.7%	2	2.4%
Total	231	100.0%	6	100.0%	142	100.0%	83	100.0%

NOTES: \*--Includes following occupations: labeling, weighing and packaging products.  
 \*\*--Includes following industries: rubber and leather products (FTZs);  
 laboratories, chemicals, electronics (components), brushes, tobacco,  
 diamond polishing and plastic toys.

SOURCE: CIPAF survey data as reported by Reyes, 1987

TABLE D-10  
DOMINICAN REPUBLIC: PREVIOUS JOB EXPERIENCE AND LENGTH OF TIME  
IN PRESENT EMPLOYMENT AMONG FEMALE FREE ZONE WORKERS, 1981

	Previous experience					
	Total sample		Domestic industries		Free trade zone	
	Number	% of total	Number	% of total	Number	% of total
Yes	166	31.5%	92	31.1%	74	32.0%
No	361	68.5%	204	68.9%	157	68.0%
Total	527	100.0%	296	100.0%	231	100.0%

Length of time	Free trade zones	
	Number	% of total
Less than 1 year	77	33.3%
More than 1 year	37	16.0%
More than 2 years	44	19.0%
More than 3 years	19	8.2%
More than 4 years	23	10.0%
5 years	31	13.4%
Total	231	100.0%

SOURCE: CIPAF survey data as reported in Reyes, 1987

TABLE D-11  
DOMINICAN REPUBLIC: POPULATION SURROUNDING LAS AMERICAS  
FREE TRADE ZONE (15 km radius)

Community	Population	EAP	% of pop.	Unemployed	% of EAP
Vista Alegre	649	279	43.0%	84	30.1%
Ens. Progreso	181	85	47.0%	25	29.4%
Los Tanquesitos	2,101	1,028	48.9%	308	30.0%
La Caleta	1,504	763	50.7%	229	30.0%
Ens. Maria Estela	324	155	47.8%	46	29.7%
El Higo	249	117	47.0%	35	29.9%
Los Molinos	159	83	52.2%	25	30.1%
Bella Vista	420	302	71.9%	91	30.1%
Los Frailes	852	409	48.0%	123	30.1%
San Bartolo	225	100	44.4%	30	30.0%
Andres/Boca Chica	15,000	10,050	67.0%	3,015	30.0%
Total	21,664	13,371	61.7%	4,011	30.0%

SOURCE: 1988 survey data obtained from zone administration.

TABLE D-12  
DOMINICAN REPUBLIC: CHARACTERISTICS OF SUBSAMPLE OF  
LAS AMERICAS FREE ZONE LABOR FORCE

Table D-12a: EAP by Sex and Age Group  
-----

Age group (years)	Females		Males		Total	
	Number	% of total	Number	% of total	Number	% of total
15 - 19	159	14.1%	102	23.0%	261	16.6%
20 - 24	271	24.0%	107	24.2%	378	24.0%
25 - 29	224	19.8%	76	17.2%	300	19.1%
30 - 34	186	16.5%	62	14.0%	248	15.8%
35 - 39	137	12.1%	32	7.2%	169	10.7%
40 - 44	75	6.6%	28	6.3%	103	6.5%
45 - 49	43	3.8%	18	4.1%	61	3.9%
50 and over	27	2.4%	14	3.2%	41	2.6%
No response	8	0.7%	4	0.9%	12	0.8%
Total	1,130	100.0%	443	100.0%	1,573	100.0%

Table D-12b: Level of Education  
-----

Years completed	Females		Males		Total	
	Number	% of total	Number	% of total	Number	% of total
Less than 3	147	13.0%	33	7.5%	180	11.5%
3 to 6	329	29.1%	105	23.8%	434	27.6%
7 to 8	222	19.6%	82	18.6%	304	19.3%
9 to 11	238	21.1%	124	28.1%	362	23.0%
High school	164	14.5%	77	17.4%	241	15.3%
College (some)	22	1.9%	16	3.6%	38	2.4%
No response	8	0.7%	5	1.1%	13	0.8%
Total	1,130	100.0%	442	100.0%	1,572	100.0%

SOURCE: 1988 survey data obtained from zone administration.

TABLE D-13  
DOMINICAN REPUBLIC: CHARACTERISTICS OF ITABO LABOR FORCE  
(August 1988)

NUMBER OF WORKERS: 1,941		DISTRIBUTION BY AREA:	
FEMALES	71%	HAINA	49%
MALES	29%	SAN CRISTOBAL	36%
		SANTO DOMINGO	15%

EDUCATIONAL LEVEL BY AREA OF ORIGIN (%):

	HAINA		SAN CRISTOBAL		SANTO DOMINGO	
	M	F	M	F	M	F
	ELEMENTARY	4	8	4	7	12
HIGH SCHOOL	20	59	18	59	30	31
TECHNICAL	1	1	1	1	5	1
UNIVERSITY	2	5	3	7	8	7

PREVIOUS WORK EXPERIENCE (FORMAL SECTOR):

	TOTAL	MALE	FEMALE
YES	22%	39%	61%
NO	78%	27%	72%

SOURCE: Survey data provided by zone administration.

