CHUUK STATE

1989 CENSUS OF POPULATION AND HOUSING

FEDERATED STATES OF MICRONESIA

February, 1992

DIVISION OF STATISTICS
OFFICE OF PLANNING AND STATISTICS
KOLONIA, POHNPEI
EASTERN CAROLINE ISLANDS 96941

December 19, 1991

GOVERNOR'S MESSAGEGOVERNOR'S MESSAGEGOVERNOR'S MESSAGE

Chuuk State, having the largest population in the Federated States of Micronesia (FSM), has over 43 inhabited islands. Combining all land area of the inhabited and uninhabited islands, Chuuk State has a total land area of 49.2 square miles. In this 1989 population census, we counted 47,871 people in the State. This includes those non-citizens staying in Chuuk State during the time of the census and excludes those living abroad, mainly in Guam and the Northern Mariana Islands.

Data acquired by the census are very essential in many aspects. It is very important that we all use them as a basis to prepare our future plans. Let me alert everyone that our population density, as compared with the other FSM states, is the highest and out-migration is rapidly growing, mainly due to limited in State employment opportunities.

The well-being of our future generations depends on better planning and without accurate census data, planning will be unreliable. I, therefore, encourage everyone to use this report.

On behalf of the Chuuk State Government, I thank all the people, the families, and leaders of Chuuk State for their full cooperation and support with the census staff from the FSM Office of Planning and Statistics, the Census Advisory Committee, and the Chuuk State Department of Planning and Statistics. Moreover, great appreciation is given to all the census staff involved for their tremendous efforts and assistance. It was a job well done.

Sasao H. Gouland
Governor
State Government of Chuuk

December 19, 1991

NATIONAL PLANNER'S MESSAGENATIONAL PLANNER'S MESSAGENATIONAL PLANNER'S MESSAGE

The first national round of censuses began in Pohnpei in 1985, moved to Kosrae in 1986, and Yap in 1987. This report presents and describes results of the 1989 Chuuk Census, which concludes this round of censuses.

The data presented will help Chuuk State and the National Government to provide better services to our people. This report includes data on age and sex distributions, education, religion, employment, and housing, all areas of importance for making a better future for our people.

I hope that all of us, as responsible citizens, will try to understand the impact of our rapidly growing population, and will help in developing appropriate policies at all levels. We need to work together to produce a better tomorrow for our children, and to provide opportunities for them that we ourselves did not enjoy.

Finally, I acknowledge my sincere appreciation to Governor Sasao H. Gouland and his staff, as well as to all residents of Chuuk, for the cooperation and support extended to the National Office of Planning and Statistics in carrying out this important project.

Marcelino Actouka
National PlannerPREFACEPREFACE

PREFACE

The 1989 Population Census of Chuuk State was the last in the series of state censuses undertaken in the Federated States of Micronesia (FSM). The first state census was conducted in Pohnpei State in 1985, followed by Kosrae in 1986 and Yap in 1987. This volume presents the results of the Chuuk Census, which was carried out jointly by the FSM National Government and the State Government of Chuuk.

The census involves many stages, from the initial planning of the operation to the final production

of the reports. It is clearly impossible to mention all people involved or even all people who made special efforts to assist the census operation. Without minimizing the contributions of those not mentioned here, special thanks are expressed for the encouragement and support shown by the Honorable Governor Sasao H. Gouland and the Honorable Lieutenant Governor Marcellino Umwech.

Special mention should also be made of the Director of the Office of Planning and Statistics, Chuuk State Mr. Billy Krescio who not only strongly supported the census project but as Chairman of the User's Committee guided and provided important suggestions to the project staff. The former Director of OPS, Chuuk, Mr. Roger Mori should also be specially mentioned here for his strong support and valuable suggestions to the project in the capacity of Secretary to the Census Advisory Committee. The Department of Education provide help in the recruitment of the enumerators and supervisors.

Special thanks should be provided to the members of the Chuuk Census Advisory Committee and also Chuuk Census Users' Committee who provided valuable suggestions in the implementation of the project.

This Population Census was carried out by the National Office of Planning and Statistics in cooperation with the Chuuk Office of Planning and Statistics. From the National OPS, National Census and Survey Coordinator Mrs. Rosina Edwin, provided overall coordination. Mapping and listing operation and the census enumeration were done directly under her supervision. Most of the staff in the OPS at the national and state level were involved at various stages of the work. Among others Mr. Tilson Kephas, Computer Operator and Miss Merinda Andrew, Statistical Technician from the National OPS should be specially mentioned for their contribution in the data processing stage.

Help for the census project did not only come from FSM itself, but was also provided by the United Nations Population Fund (UNFPA). It provided financial assistance. The South Pacific Commission was responsible for providing technical support at various stages and particularly in data processing. Thanks should be offered to Mr. Gregg Keeble, Population Data Processing Advisor, SPC without whose help the tables would not have been generated. Our thanks also to United Nations Volunteer Services which provided a Population Census Specialist volunteer for the project.

United Nations Volunteer Mr. Prabhat Dixit, Population Census Specialist, UNFPA was in charge of this project from the data processing stage onwards, after his arrival in Pohnpei in April 1990. Most of the tabulation plan and initial writing the text, which went into the preparation of this volume was undertaken by Mr. Dixit.

Michael J. Levin, U.S. Bureau of Census, wrote the final text for this report.

I also want to thank all those who have not been mentioned here but significantly contributed in making this census very successful. Particularly I want to thank all the enumerators, supervisors, coders and editors without whose dedication census would not have been possible.

Lastly I want to specially thank all the residents of Chuuk who cooperated with our enumerators and supervisors in patiently providing the information. I would like to avail this opportunity to thank all citizens of the FSM for their full cooperation in successfully completing this series of state censuses.

Timothy Semuda
Chief, Division of Statistics
Office of Planning and Statistics
Federated States of Micronesia

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Chuuk is a complex atoll in the Central Caroline Islands, the heart of Micronesia, and the largest State in the Federated States of Micronesia. Chuuk, located at 151°22' to 150°04' east longitude, 7°7' to 7°41' north latitude, is approximately 650 miles from Guam and 1,200 miles west of the Marshall Islands. The main atoll, at the center of the State, is surrounded by a quarter mile long, triangular reef varying from 30 to 49 miles in diameter, which protrudes above the water in about 50 places to form low islets. The lagoon, having a circumference of 140 miles and an area of 823 square miles, contains six fairly large, high, habitable volcanic islands and many lesser ones, of which about one hundred have names (Goodenough 1951:19). The high islands and many low coral sand islets in the lagoon have a total land area of 38.6 square miles. The high islands consist of deeply eroded summits of a group of volcanoes rising above the submarine Caroline plateau. The large parent rock beneath these volcanoes consists mainly of basalt, volcanic agglomerates and many terraces cut by wave action during intermittent periods of submergence.

Temperature in the Chuuk islands, varying more seasonally than daily, ranges from 75°F in the morning to 85°F in the afternoon with an average humidity of 83 percent with little yearly variation. Rainfall is plentiful. Seasons are distinguished by differences in rainfall and winds rather than by temperature variations. The northeast trade winds are strongest from January to June and constitute the dry season. Winds are more variable in the remaining wetter months. Chuukese, especially the outer islanders, are very aware of and sensitive to the wind to the extent that many inter-island relationships are structured by the direction of the northeast trade winds (Gladwin and Sarason 1953:31).

The lagoon islands are politically divided into three large groups. These are: (1) Northern Namoneas (about 7.75 square miles), consisting of Weno (formerly Moen), Pis-Paneu (formerly Pis-Moen), and Fono; (2) Southern Namoneas (11.72 square miles), consisting of Tonoas (formerly Dublon), Fefen, Etten, Siis, Uman, Parem, and Totiw; and, (3) Faichuk (19.25 square miles), consisting of Eot, Udot, Romonum, Fanapanges, Wonei, Paata, Tol, and Polle.

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[1]This document is not a formal analysis in the manner of the reports for Pohnpei, Kosrae, and Yap. Here we make use of materials written for other purposes to give a more complete analysis of the Chuuk data, given time and financial constraints. Section authors are noted in the footnotes; Michael Levin wrote the unnoted sections.

[2]Recently Chuuk state determined new designations for the state and many of its islands and municipalities. Truk became Chuuk, Trukese became Chuukese, etc. As a convention, and because this is an informal presentation, we have used the new designations throughout this presentation, even though quotes are changed. We apologize to the original authors who did not know the new designations when they wrote.

In addition, there are two series of atolls to the southeast and to the west. The islands to the south are the Mortlocks (about 4.91 square miles total). The Mortlocks are frequently further divided geographically into the Upper Mortlocks (Nama, Losap, and Piss-Emwar), the Mid Mortlocks (Namoluk, Ettal, Kuttu, and Moch), and the Lower Mortlocks (Lukunoch, Oneop, Satowan, and Ta).

Oksoritod[3] is more formally divided into three areas, whose dialects and cultures differ somewhat. These areas, from East to West, are: (1) the Hall Islands (Fananu, Murilo, Nomwin, and Ruo); (2) Namonuito (Makur, Onanu, Onou, Piherarh, and Onoun); and, (3) the Western Islands (Houk, Polowat, Pollap, and Tamatam).

1.2 Chuuk: A Brief History of Census Taking[4]

History. Chuuk lies in the geographical center of the area that from the middle of the last century was termed Micronesia. It took its name from the mountainous basaltic islands in the distinctive lagoon that became its nucleus. The name belies the reality, of course, for the state includes several coral atolls and low islands as well. The name can also be deceptive if it implies that the area had a political identity before the coming of the Westerners. Although there were culture and language ties in the region (and beyond), there was no single name that was ever used to describe what is now known as Chuuk State.

