

**Economic Development and Social Change in the
Commonwealth of the Northern Mariana Islands, USA:
An Analysis of the Determinants of Poverty**

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Abstract

The Commonwealth of the Northern Mariana Islands (CNMI) is a Pacific Rim United States insular area that has achieved dramatic economic growth since opening its economy to the world system in the 1980s. At that time, foreign investors aggressively recruited international immigrants to fill temporary positions in a bustling apparel industry that has been responsible for driving much of the macroeconomic growth. This study examines the determinants of income and poverty among the CNMI immigrant and indigenous population over the critical economic development period, 1990 and 1995. Micro-level data from two CNMI Censuses of Population and Housing are used to analyze economic and social changes over time among five distinct cohorts, indigenous adults and four groups of immigrants classified by their length of time in the CNMI and type of residence. Only the characteristics of individuals aged 16 and older are considered in this study although descriptive data on CNMI's total population are presented. Findings reveal strong cultural bias in recruitment and wage practices, suggesting that economic reform and immigration policies have exacerbated economic inequality in the region. Gender and nationality play a significant role in predicting poverty and evidence lends credence to structural theories about international migration and economic development. Results fail to support human capital theories on migration as education, age, and language proficiency explain little of the income variation across ethnic groups. The impact of temporary contract worker programs on economic development and income distribution is discussed.

Introduction

Until the 1980s, scholars generally overlooked the role of women in international migration in part because men were believed to dominate worldwide migration flows (DeLaut, 1999; Pedraza, 1991; Cheng and Hsiung, 1998). Recently, however, researchers have acknowledged the social and economic contributions of female migrants who often relocate as workers in their own right, rather than as dependents of males (Lee, 1996). Today women constitute an increasingly larger proportion of migrants in Latin America, the Caribbean and the Persian Gulf states, comprise more than half of all United States immigrants, and have higher intra-regional flows in East Asia than their male counterparts (Pedraza, 1991; Cheng and Hsiung, 1998). In the Pacific Rim region, the focus of this study, rates of female migration have increased steadily over the past three decades (Cheng and Hsiung, 1998) and their movement can inextricably be linked to a nation's economic development as well as the global economy.

Although some theorists associate women's migration with individual-level "push/pull" factors, migration flows have their historic roots in capitalist expansion, the shoring up of insufficient local labor supplies, and the desire among employers for low-wage labor (Harris, 1995). Women's migration, in particular, is largely attributed to the global feminization of labor and the growth of export-processing manufacturing in developing countries (Sassen-Koob, 1984; Cheng and Hsiung, 1998; Boyd, 1989; DeLaut, 1999). An international division of labor has long emerged whereby affluent nations such as the United States relocate de-skilled tasks to lower-wage regions in an effort to maximize profits (McMichael, 1996), a phenomenon that has invariably involved the use of women's labor. The expansion of export-manufacturing has had a profound effect on migration streams in areas where male migrants were once prevalent (Sassen-Koob, 1984). Ultimately, global restructuring restricts female migrants' employment

opportunities to traditionally low-paying sex-stereotyped occupations such as textile manufacturing or domestic services.

This study examines ^{income distribution among international} ~~the role and experiences of female~~ migrants in the newly industrialized Commonwealth of the Northern Mariana Islands (CNMI), a United States insular area that has experienced remarkable economic growth since policy reforms opened its economy to the world system in the mid-1980s. During this time, foreign investors eager to take advantage of the CNMI's unique political relationship with the United States developed an apparel industry that fueled much of the macroeconomic growth. Federal exemptions allowed manufacturers to recruit temporary Asian workers for available positions and to ship ^{unlimited} ~~quota-free~~ apparel to the United States. ^{Soon,} ~~Fortunes were soon~~ made and evidence of widespread labor and human rights abuses surfaced in the apparel industry, prompting US lawmakers to investigate the treatment of immigrants living in the CNMI. Political debates have stalled CNMI policy reform, however, a class-action lawsuit filed against US retailers may have motivated apparel owners to implement changes in their operations.

Specifically, this study examines the determinants of income and poverty among locally-born adults and immigrants over the critical economic development period, 1990 to 1995. Micro-level data from the 1990 and 1995 CNMI Censuses of Population and Housing are used to analyze economic and social changes among five distinct cohorts, indigenous adults and four groups of immigrants classified by their length of time in the CNMI and type of residence. Only the characteristics of individuals aged 16 and older are considered in this study although descriptive data on CNMI's total population are presented for clarity and context.