TABLE D-14  
DOMINICAN REPUBLIC: CHARACTERISTICS OF MIGRANTS  
TO SANTO DOMINGO AND SANTIAGO, 1978

Table D-14a: Place of Birth

Santo Domingo			Santiago		
Province	Sub-region	% of new arrivals	Province	Sub-region	% of new arrivals
La Vega	Central Cibao	9.4%	Santiago	Central Cibao	30.9%
Santiago	Central Cibao	9.1%	Puerto Plata	Central Cibao	21.3%
Duarte	East Cibao	7.7%	Valverde	West Cibao	7.7%
San Juan	El Valle	7.5%	Espaillet	Central Cibao	6.7%
San Cristobal	Valdesia	6.9%	La Vega	Central Cibao	6.6%
Espaillet	Central Cibao	6.7%	Monte Cristi	West Cibao	5.0%
Puerto Plata	Central Cibao	6.2%	National Dist.	Valdesia	4.7%
Paravia	Valdesia	5.8%	Santiago Rodriguez	West Cibao	4.7%
Barahona	Enriquillo	5.6%	Others	-----	12.4%
Others	-----	35.1%			
Total		100.0%	Total		100.0%
Number of migrants		3,547	Number of migrants		2,005

Table D-14b: Age at Arrival, by Sex

Age group (years)	Masculinity index*			Masculinity index*		
		Males	Females		Males	Females
0 - 4	99.9	12.8%	9.9%	99.0	17.0%	12.9%
5 - 14	75.9	31.2%	21.8%	81.0	34.6%	32.1%
15 - 24	71.4	33.6%	36.4%	39.0	20.7%	39.9%
25 - 34	89.6	13.0%	11.2%	84.7	15.1%	13.4%
35 - 44	59.8	4.3%	5.6%	75.2	6.5%	6.5%
45 and over	76.9	5.0%	5.0%	86.5	6.1%	5.3%
Total	77.3	100.0%	100.0%	75.1	100.0%	100.0%
Number of cases		1,547	2,002		859	1,143
		43.6%	56.4%		42.9%	57.1%

NOTE: \*--(# of males/# of females)\*100

SOURCES: Ramirez, Survey of Migration to Santo Domingo and Santiago ONE, 1970 National Population Census

TABLE D-15  
DOMINICAN REPUBLIC: PROPORTION OF FEMALE FREE TRADE ZONE WORKERS  
WHO MIGRATED, BY HOUSEHOLD CATEGORY AND ZONE, 1981  
(percent)

Household category -----	Total sample -----	Migrated -----	Did not migrate -----
Head of household	31.5%	82.6%	17.4%
Living with parental family	37.7%	63.6%	36.4%
Living with spouse	30.8%	60.0%	40.0%
Total	100.0%	68.4%	31.6%
Zone ----			
Santiago	36.3%	79.2%	20.8%
La Romana/San Pedro	63.7%	62.4%	37.6%
Total	100.0%	68.5%	31.5%

SOURCE: Survey data from Duarte & Corten, 1981

TABLE D-16  
DOMINICAN REPUBLIC: PROPORTION OF FEMALE FREE TRADE ZONE WORKERS  
WHO DID NOT LIVE WITH ANY OR ALL OF THEIR CHILDREN, 1981  
(percent)

Household category -----	Total sample -----	Eastern sugar region* -----	Santiago -----
Head of household	32.6%	37.0%	26.4%
Living with parental family	7.2%	12.0%	0.0%
Living with spouse	20.0%	24.3%	8.3%
Total	19.2%	23.6%	11.4%

NOTE: \*--Represents combination of San Pedro and La Romana zones.