Chuuk is one of the most ancient regions in all of Micronesia. Not because it was settled before other island groups. We know that although people lived in Chuuk 2000 years ago the high islands of the western Carolines and the Marianas were first populated even earlier. The state's claim to antiquity rests in the fact that its social organization is probably one of the earliest. The largest unit of government in traditional times was the "district", normally comprising a village or two and ruled by the clan with earliest land rights. Island chiefs, in all but the smallest islands, were a European invention. Chuuk never developed the powerful chieftainships that were found in its neighbors to the east: Pohnpei, Kosrae, and the Marshalls. Neither did its traditional political structure ever have the same complex forms of village organization and as formal a network between villages as Palau and Yap had.

We know almost nothing about the first settlement in the Chuuk area and its pre-contact history.

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[3]Oksoritod is used in this report for the Hall Islands, Namonouito, and the Western Islands combined after discussions with former Senator and language specialist Tony Otto.

[4]This section was written by Father Fran Hezel, S.J., as Introduction to the Chuuk 5-Year Development Plan.

We do know, however, that the social revolution that seems to have transformed Pohnpei and Kosrae about the 12th or 13th century when the stone cities were built passed Chuuk by. Yet, legends tell of two men, the Lord of Iras and the Lord of Kachaw, arriving from the east at about that time. Chuukese[5] today date the development of the present-day clans from this time.

In the 16th century, the golden age of Spain, Chuuk had its first encounters with Westerners. Alonso de Arellano brought the San Lucas into Chuuk lagoon and anchored off Tonoas until he was chased off by armed canoes bearing down on his ship. At Pollop a few days later, two of his men were ambushed and clubbed to death while they were fetching water on the island. Arellano swore vengeance but he could not bring his skiff, loaded as it was with armed men, over the coral reef safely. When he sailed off to the west in the San Lucas, the brief interlude of European contact ended for nearly two centuries.

Before the coming of the Europeans, Chuuk and the islands around Chuuk were much more heavily populated[6]. The population of Chuuk was estimated at 35,000 in 1827 (Lutke, 1835). In 1874, a Rev. E.T. Doane travelled on the 'Star' from Pohnpei to the Mortlocks, and wrote back to the Geographical Magazine, published in London. The ship went first to Satowan, where Doane counted "about 1500" people, with about 600 on one islet. He recorded "some 600 or more" on Ettal. The population on Namoluk was "from 300 to 500". When the ship went on to Losap, Doane found:

> All the surroundings of the people, their language, dress, proas, ornaments, tattooing, dwellings, the children in undress, and the women with the native tapa, showed they were kith and kin with the islanders already visited. The population may reach 500. The island seemed fertile, and capable of furnishing plenty of food (Doane 1874:204-5).

Doane found no more than 150 to 200 persons on Nama, from reports of Natives on the ship. About 1500 were on Lukunoch. The ship went on to Nukuoro after this.

1.2.1 Spanish Administration.2.1 Spanish Administration.2.1 Spanish Administration

The early Spanish voyages into Micronesia served to introduce islanders to the marvels of Western technology -- chips as large as meeting houses and strange-looking men with impermeable skin (armor). Of all these wonders the most precious was iron, the durable material that could be worked into tools and weapons. Islanders were quick to appreciate the advantages of iron as a

[5]"Chuukese" is an Americanism, and would not be used by people in Chuuk for their language or ethnicity. However, for simplicity, we use it here for easier writing and reading.

[6]Part of this section from Hall and Pelzer, 1946.

replacement for their fragile implements of bone, shell, and stone. When the Spanish colonized the Marianas at the end of the 17th century, the Chuukese, employing the outer island navigators as their middlemen, carried on trade with Guam for iron. If Europeans would not come to Chuuk, the islanders would sail hundreds of miles to search them out and barter for the metal that was more precious in their eyes than gold.

By the end of the 18th century, Europeans were again plying the Pacific, this time to reap a share of the profits in the lucrative China trade. As they did, they rediscovered the Pacific -- sighting and visiting islands that had never before been seen by white men, correcting erroneous positions recorded 200 years earlier and redrawing the maps of the region. In 1795, James Mortlock, captain of the British trading vessel Young William, gave his name -- and for a time that of his ship -- to the group of atolls southeast of Chuuk. Nearly 30 years later, John Hall, while in command of another British vessel, sighted the islands that still bear his name. There were dozens of other sightings and brief visits: Monteverde at Nama in 1806; Lutrell at Namoluk, Nama, and Losap in 1808.

In the wake of the early pioneers of the China trade came the naval explorers from France and Russia. When Freycinet, the commander of the earliest of them, stood off Houk for a few hours in 1819, he was greeted by a throng of islanders who chanted "loulou" (the Chamorro loanword for iron). The next of the French naval commanders, Louis Duperrey, who visited the area in 1824 and mapped half of the Chuuk lagoon, reported the same experience at Pollop. "The word loulou is always on their lips," he wrote. "Axes, knives, nails and large fishhooks are all objects of great value for them." When the Russian naval party under Feodor Lutke spent a week in the Mortlocks in 1828, he found the people to be surprisingly demanding traders. They scoffed at the iron bars and hoop they were offered and insisted on tinder boxes and knives instead. The iron based traffic with Guam and the passing contact with European and American ships had given the outer islanders a cosmopolitanism that sometimes astonished ship captains. Tobacco had already made its way into many of these islands and cock-fighting was a popular pastime on Murilo by the early 1920s. One old man from the Namonwitos astonished a captain by carrying on a conversation in Spanish while devouring pate-de-foie-gras with unfeigned relish.

Throughout this period of contact, the high islands of Chuuk remained something of a backwater. Like the inhabitants of other volcanic islands in Micronesia, the people there had lost their navigational skills through disuse over the years. They were also less visited than the atolls and were less accustomed to dealing with foreign merchants and seamen. Moreover, the high islands were plagued by the incessant war between districts that was carried on amid ever shifting alliances. Dumont d'Urville, the last of the great French naval commanders to visit Micronesia, brought his two ships into the Chuuk lagoon in 1839 and anchored off Fefen. The Frenchmen found the islanders thoroughly unfamiliar with muskets, European food (cheese and wine and biscuits), and even clothes. The French visit ended tragically when a dozen Chuukese were killed in a battle that broke out between the visitors and the people of a nearby island. The next visitor to Chuuk,

Andrew Cheyne in 1844, was also attacked. As Cheyne's schooner lay at anchor off Siis, several hundred men rushed the European seamen and killed several before they were routed. Cheyne publicized the attack in a maritime journal and issued a warning that "no vessel should visit the island group unless well-manned and armed, as the natives will be certain to attack any vessel that they may find in a defenseless state."

Ship captains seemed to have heeded Cheyne's warning and given Chuuk a wide berth for the next 30 years. One who didn't -- Captain Alfred Tetens of the Vesta -- almost lost his ship in a surprise raid in 1868. For years, Chuuk -- or "dreaded Hogoleu", as it was sometimes called -- bore a notorious reputation among Western mariners. Not all the violence was initiated by islanders, however. The infamous Carl and two or three other blackbirding vessels visited the Mortlocks in the early 1870s and shanghaied dozens of men for work in the plantations of the South Pacific. Years later a handful of these recruits returned, decked out in Western clothing and eager to tell of their adventures -- but within four months all were dead, possibly victims of diseases they had contracted during their long stay abroad.

When three Pohnpeian missionary couples were taken to the Mortlocks in 1874 to introduce Christianity to the islands for the first time, they were greeted with a sullen silence. Memories of the blackbirding visits were still painfully fresh in the minds of the Mortlockese. Yet, the missionary couples were reluctantly allowed to remain, and within three years had won over 800 converts to Protestantism. The Mortlocks, which had long been the gateway to Chuuk, sent one of the Pohnpeian teachers to Uman in 1879. The spread of Christianity throughout the lagoon islands followed quickly, aided by the work of Robert Logan and other American missionaries. Under the impact of these missionaries, the warfare that was always breaking out between different sections of Chuuk slowly began to subside, although it was another 20 years before it ended altogether.

Merchants soon followed the missionaries into Chuuk, as they did in so many other parts of the Pacific. August Hartmann opened a trading station on Fefen, Charles Irons went to Polowat, and Frederick Narruhn established a business on Wene, with Pierre Nedelic and Jack Ehlers coming after them. These pioneer traders found a market for Western goods, including calico and serge, but their work was not without its risks. Hartmann and two of the early traders in the Western islands were killed, and a couple of others were forced to flee for their lives. Even so, commerce and Christianity were by this time firmly rooted in Chuuk.

Spanish annexation of the Carolines in 1885, which ushered in the era of colonial rule, passed virtually unnoticed in Chuuk. The Spanish government, which had its capital on Pohnpei, was kept so occupied by the uprisings and intrigues on that island that it had neither the time nor the inclination to extend effective rule to any of the other islands in the eastern Carolines. A Spanish warship sopped off at Chuuk in July 1886 to raise the flag over the island group. The next visit was nine years later when the gunboat Quiros came to put an end to the hostilities between Uman and part of Fefen. The chiefs were assembled on board the ship, a peace treaty was signed, and the

Spanish steamed off, confident that they had accomplished their purpose. They were badly mistaken. Within a year fighting between Uman and Fefen resumed, Romanum slaughtered a deputation of chiefs from Udot, and a Japanese trader was strangled to death on Tol. The Spanish sent a ship once more to investigate the disturbances and put an end to the trouble, but with no more success than before.