We pose the following theoretical questions: ~~Once industries operate in an area, how are individual earnings affected by these developments?~~ How does nationality affect the earnings in

a region that draws more than half its labor force from abroad? What are the determinants of poverty among immigrants who move to the CNMI for employment purposes? Finally, and most importantly, in what ways do gender and ethnicity ^{facilitate} ~~enter into~~ the processes of international migration and capital accumulation in a rapidly developing region? Addressing these questions will likely provide insight into the social impact of economic policies implemented in a region almost entirely overlooked by social scientists.

We investigate the factors influencing poverty status among indigenous and immigrant working-aged populations using data collected in two official censuses, the 1990 United States Census on CNMI's Population and Housing and the 1995 CNMI Census on Population and Housing conducted by the CNMI Department of Commerce. Household and Group Quarter information in these data sets is extensive since every CNMI housing unit received a Census "long" forms for both years.

History of CNMI

Situated in the northwest Pacific Ocean, the CNMI comprises fourteen small islands in Micronesia, a region whose populations were colonized by three world powers before the United States took control in 1946. World War II ravaged much of Micronesia, and American researchers sent to survey its impact recommended the immediate resettlement of citizens as a "first pre-requisite for the restoration of the economy" (Oliver, 1951). The United States pledged to "promote the economic advancement and self-sufficiency of the inhabitants of Micronesia" in exchange for military use of the land (Mayo, 1988; Leary, 1980). However, United States officials ^{initially} failed to live up to their promise by denying other nations entry to the region for three decades following the war, which ^{may have} impeded the development of a private sector (Mayo, 1988).

Scholars have termed the 1945-1960 years a period of "benign neglect," arguing that the United States created aid-dependent "welfare states" throughout Micronesia rather than economically viable ones (Overton, 1999). The United States increased aid to Micronesia after 1960 during a time when island leaders were re-negotiating their political status. The end result was the formation of new political entities with varying degrees of sovereignty throughout Micronesia. Only the CNMI opted to become an official United States Commonwealth, whereas neighboring Micronesian islands opted for Freely Associated Status (Mayo, 1988). Once the Northern Marianas ^{chose} opted for United States Commonwealth status in the mid-1970s, developers prepared an economic development model to guide their strategies. Laying the early groundwork for capital accumulation efforts, the report *Socioeconomic Development Plan for the Northern Mariana Islands, 1978-1985* stressed the need to quickly complete construction and to recruit "imported labor and skills," which one historian argues downgraded the efforts of Micronesians outside the CNMI to acquire skills (cite). Nevertheless, this development strategy proved successful at stimulating macro-level economic growth.

Within a few short years, the CNMI began experiencing rapid fiscal growth as a result of enacting reform policies. Throughout the mid-1980s, the CNMI abandoned restrictions on investment, cut income and capital gains taxes, eliminated import duties, provided rebates on personal and corporate taxes, and continued a free-entry immigration policy. Additionally, the government negotiated federal customs exemptions, waived property, inheritance and sales tax and expressed a desire to "streamline" its administration and to privatize services such as the public health and utility system. Foreign investors anxious to take advantage of these incentives migrated to the region to open manufacturing plants, hotels and small businesses. Tariff and trade loopholes legal under U.S. federal law contributed to CNMI's label as a "tax haven" (*Forbes*,

11/23/92) and "America's best kept secret" (CNMI Chamber of Commerce website, 1999). In less than ten years, the region experienced sharp increases in business revenues, permit applications, and the Gross Island Product equivalent (Miller, 1998; Bank of Hawaii, 1997). The CNMI was the only Pacific Island economy that actually grew in the mid-1990s, and this growth was unequivocally tied to its apparel, construction and tourism industries. The section below describes the changes in CNMI's population size, composition and overall structure as a result of recent economic development.

Descriptive Statistics on Total CNMI Population

Although Micronesia covers approximately the same distance as the continental United States (300,000 square miles) most of its 2,200 islands are too small for human habitation. The total land area of Micronesia is only 711 square miles and total population sizes across the region are very small relative to landlocked countries worldwide. Chuuk State, for example, had the highest population size across Micronesia second to Guam with approximately 105,000 residents in 1994 (US Department of Commerce, 1994). By contrast, only 19,000 persons currently live in the Republic of Palau, a collective of islands closest to Indonesia (US Department of Commerce, 2000).