SOURCE: Survey data from Duarte & Corten, 1981

TABLE D-17  
DOMINICAN REPUBLIC: FREE TRADE ZONE FIRMS AND EMPLOYEES  
IN INPROCA SALARY SURVEY, BY INDUSTRY, AUGUST 1988

Industry/Firms	Location	Employees Surveyed				
		Total	Male	% of total	Female	% of total
<b>Pharmaceuticals</b>						
Baxter Penwol, S.A./Travenol Division	Itabo	306	76	24.8%	230	75.2%
Baxter, S.A./Parinterales Division	Itabo	303	108	35.6%	195	64.4%
Bristol-Myers Industrial Dom., Inc.	Itabo	33	16	48.5%	17	51.5%
Eli Lilly Interamericana	Itabo	25	16	64.0%	9	36.0%
Subtotal		667	216	32.4%	451	67.6%
<b>Textiles</b>						
Hanes Caribe Inc.	Itabo	208	22	10.6%	186	89.4%
La Camisa Dominicana	San Pedro	435	53	12.2%	382	87.8%
Hanes Panama Inc.	San Pedro	580	30	5.2%	550	94.8%
Cari-Flo Manufacturing Corp.	La Romana	442	200	45.2%	242	54.8%
Undergarment Fashions Inc.	San Pedro	1,200	60	5.0%	1,140	95.0%
Warmans LTD.	La Romana	385	12	3.1%	373	96.9%
Subtotal		3,250	377	11.6%	2,873	88.4%
<b>Electronics</b>						
Westinghouse Electric Dom., S.A.	Itabo	521	146	28.0%	375	72.0%
Sylvania Overseas	Itabo	128	40	31.3%	88	68.8%
National Component Industries Inc.	La Romana	993	148	14.9%	845	85.1%
TII Dominicana Inc.	San Pedro	546	55	10.1%	491	89.9%
R.E. PHELON Co. (D.R.), S.A.	San Pedro	1,987	298	15.0%	1,689	85.0%
Integrated Electronics Int'l Inc.	La Romana	175	79	45.1%	96	54.9%
Information Magnetics Caribe, D.R.	San Pedro	128	4	3.1%	124	96.9%
Prime Technology Inc.	San Isidro	95	11	11.6%	84	88.4%
Subtotal		4,573	781	17.1%	3,792	82.9%
<b>Other Industries/Services</b>						
Quality Telecommunications Products (Q-Tel)	Itabo	121	87	71.9%	34	28.1%
Tabacalera de Garcia	La Romana	669	148	22.1%	521	77.9%
Carter Dominicana, S.A.	San Pedro	706	106	15.0%	600	85.0%
Caribbean Data Services	San Isidro	562	248	44.1%	314	55.9%
Subtotal		2,058	589	28.6%	1,469	71.4%
<b>TOTAL</b>		<b>10,548</b>	<b>1,963</b>	<b>18.6%</b>	<b>8,585</b>	<b>81.4%</b>

SOURCE: INPROCA Salary Survey, 1988

TABLE D-18  
DOMINICAN REPUBLIC: DOMESTIC FIRMS AND EMPLOYEES  
IN INPROCA SALARY SURVEY, BY INDUSTRY, AUGUST 1988

Industry/Firms -----	Location -----	Employees Surveyed -----				
		Total -----	Male -----	% of total -----	Female -----	% of tot -----
<b>Pharmaceuticals</b>						
Ciba-Geigy Caribe, S.A.	Santo Domingo	75	47	62.7%	28	37.3%
Productos Quimicos Industriales, C.x A.	Santo Domingo	76	55	72.4%	21	27.6%
Dr. Collado Laboratories, C.x A.	Santo Domingo	335	227	67.8%	108	32.2%
Colgate Palmolive (D.R.) Inc.	Santo Domingo	184	156	84.8%	28	15.2%
Maximo Gomez P., C.x A.	Santo Domingo	164	57	32.3%	111	67.7%
Warner Chilcott Laboratories	Santo Domingo	93	66	71.0%	27	29.0%
Subtotal		927	604	65.2%	323	34.8%
<b>Other Industries/Services--Group A*</b>						
Dominican Electricity Corporation (CDE)	Santo Domingo	5,436	4,403	81.0%	1,033	19.0%
Dominican Telephone Co., C.x A. (CODETEL)	Santo Domingo	3,747	2,245	59.9%	1,502	40.1%
Falconbridge Dominicana, C.x A.	Bonao	1,587	1,534	96.7%	53	3.3%
Dominican National Brewery	Santo Domingo	1,416	1,274	90.0%	142	10.0%
Subtotal		12,186	9,456	77.6%	2,730	22.4%
<b>Other Industries/Services--Group B**</b>						
Dominican Milk Products Co., S.A. (CODAL)/ Dom. Soc. for Food & Conservation, S.A. (SODOCAL)	San Francisco San Cristobal	520	435	83.7%	85	16.3%
Hilanderias Dominicanas, S.A.	Santo Domingo	455	439	96.5%	16	3.5%
Neveras Dominicanas, C.x A.	Santo Domingo	389	353	90.7%	36	9.3%
Industrial Textil del Caribe, C.x A.	Santo Domingo	377	290	76.9%	87	23.1%
Cartonera Dominicana, C.x A.	Santo Domingo	277	263	94.9%	14	5.1%
Ray-O-Vac Dominicana, C.x A.	Santo Domingo	146	100	67.5%	46	31.5%
Refineria Dominicana de Petroleo, S.A.	Haina	120	112	93.3%	8	6.7%
Adams Dominicana, C.x A.	Santo Domingo	116	52	44.8%	64	55.2%
JM Dominicana, C.x A.	Santo Domingo	64	52	81.3%	12	18.8%
Subtotal		2,464	2,096	85.1%	368	14.9%
<b>TOTAL</b>		15,577	12,156	78.0%	3,421	22.0%
<b>FREE ZONE TOTAL***</b>		10,548	1,963	18.6%	8,585	81.4%
<b>SURVEY TOTAL</b>		26,125	14,119	54.0%	12,006	46.0%