Table 1.1 shows in tabular form some of the early population estimates for Chuuk lagoon and a few of the outer islands. (Some of the estimates are from the German administrative period.)

Table 1.1. Early Population Estimates for Major Island Units in Chuuk State: Selected years

		Outer Islands				
	Chuuk					
Year	Lagoon	Losap	Nama	Nomwin	Houk	Polowat
1819.....					900	
1950.....					350	
1860.....						500
1877.....	12,000					
1901.....	12,000				300	1,100
1903.....		430	320			
1907.....	13,514					
1908.....				> 200		
1909.....					177	
1914.....	11,000					

Source: From Gorenflo, in press.

One result of Spanish period may have been an increased mortality from violence. Of course, no demographic data exist from this period. Traders on Chuuk introduced iron and steel tools which eventually replaced the bone and shell tools, but they also introduced guns to disastrous effect. Gladwin and Sarason, notes, for example:

> On the small island of Romonum, less than a mile long ... warfare raged intermittently between people of the two ends of this one island. On the western end lived an American trader, while a Japanese trader occupied the eastern end, and each supplied the respective partisans with guns. The slaughter was considerable. And in the meanwhile, the people of Romonum also fought wars with villages on the neighboring islands of Udot and Tol (1953:40-41).

1.2.2 German Administration.2.2 German Administration.2.2 German Administration

History. The Germans, who took over the islands from hapless Spain in 1899, found two dozen

Japanese traders in Chuuk, including Koben Mori and Shirai. Among the trade goods that they were selling to the Chuukese in exchange for their copra were liquor, guns, and dynamite. The German warship that arrived to announce the turnover of rule warned the Japanese that they were not to continue selling contraband articles to the people. Unlike the Spanish, the Germans intended to enforce their regulations. When, on a surprise visit two years later, German authorities found liquor and guns in the Japanese warehouses, they expelled all the Japanese traders except Mori and served notice tot eh Chuukese people that they intended to disarm them. The Germans also arrested three local chiefs accused of murder and hauled them off to Pohnpei to serve their jail sentences. This show of muscle had a sobering effect on the population. When the Germans returned in 1904 to make good on their promise to collect all arms, the Chuukese cooperated fully and turned in nearly 500 guns.

Chuuk, long known for its violence, submitted quietly and with a sense of relief to the German governor, as if the people had been waiting years for a show of leadership strong enough to compel their submission. Under the direction of the Germans, the Chuukese began clearing their land and planting coconut and fruit trees. The very chiefs who had been the fiercest turned to building roads and docks, and leaders in all the islands furnished a count of their people for the first census of the islands. Gratified by the progress shown, the Germans appointed flag chiefs to who they gave authority over the six regions of Chuuk lagoon. The copra industry prospered in Chuuk, and when Japanese merchants eventually returned, they did so under terms set by the German government. Now and then, the Germans were forced to intervene in island affairs, as when they moved to put down a revival of traditional dancing in the Mortlocks that threatened to exhaust the population and deplete the food supply, but for the most part, Chuuk was a model colony. The Germans, who thought highly of Chuukese, recruited several to serve as policemen on Pohnpei.

The greatest disruption during this period was the terrible typhoon that struck the Mortlocks in March 1907, taking over 200 lives and leaving many of the islands denuded. Emergency rations were sent to the stricken islands and more than 700 Mortlockese were relocated int he months that followed -- first on Saipan and then on Pohnpei for permanent resettlement. These refugees became the nucleus of what would be a growing Chuukese community on Pohnpei. The extensive typhoon damage was a major setback for the expanding copra industry and it was years before production reached its pre-typhoon level. Yet, new employment opportunities were opening for Chuukese during these same years. Phosphate mining began on Nauru in 1902 and on Angaur, Palau, a few years later. By 1908 over half of the 500 islanders working on Nauru were Chuukese, and 200 more were employed in the mine on Angaur on contracts that lasted between six months and a year.

These years saw the arrival of German missionaries representing other religious denominations. Lienbenzell missionaries took over the work of the American Congregationalists in 1907, and Catholic priests and brothers of the Capuchin Order launched their work in Lukunoch in 1911, moving on to Chuuk lagoon a year later.

When, in 1909, the German government finally appointed a resident administrator for Chuuk and set up a branch office on Tonoas, the people provided free labor for the construction of the new facilities. Even the head tax that the Germans inaugurated in 1910 caused no ill feeling among the Chuukese, who continues to look to the government to do what they could not easily do for themselves: arbitrate local disputes and keep the peace. In its final years, German administration offered some additional benefits to the population. A government physician, assigned to Chuuk, made the rounds of the islands to offer medical services while he studied health problems in the area. The government also made plans to build a 40-bed hospital and a vocational training school in Chuuk, but before these could be implemented Germany was stripped of its possessions.

The Germans acquired these islands in 1899 when Spain sold the northern Marianas and the Caroline Islands to the German government following Spain's defeat in the Spanish-American war. The Germans made their District headquarters at Tonoas. They had only a few people on the administrative staff, and their main aim was economic exploitation. They encouraged the Chuukese to produce copra, fish, and lumber for sale. They also ordered each family to plant at least 100 coconut palms. Coconut trees became the dominant species for approximately two thirds of the slope of the mountains It became expensive to sacrifice a coconut for drinking when it could be used for making copra (Coulter 1957:297).

Census. The Germans also effectively stopped Chuukese "warfare" and set a standard for relationships with that and future administrations:

> On arrival the Germans ordered the Chuukese to forfeit // their guns and stop making war. In response, the Chuukese, at that time numbering about 10,000, listened to the Germans, turned in their 436 guns and stopped making war. This response might have been a result of the Chuukese realization that their traditional system could no longer handle this situation of warfare with German weapons...From this incident the Chuukese attained the attitude that the foreign administration holds the ultimate authority for law and order. (Mirrer 1971:18-19).

The Germans took no systematic censuses in Chuuk (or any other area of Micronesia) during their comparatively short reign. However, during the various South Seas Expeditions in the early 1900s, censuses of individual islands were collected, with the results compiled and displayed in the various volumes of their reports.

1.2.3 Japanese Administration.2.3 Japanese Administration.2.3 Japanese Administration

History. Japan seized Germany's possessions in Micronesia in 1914 at the outbreak of World War I and established its military headquarters on Toloas. From there the Japanese Navy ruled Chuuk and the rest of Micronesia for the next seven years. The new ruling power quickly made its impact

felt in Chuuk. With characteristic energy, Japanese began work on a public works program that included the installation of harbor facilities, the construction of docks and the laying of roads on the islands. They also built the first hospital in Chuuk, staffed by naval doctors and Japanese health aides. Perhaps their most significant early achievement, however, was the establishment of a public school system that came to include six elementary schools throughout Chuuk.

Japan's administrative policy was, from the very start, far more aggressively assimilationist than its predecessors. Japan never concealed the fact that it intended to "place a permanent Japanese imprint" on Chuuk. Japanese, like the Germans before them, appointed flag chiefs over the islands. Japanese administrators presided over meetings of the flag chiefs, removing those who were regarded as unsuitable in their eyes and replacing them with others who were more receptive to Japanese policies. Prominent leaders were offered cultural tours of Japan to introduce them to Japanese values. This policy continued even after naval rule was replaced by civilian administration in July 1921 and the headquarters transferred from Chuuk to Palau.

Through the 1920s the administration continued its emphasis on education, particularly on the study of the Japanese language. Better students who completed the first three years of school were sent to a higher school on Toloas for an additional two years. A few of the Chuukese graduates were employed as policemen or teachers' aides; others went to work for the government as errand boys or clerks. A number of others found employment with Nambo, the great Japanese trading company of the day that had stores on several islands and ran coconut plantations in various sites. Still others signed on to work in the phosphate mines on Angaur. Youth organizations, or seinandan, flourished on nearly all the islands.

The 1930s saw the first large-scale immigration of Japanese colonists into Chuuk. Okinawan settlers came in ever greater numbers and, aided by government subsidies, bought fishing vessels and produced katsuobushi for local use and export. Later immigrants obtained land grants from the government to set up vegetable and sweet potato gardens, and some expanded into the production of starch. Much of the land that had originally been claimed by the government was made available to Japanese businesses for development purposes. By 1937 there were nearly 4000 Japanese and Okinawans living in Chuuk out of a total population numbering 18,000. In these golden years of development subsidies were ended. The Japanese government had turned Micronesia into a colony that paid its own way. Chuukese participation in this prosperity was real but marginal. The fishing industry, like most of the major industries, was run entirely by Japanese nationals, but hundreds of Chuukese men went to Pohnpei to do plantation labor on a contract basis. Local people bought steamship tickets to other parts of Micronesia and bicycles for their children. Never before had there been so much money in circulation among the Chuukese.

The war brought a reversal of fortune to Japanese and Chuukese alike. For two years before Pearl Harbor the Japanese were busy constructing airfields and port facilities, but it was only in January 1944, on the eve of the threatened Allied invasion, that the Japanese Army defense forces arrived

and serious work began on the caves and tunnels and gun emplacements that are still tourist attractions today. The invasion never came, but Chuuk was regularly pounded by enemy bombers following the United States carrier raid on the island group in February 1944. For the last year and a half of the war, some 35,000 Japanese fighting men and laborers shared the islands' scant food resources with the local population. Every available foot of land was planted in sweet potatoes, and Chuukese often had to sneak food out of their own gardens to feed themselves and their families. All this ended on August 15, 1945, when the Japanese Emperor announced his country's unconditional surrender to the Allies.