CNMI data from 1995 indicate that over 90% of CNMI's total population lived in Saipan, the most industrialized island in the Mariana chain. As indicated in Table 1, CNMI's total population tripled in size from 16,780 in 1980 to 58,846 persons in 1995. Recent data published by the CNMI Department of Commerce estimated the total population at 71,790 persons (1999). Over the 1980-95 critical development period, the proportion of females in the CNMI changed from 47.5% in 1980 to 50.2% in 1995, due primarily to increases in female immigration rather than natural fertility increases.

[Table 1 about here]

Over time, CNMI's ethnic composition has shifted from an indigenous to immigrant majority. Nearly three-quarters of all CNMI residents (71.5%) were locally born in 1980 compared to just over one-third (37.8%) in 1995. The most dramatic change has been the immigration of Filipinos, whose proportions increased from 9.3% of the total 1980 population to 31.3% in 1990 and 30.4% of the population in 1995. Such heavy and rapid Filipino migration is not too surprising given the country's proximity to the CNMI and its status as one of the world's largest labor exporters, particularly of domestic service workers.

CNMI's second most notable demographic trend is the influx of Chinese immigrants between 1990 and 1995. The proportion of Chinese migrants in the total population has steadily increased from less than 1% in 1980 to 6.3% in 1990 and to 11.6% in 1995. Increases in Chinese immigration are largely attributed to recruitment for an apparel industry that has generated remarkable macroeconomic growth in the region. Data from 1999 indicate that Chinese now comprise 19%, Filipinos 30% and CNMI-born 22% of the total population due to accelerated migration from China (CNMI Department of Commerce, 2000).

Other immigration trends shown in Table 1 indicate that the proportion of US mainland/Guamanian migrants has changed little over time (6.4% in 1980 compared to 6.9% in 1995) as has the proportion of Japanese immigrants (1.1% in 1980 and 1.6% in 1995). The proportion of migrants from other areas of Micronesia increased between 1980 and 1990 from 9.3% to 11.9% but declined to 6% in 1995. Korean immigrants follow the same pattern as Micronesians as their proportions increased from 0.6% in 1980 to 5.9% in 1990 and then decreased to 3.2% in 1995.

In addition to changes in ethnic composition, ^{check} the median age of CNMI residents has increased from 19.7 years in 1980 to 28.0 (or is it 27?) years in 1995. The CNMI Department of Commerce attributes this change to the decline of indigenous mortality and fertility rates and to the older ages of CNMI immigrants.

The proportion of US citizens residing in the CNMI has decreased with the influx of other international immigrants. Citizenship is conceptually more ambiguous in the Micronesian context than in the mainland US, however citizens generally include individuals born in the CNMI (granted citizenship in 1986), those born or naturalized in mainland US/Guam and other US territories. Residents of the Republic of Palau and the Federated States of Micronesia had been US citizens until 1993 when they instead opted for Freely Associated Status. Table 1 shows that the proportion of US citizens in CNMI's total population decreased from 77.8% in 1980 to 46.7% in 1995.

The proportion of CNMI residents over age 5 years unable to speak at least a little English has risen over time from 1.6% in 1980 to 14.5% in 1995. This increase is attributed to the influx of temporary immigrants, many of whom remain in the CNMI for only two years.

Since the focus of this study is on uncovering the correlates of income and poverty status among CNMI adults, we have restricted all further analyses to CNMI residents aged 16 years and older. Presenting information on persons aged 16 and older allows us to maintain consistency with labor force participation data, which is requested from individuals aged 16 years and older on the Census. Age 16 was also chosen as a theoretical starting point since it is the legal age at which a person may be employed without special working papers in the United States. The following section presents descriptive findings on characteristics among CNMI adults for the years 1990 and 1995. Unfortunately, data collected in 1980 were dropped from further analysis

since the number of local and immigrant adults was too small to conduct reliable statistical tests. Initial analyses detected general trends in the population (for example, gender differences), however conclusions could not be drawn once cross-tabulated data included a third characteristic such as ethnicity/nativity, age, or educational level.