NOTES: \*--1,000 or more employees  
 \*\*--Less than 1,000 employees  
 \*\*\*--See Table \_

SOURCE: INPROCA Salary Survey, 1988

TABLE D-19  
DOMINICAN REPUBLIC: AVERAGE MONTHLY SALARIES IN FREE  
ZONES AND DOMESTIC INDUSTRIES, AUGUST 1988  
(Dominican pesos)

Position Category/Type	Free Zones					Domestic Industries		
	All	Pharma- ceuticals	Textiles	Electronics	Other Industries/ Services	Pharma- ceuticals	Other Industries/ Services (Large) (1)	Other Industries/ Services (Small/Med.) (2)
<b>A. Administrative/Managerial</b>								
General Manager	14,500	--	--	--	14,500	11,778	8,000	12,777
Administrative Manager	3,575	4,300	3,000	--	4,000	4,524	5,000	4,030
Plant Manager	3,398	--	--	3,398	--	4,000	10,000	6,291
Financial Manager	7,877	--	3,655	7,475	12,500	6,348	7,700	7,772
Human Resources Manager	5,426	4,700	--	6,555	5,750	5,375	8,821	5,342
Production Manager	4,538	4,688	3,147	2,265	6,774	3,701	6,700	4,609
Maintenance Manager	2,837	--	1,905	2,067	3,918	--	6,233	5,438
Materials Manager	3,270	5,750	--	1,617	--	6,100	5,250	4,609
Data Processing Manager	4,715	--	--	4,715	--	3,700	3,500	4,220
Quality Control Manager	2,338	--	4,000	1,783	--	1,700	8,500	3,222
<b>B. Technical/Middle Management</b>								
Accounting Manager	2,576	3,548	1,680	2,532	2,600	3,018	5,528	2,986
Materials Supervisor	1,266	2,670	1,446	1,123	--	1,163	2,856	1,539
Warehouse Supervisor	1,159	1,950	840	1,031	1,113	1,545	1,350	1,371
Quality Control Supervisor	1,375	2,188	1,120	1,270	1,300	850	5,000	1,720
Production Supervisor	1,488	2,269	1,024	1,276	1,477	1,603	2,467	1,419
Maintenance Supervisor	1,659	3,150	1,659	984	1,517	875	2,586	2,067
Senior Accountant	1,460	1,700	1,560	1,279	1,830	1,677	2,203	1,923
Human Resources Supervisor	2,105	--	1,684	2,561	2,038	3,410	4,385	2,489
Assistant Plant Manager	1,732	--	1,732	--	--	--	--	1,920
Traffic Supervisor	1,482	--	1,351	1,581	--	1,350	--	2,174
Materials Analyst	2,800	2,800	--	--	--	--	1,470	1,325
Cost Accountant	2,767	3,750	--	800	--	1,491	2,300	1,950
Human Resources Assistant	1,133	1,750	868	1,075	775	1,475	2,410	1,343
Industrial Engineer	1,967	--	1,814	2,036	2,023	--	--	1,844
Maintenance Engineer	--	--	--	--	--	--	2,150	2,573
Chemical Engineer	--	--	--	--	--	--	7,000	2,710
Chemist	--	--	--	--	--	1,600	2,157	1,583
Laboratory Technician	1,775	1,775	--	--	--	1,196	1,915	1,201
<b>C. Secretarial/Support Staff</b>								
Bilingual Exec. Secretary	1,741	1,956	1,821	1,567	1,543	1,511	2,630	2,036
Executive Secretary	1,583	--	2,500	800	1,450	1,207	1,466	1,231
Secretary	825	--	771	870	766	952	927	806
Bilingual Secretary	1,292	--	1,100	1,552	1,257	1,375	1,498	1,261
Buyer	1,129	1,950	--	650	787	1,738	2,124	1,571
Office Clerk	727	850	747	662	781	713	961	589
Bilingual Office Clerk	1,111	1,725	805	--	--	--	738	--
Bilingual Receptionist	835	--	1,083	--	588	800	1,198	816
Accounting Clerk	1,098	1,355	979	951	1,237	1,040	1,141	1,079
Keyboard Operator	888	1,255	947	890	615	848	988	999
<b>D. Operation/Productic.. Workers</b>								
Messenger	644	--	637	650	--	662	513	722
Driver	746	688	698	741	848	654	1,045	792
Truck Driver	800	1,000	--	600	--	695	1,060	700
Truck Lift Operator	675	570	665	500	964	1,237	996	684
Maintenance Mechanic	1,027	864	991	914	1,805	1,205	1,118	938
Maintenance Mechanic II	1,565	963	1,749	2,166	1,499	1,794	1,421	1,075
Maintenance Electrician	1,106	988	1,730	854	731	--	1,081	1,231
Electronic Technician I	1,444	--	--	1,767	800	--	1,393	1,215
Electronic Technician II	2,267	--	--	2,267	--	1,465	1,925	2,045
Quality Control Inspector I	659	698	665	649	634	--	--	731
Quality Control Inspector II	835	778	698	--	1,227	880	2,015	635
Machine Tools Operator	759	--	--	650	868	--	1,145	1,038
Machine Operator	531	--	543	530	500	877	860	733
Production Operator	523	506	595	510	505	711	--	590
Warehouse Clerk	655	570	739	634	528	706	911	853
Group Leader	644	713	620	562	791	--	--	650