Census. Table 1.2 shows the population of Chuukese and Japanese during the Japanese period. At the beginning of the period, of course, few Japanese were in the Islands. As the Japanese Administration increased its influence in the islands, the number and percentage of Japanese increased considerably until during and after World War II (when the Japanese were repatriated.)

Table 1.2. Population of Chuuk for Japanese and Chuukese: 1920 to 1946Table 1.2. Population of Chuuk for Japanese and Chuukese: 1920 to 1946Table 1.2. Population of Chuuk for Japanese and Chuukese: 1920 to 1946

	Numbers			Percent		
Date	Total	Natives	Japanese	Total	Natives	Japanese
1920.....	10,411	9,822	589	100.0	94.3	5.7
1925.....	10,171	9,834	337	100.0	96.7	3.3
1930.....	10,888	10,153	735	100.0	93.2	6.8
1935.....	12,322	10,344	1,978	100.0	83.9	16.1
1940.....	NA	14,734	NA	...	...	...
1945 (Dec)..	45,854	8,520	37,334	100.0	18.6	81.4
1946 (Aug)..	10,485	9,185	1,300	100.0	87.6	12.4

Source: Hall and Pelzer, 1946:7
Notes: While earlier figures include only the islands of Chuuk, the figures for 1940 gives the population of Greater Chuuk. The population of the islands around Chuuk was estimated by the Japanese at approximately 5,000.

Japanese constituted less than 6 percent of the population in 1920, and only 3 percent in 1925. Both populations decreased between 1920 and 1925. Japanese continued to be a fairly small percentage of the population in the 1930 and 1935 censuses, although they were 16 percent of the population by 1935 -- about 1 in every 6 persons. Unfortunately we do not have information from the 1940 census, because it is obvious that an enormous build up occurred in the pre-war period.

Japan intended to annex the islands. Many Okinawans and Koreans left Japan for the larger Pacific Islands, and many brought their families. Although the total effect on Japan's population was minor, the intent was to use the islands to relieve population pressure in Japan itself. By December,

1941, when Japan bombed Pearl Harbor, immigrants in Micronesia outnumbered locals on some islands from 3 or 4 to 1 and other islands by as much as 10 or more to 1 (Bowden et al., 1966:27). Also, they began to "Japanize the islanders through education, propaganda, intermarriage, and in general the promotion of cultural changes" (Mirror 1971:23). As a subsequent change, intermarriage and affairs brought increased numbers of inter-racial babies.

By 1911, the total population of what was to become Chuuk state had decreased to 11,000 and by 1920 to 9,822. The establishment of a health service stopped the downward trend, and the population increased very slightly from 9,822 in 1920 to 10,344 in 1935 (See Table 1.3) Table 1.3 also shows the numbers of Japanese in Chuuk during the Japanese period. The Japanese took censuses in 1920, 1925, 1930, 1935, and 1940. Complete, lengthy reports were prepared for the 1930 and the 1935 censuses. The 1930 Census report included comparative information for the 1920 and 1925 censuses. The 1940 census seems to have been collected and tabulated, but no publication is in current circulation.

Table 1.3. Population of Chuuk: 1920 to 1989

Year	Population	Source
1920....	14,788	Nan'yo-cho 1937
1925....	14,961	Nan'yo-cho 1927
1930....	15,200	Nan'yo-cho 1931
1935....	15,129	Nan'yo-cho 1937
1940....	14,734	Hall and Pelzer 1946
1946....	9,185	Hall and Pelzer 1946
1949....	14,936	U.S. Department of the Navy 1949
1950....	15,617	U.S. Department of the Navy 1950
1951....	15,788	U.S. Department of the Navy 1951
1952....	15,848	U.S. Department of Interior 1952
1954....	16,946	U.S. Department of State 1955
1956....	17,477	U.S. Department of State 1957
1957....	18,605	U.S. Department of State 1958
1958....	20,124	Office of the High Commissioner, TTPI 1959
1959....	21,010	U.S. Department of State 1960
1960....	21,401	U.S. Department of State 1961
1961....	21,309	U.S. Department of State 1962
1963....	22,564	U.S. Department of State 1963
1964....	23,344	U.S. Department of State 1964
1965....	24,521	U.S. Department of State 1965
1966....	25,820	U.S. Department of State 1966
1967....	25,107	School of Public Health, Univ. of Hawaii n.d.
1968....	26,368	U.S. Department of State 1969
1969....	27,453	U.S. Department of State 1970
1971....	29,334	U.S. Department of State 1972
1972....	32,732	U.S. Department of State 1973
1973....	31,609	Office of Census Coordinator, TTPI 1975
1975....	33,040	U.S. Department of State 1976
1976....	34,120	U.S. Department of State 1977
1977....	35,220	U.S. Department of State 1978
1978....	36,350	U.S. Department of State 1979
1979....	37,400	U.S. Department of State 1980
1980....	37,488	U.S. Bureau of the Census 1982a
1984....	44,596	U.S. Department of State 1985
1989....	47,871	Office of Planning and Statistics, FSM 1992

Sources: Sources in table; this table assembled by L.J. Gorenflo
Notes: 1920-1946 data for Pacific Islanders only.

The population of Chuuk more than tripled between 1935 and 1989. Chuuk's population doubled between 1935 and 1973, and added another 16,000 persons between 1973 and 1989 (an additional 50 percent. The total increase between 1935 and 1989 was 216 percent. Each of the states also increased considerably between 1935 and 1989, with some increasing much more than others. The

Mortlocks, for example, increased by 74 percent, the smallest increase for any of the regions (Table 1.4). Oksoritod increased by 134 percent, also below the average for the whole State. It is important to note, however, that not only has there been considerable outmigration from the Outer Islands to the lagoon, but part of the reason for this migration has been the lack of land on the atolls to support larger populations.

Table 1.4. Chuukese by Region: 1930 to 1989

	Year						
Region	1930	1935	1958	1967	1973	1980	1989
Total	15,200	15,129	20,124	25,107	31,596	37,488	47,871
Northern Namoneas	2,613	2,413	4,367	5,913	9,568	10,351	15,622
Southern Namoneas	3,911	4,379	4,785	6,062	7,401	9,146	11,455
Faichuk	3,638	3,388	4,932	6,166	7,277	8,831	11,264
Mortlocks	3,400	3,401	4,224	4,547	4,685	5,941	5,904
Oksoritod	1,638	1,548	1,816	2,419	2,665	3,219	3,626

Source: Gorenflo and Levin, in preparation

Southern Namoneas increased by 162 percent between 1935 and 1989, Faichuk by 232 percent, and Northern Namoneas by 547 percent, far more than would be expected by natural increase alone!

Since 1930, the percentage of the population living on Weno has generally increased over time (with the exception of the 1980 census)(Table 1.5) About 3 in every 20 persons of Chuuk's population lived in Northern Namoneas in 1935, but the proportion increased to 3 in 10 by 1973 and not quite 1 in 3 in 1989. The percentage on Faichuk remained essentially constant over the period. The percentages for the other areas, however, decreased. Southern Namoneas decreased from 29 percent to 24 percent, the percentage in the Mortlocks was almost halved -- from 22 percent to 12 percent, and the percentage in Oksoritod from 10 percent to only 8 percent.

Table 1.5. Chuukese by Region: 1930 to 1989

Region	Year						
	1930	1935	1958	1967	1973	1980	1989
Total	15,200	15,129	20,124	25,107	31,596	37,488	47,871
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Northern Namoneas.	17.2	15.9	21.7	23.6	30.3	27.6	32.6
Southern Namoneas.	25.7	28.9	23.8	24.1	23.4	24.4	23.9
Faichuk	23.9	22.4	24.5	24.6	23.0	23.6	23.5
Mortlocks	22.4	22.5	21.0	18.1	14.8	15.8	12.3
Oksoritod	10.8	10.2	9.0	9.6	8.4	8.6	7.6

Source: Gorenflo and Levin, in preparation

The 1930 census was the first to obtain distributions by age. These distributions allow for interpretation of changing population dynamics over time, including calculation of a dependency ratio -- a ratio of number of probably dependents to potential workers. The dependency ratio for 1930, from data in Table 1.6 is calculated by adding the numbers of persons less than 15 years old to those 60 years and over, and dividing by the number of persons 15 to 59 years old. That is, is most probable that persons under 15 years old are not contributing to the work force because they are in school or playing or working around the house, and those 60 years and over are mostly "retired", and, while not all those 15 top 59 are working to support these "dependents", many of them are, and for simplification, all appear in the denominator. Hence, the dependency ratio for 1930 -- 68 -- means that for every 68 dependents (the 6150 persons less than 15 and 60 years and over), 100 potential workers (the 9050 persons 15 to 59) were present. A ratio of 100 would mean that their numbers of dependents and potential workers were identical; a ratio over 100 would mean that there were more dependents than workers, a situation which would put increased burden on the workers.

Table 1.6. Chuukese by Age and Region: 1930Table 1.6. Chuukese by Age and Region: 1930Table 1.6. Chuukese by Age and Region: 1930

		Percent				
Region	Number	Total	Less than 15 years	15-24 years	25-59 years	60 years or more
Total.....	15,200	100.0	38.5	16.7	42.9	2.0
Northern Namoneas.	2,613	100.1	37.2	16.6	44.9	1.4
Southern Namoneas.	3,911	100.0	39.0	18.6	40.7	1.7
Faichuk.....	3,638	100.1	37.5	15.7	45.2	1.8
Mortlocks.....	3,400	100.0	42.1	16.0	38.5	3.5
Oksoritod.....	1,638	100.0	34.6	15.7	48.9	0.7

Source: Nan'yo-cho 1931 (from Gorenflo and Levin, in preparation)

In 1930, life expectancy in Chuuk remained low. Only two percent of the population was 60 years or older. It is important to remember, however, that while life at that time was rougher than now, so we might expect higher early mortality (because of typhoons, tidal waves, canoe voyaging, appendicitis and other health risks, etc.), it is also true that many people did not know their birth dates and may have picked younger (or older) ages than their actual ages. About 3.5 percent of the Mortlocks population was 60 years and over, indicating possible age inflation, while less than 1 percent of those in Oksoritod were 60 years and over.