Description of Data Sets

Census data for this study were collected by the US Bureau of the Census and CNMI Department of Commerce. Data from 1990 were collected as part the decennial US Census of Population and Housing for the CNMI. In 1992, the CNMI government enacted legislation mandating a mid-decade census to provide timely demographic information during the decade between US decennial censuses. Collaborating with liaisons from the US Bureau of the Census, the CNMI Central Statistics Division conducted the quinquennial census and administered a "long form" to every household in the CNMI. Individuals living in institutional settings such as college dormitories, prisons or psychiatric facilities did not personally receive forms, however, CNMI enumerators collected information from these individuals. The 11,042 adults living in group quarters did, in fact, complete the long form, often with the assistance of Census enumerators and translators. The Census is thus a total count of each person at his or her "usual residence," following the same protocol as the 1990 census. Its questionnaire format and content closely resembles the 1990 long form, however additional questions appropriate to the uniqueness of insular areas are included.

Data derived from this Census represent the most comprehensive information collected from Group Quarter migrants residing in the CNMI to date. On-going Labor Force Surveys elicit information from this population, however, data are limited to five socio-demographic characteristics. For the current study, a SAS data set was created using version 6.12 to read data

from raw ASCII text files. All variable column locations and labels in the data set were obtained from Census codebooks.

Descriptive Statistics for Independent and Control Variables

For the purpose of analysis, individuals aged 16 and older have been grouped into five adult cohorts: locally born, new group quarter residents (GQs), long-term GQs, new household migrants (HH) and long-term HH migrants. Information on month and year of arrival was used to categorize migrants into cohorts, however arrival data were not collected on individuals from Micronesian islands outside the CNMI in 1990. Characteristics of these individuals are thus included only in the total adult and total migrant populations but are excluded from specific time cohorts (n=1,351). Table 2 presents data for 1990 and Table 3 shows 1995 data.

As indicated in Table 2, the 1990 Census counted 32,522 adults residing in the CNMI (total population was 43,345 persons). Immigrants represented over three-quarters (78%) of the total adult population (N=25,490). As Table 3 shows, immigrant adults in 1995 accounted for 76.2% of the adult population as there were 33,413 migrants and 10,433 locals (total population was 43,846 adults). The total 1995 CNMI population including children was 58,846 persons. Although 1980 census figures provided too little statistical power to be used in this study, descriptive data from that year highlight how dramatic socio-demographic changes have been over the fifteen year period 1980 to 1995. Cultural change has been profound particularly given the tiny size of the islands and their indigenous population size. By 1995, immigrants represented over three-quarters (76.2%) of the CNMI adult population.

In 1990, there were 6,851 non-institutionalized immigrants who met our definition of "new GQ" which means they had arrived in the CNMI during or after January 1989. The 1990 Census was conducted in April of that year. As recent arrivals, many of these individuals lacked

one full year of CNMI earnings data when completing the 1990 Census form. There were 4,355 non-institutionalized immigrants classified as "long-term GQs" since an arrival date during or before January, 1988 provided them with at least one full year of CNMI earnings reported on the Census. We classified 5,148 immigrants as "new HH migrants" who had migrated to the region during or after January 1989 and 7,619 "long-term HH migrants" who had arrived during or before January 1988. Again, because arrival data on 1,351 Micronesians is missing these individuals had to be excluded from multivariate analysis.

In 1995, approximately 20% of all non-institutionalized adult immigrants met the definition of "new GQ." There were 6,550 GQ residents who migrated to the CNMI during or after January, 1994. Note that the 25 institutionalized migrant adults are excluded from analysis so that the four migrant cohorts "new/long-term GQ or HH migrants" actually sum to 33,388 adults. Next we classified 13.4% of migrant adults as "long-term GQs" (N = 4,492) since they arrived in the CNMI before or during December of 1993. Individuals coded as "new HH migrants" (N = 9,457) arrived during or after January 1994 and long-term HH migrants (N=12,889) arrived during or before December of 1993.

Gender

As indicated in Table 1, over half (53%) of CNMI's 1990 total adult population was male. Table 2 shows that men tend to outnumber women across groups and the gender gap is widest among long-term GQ immigrants where 70% of adults are male. Women comprise the majority (54%) of new GQ migrants, however, and their presence considerably narrows the gender gap among long-term GQs in 1995 when only 51.9% of adults in this cohort are male. By 1995, women represented half of CNMI's total adult population (50.7%) due to the rapid increase in female immigration (see Table 3). That newer GQs in 1995 are significantly more

likely than long-term GQs to be female (63.4% and 48.1% respectively) suggests that the CNMI immigration policy is specifically targeting women from China, or that men are more likely to circumvent rules regarding the expiration of their temporary two-year contracts. It may also mean that men are more likely to renew their contracts due to labor demand in the construction industry.