NOTES: (1) 1,000 or more employees.  
(2) Less than 1,000 employees.

SOURCE: INPROCA, 1988 Salary Survey

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TABLE D-20  
DOMINICAN REPUBLIC: MEDIAN BONUSES PAID BY FIRMS IN  
FREE TRADE ZONES AND DOMESTIC INDUSTRIES, AUGUST 1988  
(percent of base salary)

Position Category/Type	Free Zones					Domestic Industries		
	All	Pharma- ceuticals	Textiles	Electronics	Other Industries/ Services	Pharma- ceuticals	Industries/ Services (Large) (1)	Industri Service (Small/Me (2)
<b>A. Administrative/Managerial</b>								
General Manager	14.72%	--	--	--	15.00%	31.48%	40.88%	36.03%
Administrative Manager	14.72%	16.55%	10.40%	--	15.00%	31.48%	40.88%	36.03%
Plant Manager	14.72%	--	--	9.17%	--	31.48%	40.88%	36.03%
Financial Manager	14.72%	--	10.40%	9.17%	15.00%	31.48%	40.88%	36.03%
Human Resources Manager	14.72%	16.55%	--	9.17%	15.00%	31.48%	40.88%	36.03%
Production Manager	14.72%	16.55%	10.40%	9.17%	15.00%	31.48%	40.88%	36.03%
Maintenance Manager	14.72%	--	10.40%	9.17%	15.00%	--	40.88%	36.03%
Materials Manager	14.72%	16.55%	--	9.17%	--	31.48%	40.88%	36.03%
Data Processing Manager	14.72%	--	--	9.17%	--	31.48%	40.88%	36.03%
Quality Control Manager	14.72%	--	10.40%	9.17%	--	31.48%	40.88%	36.03%
<b>B. Technical/Middle Management</b>								
Accounting Manager	19.29%	18.55%	25.50%	13.13%	25.09%	31.17%	28.88%	42.68%
Materials Supervisor	19.29%	18.55%	25.50%	13.13%	--	31.17%	28.88%	42.68%
Warehouse Supervisor	19.29%	18.55%	25.50%	13.13%	25.09%	31.17%	28.88%	42.68%
Quality Control Supervisor	19.29%	18.55%	25.50%	13.13%	25.09%	31.17%	28.88%	42.68%
Production Supervisor	19.29%	18.55%	25.50%	13.13%	25.09%	31.17%	28.88%	42.68%
Maintenance Supervisor	19.29%	18.55%	25.50%	13.13%	25.09%	31.17%	28.88%	42.68%
Senior Accountant	19.29%	18.55%	25.50%	13.13%	25.09%	31.17%	28.88%	42.68%
Human Resources Supervisor	19.29%	--	25.50%	13.13%	25.09%	31.17%	28.88%	42.68%
Assistant Plant Manager	19.29%	--	25.50%	--	--	--	--	42.68%
Traffic Supervisor	19.29%	--	25.50%	13.13%	--	31.17%	--	42.68%
Materials Analyst	19.29%	18.55%	--	--	--	--	28.88%	42.68%
Cost Accountant	19.29%	18.55%	--	13.13%	--	31.17%	28.88%	42.68%
Human Resources Assistant	19.29%	18.55%	25.50%	13.13%	25.09%	31.17%	28.88%	42.68%
Industrial Engineer	19.29%	--	25.50%	13.13%	25.09%	--	--	42.68%
Maintenance Engineer	--	--	--	--	--	--	28.88%	42.68%
Chemical Engineer	--	--	--	--	--	--	28.88%	42.68%
Chemist	--	--	--	--	--	31.17%	28.88%	42.68%
Laboratory Technician	19.29%	18.55%	--	--	--	31.17%	28.88%	42.68%
<b>C. Secretarial/Support Staff</b>								
Bilingual Exec. Secretary	17.03%	24.22%	10.41%	11.33%	11.08%	34.83%	45.07%	36.06%