The Mortlocks also had the largest percentage of persons less than 15 years old, indicating a slightly higher birthrate than in the other areas. On the other hand, while Oksoritod had the smallest percentage of elderly, they also had the smallest percentage less than 15 years old.

It could be argued that some of the difference in age reporting was due to migration between their home area and where they were enumerated. The data in Table 1.7, however, seem to show that this was not the case. It is true that 1.5 percent of those living in Oksoritod were "registered" in another district -- most likely in Yap because of traditional inter-island voyaging and associated marriages and adoptions. However, the fairly large percentage of persons living in Oksoritod but being registered elsewhere in Chuuk seems anomalous unless the Japanese were moving persons around (or, perhaps, movements from the Lagoon to the Hall Islands.) The situation for the Mortlocks seems more consistent with what would have been expected at the time, more than 19 out 20 Mortlockese being registered and living in the same locality -- although in the case of the Mortlockese on Pohnpei, the statistics would probably look quite different.

Table 1.7. Chuukese by Region of Registration and Region of Residence: 1930

Region of Residence	Number	Region of Registration -- Percent			
		Total	Same Locality	Same District	Other District	Other Location
Total.....	15,200	100.0	89.0	10.4	0.5	0.1
Northern Namoneas.	2,613	100.0	91.1	8.2	0.8	0.0
Southern Namoneas.	3,911	100.0	78.1	20.8	0.6	0.4
Faichuk.....	3,638	100.0	92.6	7.4	0.1	0.0
Mortlocks.....	3,400	100.0	95.4	4.3	0.3	0.0
Oksoritod.....	1,638	100.0	90.4	8.1	1.5	0.1

Source: Nan'yo-cho 1931 (from Gorenflo and Levin, in preparation)

The distribution of registration for Faichuk and Northern Namoneas was similar to that seen for Oksoritod, but the situation for Southern Namoneas was quite different. This difference is probably partly attributable to the Japanese build up centered around Fefen, capital of Chuuk during the period. About 1 in every 5 persons living in Southern Namoneas in 1930 was from some place else in Chuuk. This proportion was about twice the proportion for all of Chuuk.

When we run the percentages vertically instead of horizontally, a different picture emerges (Table 1.8). In 1930, about 1 in 4 persons lived in Southern Namoneas, another 1 in 4 in Faichuk, another 1 in 4 in the Mortlocks, and the rest lives in Northern Namoneas and Oksoritod. The percentage distribution of the 89 percent of the population living in the same locality was almost identical to the distribution for the whole population -- not too surprising since these people made up the vast majority of persons living in Chuuk at that time. However, if we do look at the 1,575 persons who were not living in the same locality, but were living in Chuuk, we see a different pattern -- that is, more than half of those persons were living in Southern Namoneas, again, probably either forcibly moved by Japanese, or moving of their own accord to work or, perhaps, go to school, in the capital of the time. Of the 80 persons registered in other districts, 24 (30 percent) were living in Oksoritod, and 17 of the 19 persons registered in "another" location were living in Southern Namoneas.

Table 1.8. Chuukese by Region of Registration and Region of Residence: 1930

Region of Residence	Number	Region of Registration -- Percent				
		Total	Same Locality	Same District	Other District	Other Location
	15,200	...	13,529	1,575	80	19
Total.....	...	100.0	100.0	100.0	100.0	100.0
Northern Namoneas.	2,613	17.2	17.6	13.6	26.2	0.0
Southern Namoneas.	3,911	25.7	22.6	51.7	28.3	89.1
Faichuk.....	3,638	23.9	24.9	17.0	4.0	0.0
Mortlocks.....	3,400	22.4	24.0	9.3	11.5	5.5
Oksoritod.....	1,638	10.8	10.9	8.4	30.0	5.5

Source: Nan'yo-cho 1931 (from Gorenflo and Levin, in preparation)

By 1935, the percentage of elderly had increased slightly, but the percentage distributions remained relatively similar to those in 1930 (Table 1.9). The percentage of persons 15 to 24 of all those in Southern Namoneas, however, jumped considerably -- indicating that young people were moving there for schooling, and, perhaps, for work. The percentage of persons less than 15 remained higher in the Mortlocks than elsewhere, lower in Oksoritod than elsewhere.

Table 1.9. Chuukese by Age and Region: 1935

Region	Number	Percent				
		Total	Less than 15 years	15-24 years	25-59 years	60 years or more
Total.....	15,129	100.0	37.8	18.4	41.0	2.8
Northern Namoneas.	2,413	100.0	36.6	16.9	42.4	4.0
Southern Namoneas.	4,379	100.0	35.8	22.1	39.7	2.4
Faichuk.....	3,388	100.0	38.4	16.3	42.6	2.7
Mortlocks.....	3,401	100.0	42.2	17.6	37.6	2.6
Oksoritod.....	1,548	100.0	34.1	16.3	46.9	2.7

Source: Nan'yo-cho 1937 (from Gorenflo and Levin, in preparation)

As noted before, the number of Chuukese in Chuuk did not change during the Japanese period, somewhat of an indictment of the Japanese Administration since, by this time, sufficient knowledge of health practices was available to greatly reduce what must have been very high mortality rates. Table 1.10 shows the median age of the 1940 population to be 25.2 years, considerably above the 15.6 reported in 1989, and also far higher than median ages during most of the American period. Some of this difference comes from much higher fertility in the American period, partly because of

a lessening of traditional taboos about post-partum intercourse, and partly because of advances in health care making full-term pregnancies and healthy babies more likely. Some of the difference is also attributable to difference in mortality levels, although world levels of mortality were also higher at the time. In any case, the population of Chuuk was 14,788 in 1920 and was 14,734 in 1940, showing no change during the period.

Table 1.10. Chuukese Population by Age and Sex: 1940

Age Group	Numbers			Percent			Males Per 100 Females
	Total	Males	Females	Total	Males	Females	
Total..	14,734	7,306	7,428	100.0	100.0	100.0	98.4
1 - 5.....	1,440	660	780	9.8	9.0	10.5	84.6
1.....	323	136	187	2.2	1.9	2.5	72.7
2.....	339	154	185	2.3	2.1	2.5	83.2
3.....	242	110	132	1.6	1.5	1.8	83.3
4.....	252	124	128	1.7	1.7	1.7	96.9
5.....	284	136	148	1.9	1.9	2.0	91.9
6 - 10.....	1,546	794	752	10.5	10.9	10.1	105.6
11 - 15.....	1,478	738	740	10.0	10.1	10.0	99.7
16 - 20.....	1,601	803	798	10.9	11.0	10.7	100.6
21 - 25.....	1,544	841	703	10.5	11.5	9.5	119.6
26 - 30.....	1,350	642	708	9.2	8.8	9.5	90.7
31 - 35.....	1,480	740	740	10.0	10.1	10.0	100.0
36 - 40.....	995	454	541	6.8	6.2	7.3	83.9
41 - 45.....	936	442	494	6.4	6.0	6.7	89.5
46 - 50.....	760	381	379	5.2	5.2	5.1	100.5
51 - 55.....	685	336	349	4.6	4.6	4.7	96.3
56 - 60.....	428	217	211	2.9	3.0	2.8	102.8
61 - 70.....	418	221	197	2.8	3.0	2.7	112.2
71 and over.	73	37	36	0.5	0.5	0.5	102.8
Median.....	25.2	24.9	25.6	...	...	...	...

Source: Hall and Pelzer, 1946:10

The table also shows an age and sex distribution for the first time. It seems that the 1920 and 1925 censuses did not provide age distributions at all. The 1930 and 1935 censuses did provide age distributions by sex, but did not provide the same categories for each of the two sexes. The categories used cause some confusion. No zero year old category exists, and the data do not indicate that the zero year olds were lumped with the 1 year olds. Hence, it is difficult to obtain numbers comparable to later censuses. About 30 percent of the population was less than 16, more than 3 percent was 61 years and over.

In 1940, more females than males were living in Chuuk -- about 98 males for every 100 females. In many societies, more male babies than females are born -- demographers often expect 106 males to

100 females at birth. However, at the youngest ages in 1940, more females than males were living in Chuuk -- at each single age, as well as for the 1 to 5 year olds as a whole. Also surprising is the surplus of males at the oldest ages -- usually adult males have considerably higher mortality than adult females, so we expect more elderly females. The median age of females is older, but distribution is unexpected.

During the war the natives of Chuuk were greatly outnumbered by Japanese military personnel. By August 1946, however, all Japanese except some 1,300 officers and men had been repatriated to Japan. The only other foreigners in Chuuk were 7 Germans and 7 Spaniards, the Germans being Protestant and the Spaniards being Catholic missionaries. At the end of the war there were some 1,500 Japanese and Okinawans civilians in Chuuk, all of whom were shipped back to their home countries.

For the immediate post-war period,

> The Japanese estimated the population of the islands around Chuuk at roughly 5,000. Navy screening parties which visited the islands in late 1945 and early 1946 counted some 4,700 people (see Table III) [Table _____ here]. It is quite possible that some individuals were counted twice, as many islanders who had been displaced during the war returned to their communities during the screening period (Hall and Pelzer 1946:6).