Nationality/Birthplace

In 1990, less than one-quarter (22%) of the entire adult population was indigenous to the CNMI, a significant decline from the previous census in 1980 where 62% of adults were indigenous. The proportion of adults born in the CNMI changes only slightly by 1995, as 23.8% of adults are locally born. In 1990, 41% of CNMI adults were from the Philippines, 12.5% were from other Micronesian areas, 8.4% were from China, 7.1% were from Korea and the remaining 9.1% were from elsewhere around the world. The composition of CNMI's adult population changes substantially by 1995, where the proportion of Chinese immigrants rose to 15.5% and the proportion of Micronesians declined to 6.6% of the population. The proportion of Filipino adults dropped only slightly to 39.5% of the CNMI adult population in 1995, down from 40.9% in 1990. Changes in immigrant composition during this five year period are associated with the implementation of economic development strategies that recruit Chinese workers for the apparel/textile industry responsible for driving much of the now well-publicized macro-level economic growth.

Data from the two Censuses shows dramatic changes in ethnic composition among migrant cohorts. In 1990, half of new GQs were from the Philippines, as were over two-thirds (69.3%) of long-term GQs, 60.3% of new HH migrants and 47.1% of long-term migrants. Chinese adults represented 10.7% of all migrants that year, and the majority of these individuals

were concentrated among new GQs so that they represented 30% of all new GQs. Data indicate that 77.9% of all Chinese adults in 1990 were in fact new GQs (2,123 out of 2,726 persons).

In 1990, Koreans also represented a sizable minority of new and long-term GQs (11.6% and 12.4% respectively) whereas Micronesians comprised 14.8% of new HH migrants and over one-quarter (25.3%) of long-term HH migrants. By 1995, however, the proportion as well as actual number of Korean and Micronesian immigrants declined substantially while the number of Chinese persons simultaneously increased among CNMI's adult population.

In 1995, new GQs tended to be from China (58%), followed by the Philippines (35%) whereas the reverse is true for longer-term GQs (58% from the Philippines and 37% from China). In 1995, 80% of Chinese adults were concentrated in either new or long-term GQ cohorts, suggesting that economic development policies have targeted Chinese workers for the highly profitable apparel industry. The relatively little movement of Chinese adults from group quarters to household arrangements over time may be less to the temporary nature of their contracts and more to economic policies preventing their upward occupational mobility since other ethnic groups have managed to negotiate longer terms for their contracts or simply refuse to leave after two years altogether.

In 1995, over half (52%) of new HH migrants are from the Philippines, as are most of the longer-term HH migrants (59%). Adults from the mainland US or Guam also represent a sizable minority of migrants in 1995 (11.5% of new HH migrants and 11.3% of long-term migrants). Almost no Americans from US/Guam live or work in GQs and data on occupational differences across nationality/cohort will show that most of these individuals fare significantly better than immigrants from Asia with respect to earnings.

Age

The overall mean age among adults in the CNMI was 33.4 years in 1990. That year, the mean ages for adults ranged from 29.2 years among new GQs to 36.4 years among long-term HH migrants. Locally-born men and women had a mean age of 33.7 years. By 1995, decreases in mean ages occurred among three cohorts: new GQs (28.3 years), long-term GQs (33.6 years), and long-term HH migrants (34.6 years). The decline in mean age for new GQs is likely attributed to the increased recruitment of Chinese women for garment production. Increases in mean ages occurred among local adults (34.9 years) and new HH migrant adults (from 32.5 to 33.9 years).

Educational Level

In 1990, CNMI-born adults had the lowest mean years of education (10.98 years) than any other cohort. Educational means among migrants ranged from 11.59 years for long-term GQs to 13.19 years for new HH migrants. The mean for years of education increased for all cohorts between 1990 and 1995 (except for new GQs) but was still lowest (and statistically significant) among indigenous CNMI citizens (11.57 years) in 1995. Educational attainment was highest among new HH migrants who had a mean of 13.86 years of education, presumably before arriving to the CNMI. The higher educational rate among long-term GQs compared to new GQs may be attributed to the higher overall level of education among Filipinos who have an international reputation for obtaining high levels of schooling before emigrating despite relatively unskilled work many perform in the new host country (cite).