Executive Secretary	17.03%	--	10.41%	11.33%	11.08%	34.83%	45.07%	36.06%
Secretary	17.03%	--	10.41%	11.33%	11.08%	34.83%	45.07%	36.06%
Bilingual Secretary	17.03%	--	10.41%	11.33%	11.08%	34.83%	45.07%	36.06%
Buyer	17.03%	24.22%	--	11.33%	11.08%	34.83%	45.07%	36.06%
Office Clerk	17.03%	24.22%	10.41%	11.33%	11.08%	34.83%	45.07%	36.06%
Bilingual Office Clerk	17.03%	24.22%	10.41%	--	--	--	45.07%	--
Bilingual Receptionist	17.03%	--	10.41%	--	11.08%	34.83%	45.07%	36.06%
Accounting Clerk	17.03%	24.22%	10.41%	11.33%	11.08%	34.83%	45.07%	36.06%
Keyboard Operator	17.03%	24.22%	10.41%	11.33%	11.08%	34.83%	45.07%	36.06%
<b>D. Operation/Production Workers</b>								
Messenger	33.05%	--	42.58%	25.33%	--	37.84%	54.20%	53.19%
Driver	33.05%	21.17%	42.58%	25.33%	29.98%	37.84%	54.20%	53.19%
Truck Driver	33.05%	21.17%	--	25.33%	--	37.84%	54.20%	53.19%
Truck Lift Operator	33.05%	21.17%	42.58%	25.33%	29.98%	37.84%	54.20%	53.19%
Maintenance Mechanic	33.05%	21.17%	42.58%	25.33%	29.98%	37.84%	54.20%	53.19%
Maintenance Mechanic II	33.05%	21.17%	42.58%	25.33%	29.98%	37.84%	54.20%	53.19%
Maintenance Electrician	33.05%	21.17%	42.58%	25.33%	29.98%	37.84%	54.20%	53.19%
Electronic Technician I	33.05%	--	--	25.33%	29.98%	--	54.20%	53.19%
Electronic Technician II	33.05%	--	--	25.33%	--	37.84%	54.20%	53.19%
Quality Control Inspector I	33.05%	21.17%	42.58%	25.33%	29.98%	--	--	53.19%
Quality Control Inspector II	33.05%	21.17%	42.58%	--	29.98%	37.84%	54.20%	53.19%
Machine Tools Operator	33.05%	--	--	25.33%	29.98%	--	54.20%	53.19%
Machine Operator	33.05%	--	42.58%	25.33%	29.98%	37.84%	54.20%	53.19%
Production Operator	33.05%	21.17%	42.58%	25.33%	29.98%	37.84%	54.20%	53.19%
Warehouse Clerk	33.05%	21.17%	42.58%	25.33%	29.98%	37.84%	--	53.19%
Group Leader	33.05%	21.17%	42.58%	25.33%	29.98%	--	--	53.19%

NOTES: (1) 1,000 or more employees.

(2) Less than 1,000 employees.

SOURCE: INPROCA, 1988 Salary Survey

TABLE D-21  
DOMINICAN REPUBLIC: FRINGE BENEFITS FOR FEMALE WORKERS,  
BY SECTOR OF EMPLOYMENT, 1981  
(percent)

Benefit -----	Total sample -----	Domestic industries -----	Free trade zones -----
Bonus	43.7%	67.1%	13.4%
Medical insurance	90.2%	88.6%	92.2%
Vacations	88.3%	87.9%	88.7%
Christmas bonus	88.3%	87.6%	89.2%
Scholarships	9.1%	14.4%	2.2%
Books stipend	11.7%	18.8%	2.6%
Retirement payment	15.9%	25.2%	3.9%
Housing project	8.1%	13.1%	1.7%
Free transportation	14.2%	23.8%	1.7%
Free food/cafeteria	4.2%	6.0%	1.7%
Low-cost food	12.1%	14.1%	9.5%
Safety equipment	26.1%	40.6%	7.4%
Uniforms	27.0%	43.0%	6.5%
Low-cost purchase option for firm's products	36.7%	62.1%	3.9%