Tables 1.11 and 1.12 give data on sex and age for Chuuk in 1940 and 1946. Whereas in 1940 males were slightly more numerous than females, they outnumbered the females in 1946; so that in the latter year 51.8 percent of the population were males and 48.2 percent were females. This may be partly due to the influx of men from the low islands around Chuuk, who were attracted by employment offered by the Military Government.

Comparing age distribution in 1940 with that in 1946, we find that the percentage for the lower age groups (up to 15 years) dropped slightly which, according to the natives, was due to lower birth rate and higher infant mortality during the war. In 1946, 29.7 percent of the population were under 15, 50.9 percent were between 15 and 45, and 19.4 were over 45 years of age. Compared with the age distribution of an average population -- in which at least 1/3 of the people are less than 15, 50 percent between 15 and 45, and 1/6 over 45 years -- these percentages are too low for the lower and too high for the upper groups. The percentage of people in the higher age groups increased from 16 to 19 percent between 1940 and 1946; this may be due to higher losses in the lower and middle age groups.

Table 1.11. Population by Age and Sex, Chuuk: August 1946

Age Group	Numbers			Percent			Males Per 100 Females
	Total	Males	Females	Total	Males	Females	
Total..	9,185	4,756	4,429	100.0	100.0	100.0	107.4
0 - 4.....	882	459	423	9.6	9.7	9.6	108.5
5 - 9.....	896	442	454	9.8	9.3	10.3	97.4
10 - 14.....	938	483	455	10.2	10.2	10.3	106.2
15 - 19.....	836	444	392	9.1	9.3	8.9	113.3
20 - 24.....	929	442	487	10.1	9.3	11.0	90.8
25 - 34.....	1,706	906	800	18.6	19.0	18.1	113.3
35 - 44.....	1,174	586	588	12.8	12.3	13.3	99.7
45 - 54.....	1,006	533	473	11.0	11.2	10.7	112.7
55 - 64.....	552	306	246	6.0	6.4	5.6	124.4
65 - 74.....	189	117	72	2.1	2.5	1.6	162.5
75 and over.	27	15	12	0.3	0.3	0.3	125.0
Not Stated..	50	23	27	0.5	0.5	0.6	85.2
Median.....	25.5	26.1	24.9	...	...	...	...

Source: Hall and Pelzer, 1946:11

The median age for the population remained high in 1946 -- about the same as in 1940, but in 1946 the median age for males was higher than for females. Table 1.12 also shows that males predominated at almost every age group. This distribution seems to indicate a possibly faulty census in the sex distribution -- frequently females are undercounted in developing countries because of reluctance to be included or enumerator or respondent "forgetting", and this may be the case here. It could be, however, that males moved to the lagoon areas for schooling and work, and that is what we are seeming. But since the surplus is at all age groups, explanations are not so easily come by.

Table 1.12. Population by Island in Chuuk Lagoon: August 1946

Island	Numbers			Percent			Males Per 100 Females
	Total	Males	Females	Total	Males	Females	
Total..	9,185	4,756	4,429	100.0	100.0	100.0	107.4
N. Namoneas.	2,033	1,060	973	22.1	22.3	22.0	108.9
S. Namoneas.	3,485	1,839	1,646	37.9	38.7	37.2	111.7
Tonoas....	1,155	605	550	12.6	12.7	12.4	110.0
Fefen.....	1,408	730	678	15.3	15.3	15.3	107.7
Uman.....	922	504	418	10.0	10.6	9.4	120.6
Faichuk.....	3,667	1,857	1,810	39.9	39.0	40.9	102.6
Udot.....	1,035	514	521	11.3	10.8	11.8	98.7
Tol.....	2,632	1,343	1,289	28.7	28.2	29.1	104.2

Source: Hall and Pelzer, 1946:13
Notes: Fefen includes Parem, Totiw, and Siis; Udot includes Eot, Romanum, and Fanapanges; Tol includes Paata and Polle.

Hall and Pelzer speculated on mortality in 1946, noting:

> the women of Chuuk of the higher age groups do not outnumber the men, a reflection on the degree to which women share in the tasks of making a living (1946:12).

Although the decrease in population (from 10,344 in 1935 to 9,185 in 1946) was caused by wartime conditions, especially to the breakdown of the Japanese health service, lack of food, casualties caused by bombings, dislocation of population, disruption of family life, heavy labor demands, the native population of Chuuk remained practically stationary during the period from 1920 to 1940. The percentage of children below 15 years was only 30.3 percent of the total population in 1940, compared with 36.9 percent in Japan in 1935. The birth rate per thousand Japanese women of child bearing age in Chuuk was 153 compared to 107 per thousand Chuuk women of child bearing age.

> Genealogical studies of a number of leading families in Chuuk have shown that a relatively large number of women is sterile. The natives themselves are acutely aware of this condition and deplore sterility on the part of the women (Hall and Pelzer, 1946:12).

The decline in population during the last century was due to the introduction of tuberculosis, venereal diseases, measles, and smallpox. In the mid-1940s, when Hall and Pelzer were working, the most prevalent diseases were intestinal infections, yaws, tuberculosis, and, to a lesser degree, venereal diseases. An energetic anti-yaws campaign in Chuuk greatly reduced the number of

children and adults afflicted with this skin disease. In contrast to tuberculosis, intestinal infections, and venereal diseases, yaws could be detected by rapid visual inspection of large numbers of individuals. According to information supplied by German missionaries, tuberculosis caused and, in 1946, still caused havoc on many of the low islands around Chuuk.

> It is doubtful whether anything less than an improved diet, better housing, better sanitation, and a well-developed hospital system will reduce the present high rate of tuberculosis. A vigorous anti-venereal disease campaign should have beneficial affects on fertility rates, since // sterility on the part of the women is often caused by gonorrhea (Hall and Pelzer 1946:12-14).

1.2.4 American Administration.2.4 American Administration.2.4 American Administration

History. Once again the spoils of war, Micronesia passed into the hands of the United States. Early American development policy for the islands was defined more in reaction to earlier Japanese policy than in any more positive way. All Japanese nationals, including those who had been married to Chuukese women, were repatriated as soon as possible. Hence, the pool of skilled labor that created the economic miracle in the 1930s was lost forever. The United States Navy, which was then administering the islands, further pledged to avoid all "indiscriminate exploitation" of island resources. There would be economic development projects funded by outside capital. Any economic development that occurred was to benefit the local people and be subject to their control. This was to set the pattern for the islands during their first two decades under American rule.

United Nations trusteeship in 1947 and civilian administration under the Department of the Interior in 1951 had virtually no impact on the United States' "go slow" development policy. The United States Commercial Company, which had been introduced by the Navy in 1946 to supervise economic development, was replaced by the Island Trading Company a year later. This, in turn, spawned local import-export businesses such as the Chuuk Trading Company. Retail stores multiplied and the production of copra and handicraft was encouraged. Experimental projects in such things as cacao, ramie, coir fibre, and poultry were begun, but nearly all proved failures.

Although unwilling to impose development programs on the people, the United States showed no such hesitation in promoting democratic political practices. From the very start the United States attempted to set up democratic forms of government on every level of island society. In 1948 municipalities were established and elections were held for magistrates. At first the people of most places chose the head of the highest ranking clan on the island; but in time, as it became clear that the magistrates would be expected to deal with American government officials, some of the chiefs picked surrogates whom they supported in the elections. Later the magistrates of some islands would carve out a leadership role for themselves that was more independent of the chiefs.

Meanwhile, training programs were established for teachers and nurses, with the Pacific Islands

Teacher Training School (PITTS) moving from Guam to Chuuk in 1952. (Later the institution evolved into the first full high school (PICS) in the Trust Territory.) During the 1950s this school graduated ten or 15 Chuukese a tear, a mere five percent of the output of high school graduates during the 1970s. Only a few hundred people had any salary employment during these years, most of them in lower level positions in the government.

Then, in the early 1960s, during the Kennedy Administration, United States policy was suddenly reversed. A massive buildup of education and health services was undertaken as the Trust Territory budget doubled in 1964 and escalated each year to the end of the decade. New classroom buildings were put up everywhere and American teachers were recruited to upgrade educational standards. Chuuk acquired its own high school, and several years later five junior high schools. Education enrollments, particularly on the secondary level, increased may times over, and int he early 1970s, with the help of United States Federal assistance, unprecedented numbers of Chuukese began going abroad for college. All the while, new government jobs were created as employment in Chuuk doubled and then doubled once again. The government was now more than ever the engine that drove the economy. Exports remained at the level of the 1950s, bringing in a few hundred thousand dollars a year while imports skyrocketed throughout the following years.

Belatedly during the 1970s the United States administration made attempts to halt the galloping wage-and-consumption direction of the economy. A ceiling was put on the annual budget, but supplementary funds in the form of United States Federal Program grants and Capital Improvement Project funds fostered the same cycle until 1979. The year before, Chuuk elected its first governor and the state became self-governing after nearly a century of colonial rule. Its political status was formalized in 1986 when the Federated States of Micronesia's Compact of Free Association with the United States was implemented. With Chuuk's political status finally settled -- at least for the next 15 years -- the state was free to devote full attention to its main problem: developing a viable economy.

Census. Although the first population census during the American period was carried out by the Office of the High Commissioner in 1958, the 1967 census, carried out by the Peace Corps Volunteers, was the first done through enumeration of the entire resident population using well tested methods including maps and housing lists.