Within-cohort differences in 1995 show that longer-term GQs have significantly more years of education (11.88) than new GQs (11.59 years). HH migrants have a significantly higher mean educational level than either new or long-term GQs and surprisingly, newer HH migrants have significantly more years of education (13.86 years) than longer-term HH migrants (13.36

years). As an entire group, HH migrants have a significantly higher mean educational level (13.57 years) compared to GQ migrants (11.71 years).

Employment Status

Employment status differs conceptually from labor force participation since only those currently working are considered at this phase of analysis. Labor force participation includes unemployed individuals and those looking for work, and therefore raises figures of those active in the money economy. Overall, the proportion of residents currently working changed little between 1990 and 1995 (79.8% in 1990 compared to 79.4% in 1995). Locally-born adults had the lowest current employment rate of any cohorts in 1990 and 1995. The employment rate among locals increased from 56.8% to 57.9% in 1995. By contrast, approximately 86% of all immigrants in both 1990 and 1995 were currently working when Census data were collected. The proportion of locals not active in the labor force decreased over the 1990-1995 period, however increases in unemployment rates (as high as 14.3% for locals in 1995) offset most of the changes in locals' labor force participation. It is important to note that the category "currently working" is not the same as labor force participation since it excludes those currently unemployed and looking for work. ~~Tricky since dummy var is employed vs others. Once unemployed are included this becomes more complicated.~~

Although the proportion of currently employed immigrants remained at 86% over time, each of the four cohorts experienced changes in labor force participation since rates. Data show that the less time a migrant has been in the CNMI, the more likely he or she will be employed in the paid labor force. The overall trend was a decrease in employment rates among GQs and an increase in rates for HH migrants. In 1990, nearly all (97.4%) new and long-term GQs were

currently employed, however, both groups saw a slight decline in labor force participation five years later (94.9% for new GQs and 90.6% for long-term GQs). Employment among HH migrants increased over time from 82.2% to 83.7% for new HH migrants and from 77.9% to 81.9% for long-term HH migrants. It is reasonable to expect some of the longer-term HH migrants to take time out from the workforce to engage in activities such as the pursuit of education or rearing of children born in the CNMI.

Group Quarter migrants still had the highest employment rates of any other group in 1995 despite declines in rates over time. The exceptionally high employment rates among GQs is expected since employment for this group is a prerequisite for immigration. For example, Chinese women ranked first in labor force participation (98.1%) among the total adult population in 1990, although this rate dropped to 89.8% in 1995 due to increases in unemployment.

Occupational Status

Four occupational categories have been selected to describe CNMI's working population as they represent the dominant occupations across groups. Since additional occupations are excluded from Tables 2 and 3, occupational categories do not total to 100%. Overall, several occupational trends emerge from the data for both 1990 and 1995 Census periods. First, locals are nearly twice as likely as immigrants to occupy managerial and technical/sales positions. Second, new and long-term GQ residents are significantly more likely than other cohorts to work as laborers/operators.

In 1990, locals and long-term HH migrants (disproportionately from the mainland US or Japan) were most likely to hold positions as managers in the CNMI. Among locally-born adults, 26.5% were employed in managerial positions and 36.5% were employed in technical/sales

positions. Five years later, the proportion of locally born managers increased to 32.5% and the proportion of locals in technical jobs decreased slightly to 33.2%. While the proportion of locals in services decreased from 14.4% to 12.6% over time, the proportion of laborers increased from 13.9% to 14.8%. Local adults were most likely to hold managerial positions by 1995.

The proportion of migrants in each of the four occupational categories increased over time. Immigrant representation rose from 15.8% to 16.6% in managerial positions, from 11% to 14.3% in technical/sales, from 18.6% to 20.9% in services and from 26.1% to 29.9% in laborer/operator positions. Among distinct immigrant cohorts, the most dramatic occupational shift occurred among long-term GQs working as laborers where their proportion increased from 30.3% to 50.7% over time. The proportion of new GQ laborers also increased substantially from 50.8% to 65% the five year period.