SOURCE: CIPAP survey data as reported by Reyes, 1987

TABLE D-23  
DOMINICAN REPUBLIC: MEDICAL PLAN COVERAGE IN FREE ZONE  
AND DOMESTIC INDUSTRIES, 1988  
(percent of firms offering)

Medical Plan Benefits -----	Free Zones -----	Domestic Industries -----
Medicines	59%	79%
Dental care	9%	21%
Family member coverage	73%	79%
Coverage for treatment abroad	23%	37%
Major medical expenses	73%	63%
Expense reimbursement	50%	68%
Unconstrained selection	32%	68%
All personnel	5%	74%
Some categories of personnel	68%	16%
Medical insurance policies	27%	37%
Medical iguales (?)	45%	32%

SOURCE: INPROCA, 1988 Salary Survey

TABLE D-22  
 DOMINICAN REPUBLIC: EMPLOYER BENEFIT PROVISION, BY SECTOR  
 OF EMPLOYMENT, JOB CATEGORY AND TYPE OF BENEFIT, 1988  
 (percent of firms offering)

Type of Benefit	Free Zones (all firms)				Domestic (all firms)			
	A	B	C	D	A	B	C	D
Fixed sum (monthly)	10.0%	0.0%	0.0%	0.0%	26.0%	16.0%	0.0%	0.0%
Open sum: personal/family use	14.0%	50.0%	50.0%	0.0%	26.0%	5.0%	0.0%	0.0%
Credit cards	14.0%	0.0%	0.0%	0.0%	37.0%	11.0%	5.0%	0.0%
Vehicle allowance	36.0%	9.0%	0.0%	0.0%	26.0%	53.0%	21.0%	11.0%
Gasoline allowance	55.0%	18.0%	9.0%	0.0%	63.0%	53.0%	21.0%	11.0%
Transportation allowance	0.0%	5.0%	9.0%	9.0%	5.0%	11.0%	16.0%	26.0%
Provision of transportation	5.0%	5.0%	9.0%	14.0%	21.0%	26.0%	26.0%	37.0%
Vehicle financing	0.0%	0.0%	0.0%	0.0%	16.0%	11.0%	11.0%	0.0%
Company car	0.0%	0.0%	0.0%	0.0%	68.0%	32.0%	0.0%	0.0%
Life insurance	55.0%	45.0%	45.0%	23.0%	89.0%	89.0%	89.0%	79.0%
Accident insurance	50.0%	41.0%	45.0%	36.0%	68.0%	68.0%	68.0%	68.0%
Savings plan	5.0%	5.0%	5.0%	5.0%	11.0%	5.0%	16.0%	26.0%
Special vacations	0.0%	0.0%	0.0%	0.0%	26.0%	21.0%	21.0%	21.0%
Payment of club memberships	9.0%	5.0%	5.0%	5.0%	37.0%	0.0%	0.0%	0.0%
Company recreation club	0.0%	0.0%	0.0%	0.0%	26.0%	21.0%	26.0%	26.0%
Subsidized meals/cafeteria	36.0%	36.0%	36.0%	41.0%	53.0%	58.0%	58.0%	63.0%
Retail cooperative	0.0%	0.0%	0.0%	0.0%	32.0%	26.0%	32.0%	37.0%
Uniforms	5.0%	14.0%	14.0%	27.0%	11.0%	26.0%	53.0%	79.0%
Christmas gift	41.0%	41.0%	45.0%	45.0%	53.0%	58.0%	58.0%	58.0%
Other gift(s)	0.0%	0.0%	0.0%	5.0%	11.0%	16.0%	16.0%	21.0%
Scholarships for study abroad	18.0%	14.0%	14.0%	9.0%	21.0%	16.0%	16.0%	16.0%
Employee tuition assistance	23.0%	27.0%	36.0%	18.0%	58.0%	63.0%	68.0%	58.0%
Family tuition assistance	0.0%	0.0%	0.0%	0.0%	11.0%	5.0%	5.0%	21.0%
Book allowance	9.0%	9.0%	5.0%	5.0%	26.0%	21.0%	21.0%	32.0%
Mortgage loans	0.0%	0.0%	0.0%	0.0%	5.0%	0.0%	5.0%	5.0%
Personal loans	23.0%	23.0%	18.0%	18.0%	74.0%	68.0%	68.0%	58.0%
Loan guarantees	0.0%	5.0%	5.0%	0.0%	16.0%	11.0%	16.0%	11.0%

Job Categories

- A--Administrative/Managerial  
 B--Technical/Middle Management  
 C--Secretarial/Support Staff  
 D--Operation/Production Workers

SOURCE: INPROCA, 1988 Salary Survey

**TABLE D-24**  
**DOMINICAN REPUBLIC: WORKING CONDITIONS FOR FEMALE WORKERS,**  
**BY SECTOR OF EMPLOYMENT, 1981**  
**(percent)**