Since the 1967 census, periodic though somewhat irregular censuses have been conducted. The United States, under Acts of Congress which provided for the inclusion of outlying areas of U.S. sovereignty or jurisdiction, included the TTPI in its 1970 census of population while the 1980 census was carried out by the TTPI Administration. Because of dissatisfaction with the 1970 census, another census was commissioned under a Law enacted by the Congress of Micronesia and carried out with the assistance of the South Pacific Commission. This last census, conducted in 1973 out of the High Commissioner's Office, is generally considered the best census during the American period.

Of the 25,107 persons enumerated in Chuuk in 1967, 18,141 or 72 percent lived on the lagoon islands, 4,547 (18 percent) lived in the Mortlocks, and 2,419 (10 percent) lived in Oksoritod (Table 1.13). About 45 percent were less than 15 years old.

Table 1.13. Age by Region, Chuuk: 1967

Region	Number	Percent				
		Total	Less than 15 years	15-24 years	25-59 years	60 years or more
Total.....	25,107	100.0	45.4	17.0	27.9	5.6
Northern Namoneas.	5,913	100.0	42.9	17.9	28.6	4.5
Southern Namoneas.	6,062	100.0	47.4	16.9	27.3	6.0
Faichuk.....	6,166	100.0	45.9	16.8	27.0	5.5
Mortlocks.....	4,547	100.0	45.2	17.9	27.6	6.7
Oksoritod.....	2,419	100.0	46.0	13.8	30.5	5.4

Source: School of Public Health, University of Hawaii, ms. (from Gorenflo and Levin, in preparation)
Note: About 4 percent of persons had age "Not Stated" so appear in the total but not in the distribution by age.

More than half of the population of Oksoritod in 1973 was less than 15 years old, while slightly less than half of the populations of Southern Namoneas, Faichuk, and the Mortlocks were also in this age group (Table 1.14). The population in Northern Namoneas looked different, with less than 4 in 10 being less than 15, but about 1 in 4 being between 15 and 24, considerably greater than the proportions for the other regions. The percentage 25 to 59 was also larger than the other regions, but the percentage 60 years and over was less, indicating that older people either remained in the outlying areas, or returned to them after working in what was then the "District Center."

Table 1.14. Chuukese by Age and Region: 1973

Region	Number	Percent				
		Total	Less than 15 years	15-24 years	25-59 years	60 years or more
Total.....	31,596	100.0	46.4	19.4	27.5	6.2
Northern Namoneas.	9,568	100.0	39.5	25.8	29.2	5.0
Southern Namoneas.	7,401	100.0	49.5	16.8	26.6	6.2
Faichuk.....	7,277	100.0	49.0	17.5	26.3	6.8
Mortlocks.....	4,685	100.0	48.8	16.0	27.5	7.6
Oksoritod.....	2,665	100.0	51.0	15.3	27.5	6.0

Source: Office of Census Coordinator, TTPI 1975 (from Gorenflo and Levin, in preparation)
Note: Unknowns affect percentages.

By 1973, the great migration to Weno had started. As noted earlier, the population of Chuuk jumped by more than 6,000 between 1967 and 1973. The 1973 census contained a question on home area besides the question on usual residence (people were also classified by place of enumeration.) Home area in 1973 was the place closest to the person's heart -- usually the voting residence. The total for home area was slightly different from usual residence because persons in other FSM states and Palau and the Marshalls could claim Chuuk as home area.

Of the 31,218 persons in 1973 claiming Chuuk as home area, about 5 in 6 claimed the same municipality for both home area and usual residence (Table 1.15). However, less than 3 of every 5 persons in Northern Namoneas claimed the same municipality for both usual residence and home area, while about 2 in 5 claimed some other area as their home area. No other region in Chuuk in 1973 had these proportions -- about 1 in 12 of those in the Mortlocks and Oksoritod claimed other places as home area, and the percentages in Southern Namoneas and Faichuk were even lower. Almost no one in Chuuk in 1973 claimed home areas outside of Chuuk.

Table 1.15. TTPI-born by Home District and Region of Residence: 1973

Region of Residence	Number	Home Area -- Percent			
		Total	Same Municipality	Elsewhere in Chuuk	Elsewhere in TTPI
Total.....	31,218	...	25,992	5,023	201
Percent....	...	100.0	83.3	16.1	0.6
Northern Namoneas.	9,290	100.0	58.1	40.0	1.9
Southern Namoneas.	7,347	100.0	94.3	5.5	0.2
Faichuk.....	7,252	100.0	95.8	4.1	0.1
Mortlocks.....	4,672	100.0	91.6	8.3	0.1
Oksoritod.....	2,657	100.0	91.8	8.2	0.1

Source: TTPI 1975 (from Gorenflo and Levin, in preparation)

By 1973, almost 3 out of every 4 persons claiming a home area outside their municipality of residence were living in Northern Namoneas (Table 1.16). Similarly, about 7 in every 8 of the 201 persons claiming home areas outside Chuuk were living in Northern Namoneas in 1973. Persons in other regions were more likely than those in Northern Namoneas, then, to have their usual residence and their home area the same.

Table 1.16. TTPI-born by Home District and Region of Residence: 1973

Region of Residence	Number	Home Area -- Percent			
		Total	Same Municipality	Elsewhere in Chuuk	Elsewhere in TTPI
Total.....	31,218	...	25,992	5,023	201
Percent....	...	100.0	100.0	100.0	100.0
Northern Namoneas.	9,290	29.8	20.8	74.0	87.8
Southern Namoneas.	7,347	23.5	26.6	8.1	6.4
Faichuk.....	7,252	23.2	26.7	5.9	2.7
Mortlocks.....	4,672	15.0	16.5	7.7	2.0
Oksoritod.....	2,657	8.5	9.4	4.3	1.0

Source: TTPI 1975 (from Gorenflo and Levin, in preparation)

The age distribution for 1980 did not differ very much from the age distribution in 1973 (Table 1.17). The percentage of those less than 15 in Oksoritod decreased to less than half, but increased significantly on Weno, probably because of attendance at Chuuk High School. The percentage of persons 15 to 24 years old in Northern Namoneas decreased considerably, possibly as a result of out migration for schooling in Guam, Hawaii, and the mainland United States.

Table 1.17. Chuukese by Age and Region: 1980

Region	Number	Percent				
		Total	Less than 15 years	15-24 years	25-59 years	60 years or more
Total.....	37,488	100.0	46.4	19.5	28.6	5.5
Northern Namoneas.	10,351	100.0	44.2	19.7	31.7	4.4
Southern Namoneas.	9,146	100.0	47.5	19.2	27.8	5.5
Faichuk.....	8,831	100.0	49.5	18.6	26.6	5.3
Mortlocks.....	5,941	100.0	44.7	19.9	28.5	6.9
Oksoritod.....	3,219	100.0	45.7	21.7	26.2	6.5

Source: U.S. Bureau of the Census, 1982 (from Gorenflo and Levin, in press)

The 1980 census did not have a question on home area similar to the that in the 1973. However, the 1980 census contained a question on residence 5 years before the census, an item used in United States censuses to obtain information on short term migration. These data show return migration to the Mortlocks at the time of the 1980 census (Table 1.18). That is, about 16 percent of the Mortlocks' population in 1980 reported living elsewhere in Chuuk in 1975. The Mortlocks was the only region to show this type of migration. More than 96 percent of those living in Oksoritod and more than 97 percent of those in Faichuk lived in the same municipality in 1975 as 1980.

Table 1.18. Residence in 1975 by Current Region of Residence, Chuuk: 1980

Region of Residence	Number	Residence in 1975 - Percent			
		Total	Same Municipality	Elsewhere in Chuuk	Elsewhere
Total, 5+ yr.	28,914	100.0	92.2	6.8	1.0
Northern Namoneas.	8,103	100.0	91.6	6.6	1.8
Southern Namoneas.	7,245	100.0	92.5	6.9	0.6
Faichuk.....	6,841	100.0	97.3	2.4	0.4
Mortlocks.....	4,450	100.0	82.7	15.6	1.6
Oksoritod.....	2,275	100.0	96.3	3.3	0.3

Source: U.S. Bureau of the Census, 1982 (from Gorenflo and Levin, in press)

Because of the different sizes of the regions, the percentages by category varied (Table 1.19). More than 1 in 3 of those "elsewhere in Chuuk" were living in the Mortlocks in 1975, more than twice the percentages for the total population. On the other hand, the percentage "elsewhere in Chuuk" for Faichuk was only about one-third of its percentage in Chuuk's total population. Half of those

"elsewhere" in 1975 were living in Northern Namoneas in 1980, and about 1 in 4 were in the Mortlocks.

Table 1.19. Residence in 1975 by Current Region of Residence, Chuuk: 1980

Region of Residence	Number	Residence in 1975 - Percent			
		Total	Same Municipality	Elsewhere in Chuuk	Elsewhere
Total.....	28,914	...	26,652	1,965	292
Percent....	...	100.0	100.0	100.0	100.0
Northern Namoneas.	8,103	28.0	27.8	27.2	50.0
Southern Namoneas.	7,245	25.1	25.1	25.3	14.1
Faichuk.....	6,841	23.7	25.0	8.3	8.6
Mortlocks.....	4,450	15.4	13.8	35.4	24.9
Oksoritod.....	2,275	7.9	8.2	3.9	2.4

Source: U.S. Bureau of the Census, 1982 (from Gorenflo and Levin, in press)

Information for Chuuk is available from all the above mentioned censuses but the 1989 census was undertaken in Chuuk by the Government of the FSM. We now turn to a description of that project.