A slight increase in all three types of occupations was noted for new HH migrants between 1990 and 1995. The proportion of laborers increased from 10.4% to 12.2%, the proportion of adults in technical/sales jobs increased from 13.4% to 18.8% and the proportion in managerial positions increased from 21.4% to 25.4% over time. Additional occupations are not included in Tables 2 and 3 as previously mentioned, however, workers are employed in numerous other professions.

A slight shift from managerial to laborer positions was also found among long-term HH migrants over the five year period. The proportion of long-term HH migrants in laborer positions increased from 12.8% to 15.3% and the proportion in managerial positions decreased from 26.1% to 21.5% over time. New HH migrants tend to be concentrated in the service industry, common for Filipino international immigrants. The proportion of new HH migrants providing

services decreased somewhat from 31.7% to 27.7% over time. Despite a decline, this cohort is most likely to work in the service industry.

Hours Worked

CNMI immigrants worked significantly longer hours than locally born adults in both 1990 and 1995. The mean for hours worked is lower for locals than any other group. In 1990, local men and women worked a mean of 40.5 hours during the past week, compared to migrants overall who worked 47.5 hours. New and long-term GQ migrants work the longest hours and earned the least money, as will be shown momentarily. New GQs worked a mean of 50.8 hours per week in 1990, a figure which remained the same in 1995 (50.7 hours). Long-term GQs worked a mean of 49.8 hours the previous week in 1990 and they experienced a slight decline to 48.3 mean hours in 1995. Nearly one-third of all new GQs worked 50 hours or more in 1990 and this proportion rises to a remarkably high 45.9% of new GQs in 1995.

Nearly two-thirds (65.1%) of new GQs reported working over 40 hours in the previous week. Among new GQs, 34.9% worked less than 40 hours, 19.2% worked 41 to 49 hours, 13.2% worked 50 to 59 hours and 32.7% worked 60 or more hours during the past week. Among longer-term GQ residents, the proportion working more than 40 hours a week is somewhat lower at 60.6%. Approximately 40% of long-term GQs worked 40 hours or less, 32.7% worked 41 to 49 hours, 7.4% worked 50-59 hours and 20.5% worked 60 hours or more during the past week.

Generally, HH migrants tend to work the customary 40-hour week and there is movement toward this trend from new HH to longer-term HH migrants. The mean hours worked for new HH migrants is 43.7 compared to 43.3, the mean for long-term HH migrants. Among new HH migrants who work, 66.6% worked 40 hours or less, 19.7% worked 41-49 hours, 5.1% worked

50-59 hours and 8.6% worked 60 or more hours. Among long-term HH migrants, 69.2% worked 40 hours or less, 18.9% worked 41-49 hours, 4.1% worked 50-59 hours and 7.8% worked 60 or more hours during the previous week.

Marital Status

Overall, the proportion of married adults in the CNMI increased from 53.4% in 1990 to 57.5% in 1995. In 1990, new GQ migrants were least likely to be married (44.2%) and long-term HH migrants were most likely to be married (65.2%). Half of locally born adults (49.6%) and half of new HH migrants were married in 1990. By 1995, the proportion of overall married adults increased to 57.5%, although no change was noted among new GQs as single women from Asia continued to be recruited for apparel manufacturing positions.

Mean Number of Children

Dramatic differences in CNMI fertility occurred across cohorts and over the five year census period. Overall, women had a mean of 2.7 children in 1990, however, locals had a significantly higher mean number of children (4.0) than migrants (2.4) ($p=.001$). New GQ migrants had the lowest fertility in 1990 (1.4) followed by long-term GQs (1.5). New HH migrants tended to have more children than GQ migrants and longer-term HH migrants had more children on average than new HH migrants. The mean number of children for new HH migrants in 1990 was 2.4 compared to 3.2 for long-term HH migrants.

By 1995, the overall CNMI fertility rate dropped from 2.7 to 1.6 children per woman. Fertility among locally-born women dropped to a rate of 3.06 (from 4.0) and fertility declined among migrants from 2.4 to 1.16 due largely to the heavy recruitment of single women from

China and the Philippines to work in the private sector. In 1995, fertility rates were an astonishingly low 0.38 and 0.36 children per woman for new GQ and long-term GQ cohorts respectively. New HH migrants had a mean of 1.36 children and long-term HH migrants had a mean of 1.8 children per woman in 1995. It is possible that many of the single and childless GQ migrants arriving around the year 1990 continued to live in the CNMI by 1995 and had moved out of GQs and into household residences, thus changing the overall fertility profile of the long-term HH migrant cohort. **Check numbers. Why would fertility nearly half among long-term HH migrants?**