<u>Working condition</u>	<u>Total sample</u>	<u>Domestic industries</u>	<u>Free trade zones</u>
Adequate lighting	97.2%	98.3%	95.7%
Adequate ventilation	81.9%	80.5%	83.6%
Cleanliness	91.9%	92.6%	90.9%
Clean bathrooms	87.0%	89.9%	83.1%
Bathrooms by sex	93.6%	89.9%	98.3%
Water	88.9%	83.6%	95.7%
Fire equipment	89.0%	94.3%	82.2%
First aid kit	81.1%	84.6%	76.6%
Mirrors	20.6%	18.6%	23.4%
Rest areas	48.6%	42.0%	57.1%

SOURCE: CIPAF survey data as reported by Reyes, 1987

**ANNEX E**

**LAND**

TABLE E-1  
DOMINICAN REPUBLIC: COMPOSITION OF RURAL LABOR FORCE,  
OCTOBER 1980  
(000)

	Total -----	% of total -----
Total Rural Population	2797.7	100.0%
Population under 10 years	948.4	33.9%
Population over 10 years	1849.3	66.1%
Active	1084.5	38.8%
Non-active	764.8	27.3%
 Rural Labor Force	 1084.5	 100.0%
Agricultural workers	353.6	32.6%
Non-agricultural workers	201.2	18.6%
Non-permanent workers	190.9	17.6%
Seasonal workers	144.0	13.3%
Unclear job description	194.8	18.0%
 Rural Labor Force	 1084.5	
Primary workers (1)	297.8	
Secondary workers (2)	786.7	
 Rural Unemployed	 283.0	 26.1%
Primary workers (1)	22.6	7.6%
Secondary workers (2)	260.4	33.1%

NOTES: (1) Male heads of household aged 25-54 years.

(2) The rest of the labor force.

SOURCE: Mission estimates based on ONE/World Bank population projections and on the National Rural Labor Force Survey

TABLE E-2  
DOMINICAN REPUBLIC: LAND DISTRIBUTION, 1971 AND 1981

Size of farms -----	1971		1981	
	Number of farms	% of total	Number of farms	% of total
Less than 5 hectares	234,943	77.1%	314,655	81.7%
5 to 50 hectares	62,790	20.6%	63,358	16.5%
50 to 200 hectares	5,765	1.9%	5,906	1.5%
200 and more hectares	1,322	0.4%	1,131	0.3%
Total	304,820	100.0%	385,050	100.0%

SOURCE: ONE, 1971 and 1981 Agricultural Censuses,  
as reported in IDB Socioeconomic Report, 1987

TABLE E-3  
DOMINICAN REPUBLIC: LAND DISTRIBUTION, BY AVERAGE FARM SIZE, 1971 AND 1981

Size of farms -----	Number of farms -----	Total area -----	Average size -----
0 - 0.5 hectares	61,670	12,460	0.20
0.5 - 4.9 hectares	252,995	311,660	1.23
5.0 - 9.9 hectares	32,543	230,383	7.08
10.0 - 49.9 hectares	30,815	636,484	20.66
50.0 - 99.9 hectares	4,081	270,154	66.20
100.0 - 199.9 hectares	1,825	249,629	136.78
200.0 - 499.9 hectares	786	230,175	292.84
500.0 - 999.9 hectares	184	120,575	655.30
1,000.0 and more hectares	161	598,452	3717.09
Total	385,060	2,659,972	6.91

SOURCE: Population and Development, #6, 1st quarter 1984

**TABLE E-4**  
**DOMINICAN REPUBLIC: FARM LABOR, BY AVERAGE FARM SIZE, 1971 AND 1981**

Size of farms -----	Land/labor ratio -----		
	Total land (hectares) -----	Labor force* (thousands) -----	Land/labor ratio -----
0 - 5 hectares	324,120	109.7	2.95
5 - 10 hectares	230,383	18.0	12.80
10 - 50 hectares	636,484	11.4	55.83
50 and more hectares	1,468,985	2.6	564.99
Total	2,659,972	141.7	18.77

NOTE: \*--Labor force figures taken from National Rural Labor Force Survey. They do not match mission estimates of rural labor force, but they do support the segmentation hypothesis. It is the mission's contention that the land/labor ratio is overestimated.

Size of farms -----	Type of employed labor -----	
	Family workers -----	Paid workers -----
0.5 - 4.9 hectares	74.5%	25.5%
5.0 - 29.9 hectares	52.4%	47.6%
30.0 and more hectares	29.0%	71.0%
Total	51.0%	49.0%

SOURCES: Mission estimates;  
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