English Language Ability

The ability to speak English has been found to influence the income of immigrants living in the United States (Hughey, 1990). Although locally born adults may speak another dominant language at home, virtually all Chamorros and Carolinians have learned to speak at least a little English over the past three decades. The CNMI mid-decade census asks respondents three questions on language: do you speak only English at home, if no then what language do you speak, and do you speak this language at home more frequently than English. Respondents may report that they speak another language more frequently than English, both equally often, less frequently than English or they do not speak English at all. In this analysis, we focus only on whether an individual speaks any or no English.

As stated previously, CNMI-born adults are most likely to speak some English (99.2% in 1990 and 98% in 1995), followed closely by long-term HH migrants (97.8% in 1990 and 97% in 1995). As expected, new GQs are least likely among immigrants to speak any English. Approximately 38% of new GQs in 1990 and 57% of new GQs in 1995 reported that they could not speak English. Over time, GQ migrants are likely to learn a little English, and thus it is not

surprising that longer-term GQs are more likely to speak English than new GQs. Just over 16% of long-term GQs in 1990 and 38% of long-term GQs in 1995 did not speak any English. It is surprising that the proportion of long-term GQs unable to speak English increased rather than decreased over the five year period and possibly may be related to educational level of the incoming new GQ cohort in 1995.

HH migrants, regardless of arrival date, are more likely to speak English than GQ residents. Only 3.8% of new HH and 2.2% of long-term HH migrants in 1990 were unable to speak English. In 1995, these numbers increased so that 7.8% of new and 3% of long-term HH migrants were unable to speak any English.

Description of Dependent Variables

Virtually all bivariate statistical tests on income and poverty status produced significance in this analysis. For example, findings in 1995 show a significant relationship between gender, nationality and immigrant cohort and poverty status. Women as an entire group are more likely than men to be poor ($p=.001$) and Asians are more likely than any other birthplace group to be poor ($p=.001$). Results from the multivariate analysis will provide greater insight into the direction and magnitude of variable relationships since large population/sample sizes often produce statistical significance.

Table 4 below shows the distribution of adults living above or below the official US poverty threshold (see Methods section) for the years 1990 and 1995.

Table 4: Distribution of Adults Living in Poverty, CNMI 1990 and 1995

	Total Adult Population	Local Adults	All Adult Migrants	New GQs	Long-term GQs	New HH	Long-term HH
Percentage Poor							
1990	55.3	31.6	61.9	84.4	67.7	66.8	40.2
1995	56.9	29.1	65.6	93.6	79.9	58.9	51.2

As Table 4 indicates, over half CNMI's adult population lived under the official US poverty threshold in 1990 and 1995. Despite achieving remarkable macroeconomic growth (Bank of Hawaii, 1998), the proportion of adults living in poverty increased from 55.3% to 56.9% of the population between 1990-95. Increases in overall adult poverty rates are due primarily to increased poverty among immigrants rather than indigenous adults, since the poverty rate among CNMI-born adults decreased somewhat over time from 31.6% to 29.1%. Although nearly one-third of indigenous adults are still poor, the data suggest that locals may have slightly benefited from economic development efforts, albeit at the expense of the migrant population.

Migrants are twice as likely than locals to live under the poverty threshold in both 1990 and 1995. The proportion of poor migrants increased from 61.9% in 1990 to 65.6% in 1995. As expected, a migrant's chances of being poor decreases as he/she transitions from a GQ to longer-term HH status in the CNMI. In 1990, new GQs are significantly more likely than other immigrants (particularly long-term HH migrants) to live in poverty, where 84.4% are poor. Astonishingly, the proportion of poor new GQs rose to 93.6% in 1995 suggesting that labor exporters are sending poorer migrants to work for CNMI's apparel industry. Incomes reported in among new GQs are incomes not yet earned in the CNMI.

The proportion of poor long-term GQs increased from 67.7% to 79.9% over time as well, suggesting that although GQ migrants earn more income in the CNMI than at home, they are still overwhelmingly likely to live under the poverty threshold. Since long-term GQ migrants report at least one full year of income earned in the CNMI, the evidence shows they continue to be paid poverty-level wages in the region despite unusually long work hours.