CHAPTER 2. DESCRIPTION OF THE CENSUS PROJECTCHAPTER 2. DESCRIPTION OF THE CENSUS PROJECTCHAPTER 2. DESCRIPTION OF THE CENSUS PROJECT

2.1 Background.1 Background.1 Background

The 1989 Population Census of Chuuk State was the last in the series of State Censuses held in the Federated States of Micronesia (FSM). The 1989 Chuuk census followed the censuses of Pohnpei in 1985, Kosrae in 1986 and Yap in 1987. This series was the first the FSM Government conducted after signing the Compact of Free Association between the Federated States of Micronesia and the United States of America.

The FSM did not have existing capability in statistics and censuses at independence in 1979. The change from Trust Territory Status to an independent and sovereign country with the Compact of Free Association between the FSM and the USA brought an unprecedented need for development planning. Consequently, the government needed social, economical and demographic data.

The FSM National Government decided to hold a National Population Census in 1985. The FSM government gave the Office of Planning and Statistics (FSM OPS), in cooperation with the state statistics offices, responsibility to conduct the censuses. However, lack of enough time for the preparation of a national census resulted in undertaking of a Pohnpei State Census in that year. Kosrae and Yap censuses followed in the subsequent two years. Originally the Chuuk Census was to be held in 1988 but the 1988 Household Income and Expenditure Survey required moving the Chuuk Census to 1989.

The 1989 Population Census of Chuuk State was held in September. Referring to the Census Night as the midnight of September 17, 1989 enumeration took place in the period of September 18 - September 22, 1989.

The objectives of the Chuuk Census were to provide

i) information on the change in the size and composition of Chuuk population since 1973.

ii) recent population figures for making very realistic estimates of Chuuk and FSM population for the allocation of funds to the states and municipalities, and for the revision of municipal and electoral boundaries.

iii) the information required for development planning and policy making.

iv) a frame work for sampling for post census surveys.

The FSM Government requested financial and technical assistant from the United Nations Fund for Population (UNFPA) since taking a population census is expensive. The South Pacific Commission (SPC) was the Executing Agency. Technical assistance was provided by the South Pacific Commission/UNFPA Demography Project. The FSM Government contributed $100,000, Chuuk State $75,000 and UNFPA $75,788.

2.2 Time schedule.2 Time schedule.2 Time schedule

Originally, FSM planned to start preparations for the Chuuk Census in 1987 with enumeration on September 15, 1988. The census was postponed until 1989 because FSM OPS was busy preparing the reports on the previous censuses and working on the Income and Expenditures Survey.

2.3 Key events in the census program.3 Key events in the census program.3 Key events in the census program

The following chart shows the key events in the 1989 Chuuk Census program:

KEY EVENTS IN 1989 CHUUK CENSUS PROGRAM

1988

Aug Preparation of Census strategy and first draft of the project document

--- Establish Census Advisory Committee (CAC)

--- Approval of final draft of census strategy, project assistance documents by the FSM governments

--- Review of existing legislation

Sept Preparation of detailed budgets for UNFPA and FSM government

---- Census Commissioner could not be appointed and the National Census and Survey coordinator assumed that responsibility

Dec Creation of Census organization

1989

Feb/Mar Delimit of EDs and recruitment of mappers and listers

Mar Preparation of first draft of questionnaires and enumeration manual

--- Training of mappers and listers (2 days classroom training and 3 days field practice)

Mar/Aug Mapping and listing of households

June Pilot test (?)

July Aerial photo survey

Jul/Aug Field test & finalization of draft schedules, manuals, and procedures

Aug Promulgation of Census night as Sunday, September, 17, 1989

Aug/Sep Publicity campaign

--- Selection and appointment of supervisors and enumerators

Sept Training of enumerators and supervisors (3 days for enumerators and 2 days for supervisors and 1 day field practice)

ENUMERATION (September 17-22, 1989)

Oct/Dec Callbacks for missing information for persons and households

Nov/Jan Coding of the questionnaires

1990

Feb/Apr Data entry for the provisional results

Apr Preparation of edit specs

--- Arrival of UNV-Census specialist

Apr/May Manual editing of the computer files for the provisional results

May First draft of tabulation plan

Jun/Oct Editing and coding of the schedules

Aug Revised edit specifications

Oct/Dec Data entry for the final results

Nov Users' committee formed. Provisional tables and tabulation plan and layouts of the tables presented

```
   1991
Jan/Apr  Checking  and  editing  of  the  computer  batches  for  the  final
         results
  Apr/Jun     Running     edits     and     generating     basic     tables

   1992
April                        Release       of       complete       tabulations
 April                                          Users'                Workshop
  Mar/Jun Analytical Report
```

2.4 Enumeration Method2.4 Enumeration Method2.4 Enumeration Method

The 1973 and 1980 Population Censuses of FSM were de jure but the State Censuses of Pohnpei, Kosrae and Yap were on de facto basis. To make Chuuk Census compatible with other state censuses, the enumeration in the 1989 Population Census of Chuuk State was also de facto.

The enumerators delivered a form to each household prior to the census night for the household to list all the persons slept in their house at midnight, September 17 with their birthdates. On the following day, the enumerators went to each household to collect the form and prepare a questionnaire for each person. Although the form received from the household contained the birthdate for each person, the enumerator still asked for the birthdate and age of each person during the interview.

The enumeration of Chuuk Census used the one visit approach. Enumerators began on September 18, 1989 to visit each household in the enumeration district (ED) and was complete enumeration of the Enumeration District by September 22, 1989. Census Night was midnight of September 17, 1989. Enumerators enumerated all households and all persons staying in those households at the census night.

2.5 Recruitment.5 Recruitment.5 Recruitment

No separate census organization was created for the 1989 Population Census of Chuuk State. All staff working in the Census Project were permanent employees of the National and State Governments or were recruited temporarily. The National Census and Survey Coordinator, Computer Operator, and Statistics Specialist all worked for the National Government. Two State Coordinators and four editors and coders were recruited temporarily for the census project.

All other local staff worked on short term contracts. Local staff consisted of 28 mappers and listers for the mapping and listing operations and 151 enumerators and 23 supervisors for the enumeration. Less than 10 percent were females.

The recruitment of these field workers started in February 1989 with radio announcements and

public notices. The Census Office selected suitable persons. Persons who met the criteria of education and experience took a selection test. These tests played an important role in the final selection, but a serious effort also was made to appoint enumerators and supervisors from the area where they had to work.

A large proportion of the supervisors and enumerators were school teachers. As much as possible the mappers and listers were given priority in the selection for the posts of supervisors and enumerators.

2.6 Questionnaire Design.6 Questionnaire Design.6 Questionnaire Design

The Executing Agency originally prepared the design of the Chuuk Census questionnaire. The Census Advisory Committee (CAC) consisting of the FSM OPS National Planner and the Chief of Statistics and some Cabinet members of Chuuk State Governor's Office modified that design.

Unlike the other states censuses, Chuuk Census had two sets of questionnaire: one for each household and the other for each individual. Most of the questions had already been asked in other state censuses with the exception of those for social and economic activities. The economic activity questions were develop based on 1988 Recommendations on Economic Activity by the Expert Working Group on Collection of Data on Economic Activity in the Pacific Islands (Noumea, New Caledonia, 28-30 March 1988).

Like the other state censuses, the 1989 Chuuk Census was de facto, questions on present `usual residence' and 'residence one year ago' were also included to measure migration. The detail is written in Chapter 7. Since 'legal residence' of Chuukese (place where people vote or pay taxes) is so important to the state government, a question on legal residence was asked in each state census.

2.7 Mapping and Listing.7 Mapping and Listing.7 Mapping and Listing

Like the other state censuses, the Chuuk Census Project undertook a mapping and listing operation a few months prior to the actual enumeration. Previous census maps in Chuuk were not available so the Census staff developed new base maps from recent topographical maps, using different scales, depending on the size of the islands.

Seven base maps were produced for islands with more than 1 or 2 enumeration districts. The office developed Enumeration District (ED) maps from the base maps. Some islands in the lagoon and most of the outer islands were single EDs since they were small.

For the 130 EDs, more than 100 maps were produced: 7 basemaps and about 100 ED maps. A census team consisting of the National Census and Survey Coordinator, one draftsman and a Assistant Coordinator delineated the ED boundaries on the base maps. ED maps were then blown

up from the base maps.

Mappers and Listers were recruited to complete the ED maps by sketching every buildings and dwellings in the field and to list the household(s) of each dwelling. They worked in pairs consisting of a mapper and a lister. They were supervised in the field by the census staff which includes staff from the FSM Planning and Statistics (FSM OPS) as well as staff from the state OPS.

Due to limitation of funding, only 14 mappers and 14 listers were recruited to do the whole operation. They worked in teams in the field. As the mapper sketched the buildings and dwellings onto the ED maps, he or she assigned a unique number for the house and gave the number to the lister. The number of the house on the map corresponded to the number on the Household Listing. As soon as the lister got the house number, he began the interview with the householder. Where a house had more than 1 household living there, each household received a different number but had the same house number. In the lagoon areas, each team completed an average of 6 or 7 EDs.

Unlike the enumeration, the mappers and listers asked for usual residents only. Although workers tried to differentiate usual from legal residents, many Chuukese did not want to be counted where they usually resided, resulting in a very significant difference in the mapping counts and the actual enumeration counts. Households having two houses, one in an urban area, especially Weno and the other in a rural areas, were sometimes double counted.

The maps produced by the mappers were then transcribed onto original maps called ED Listing Maps with houses sketched and carrying a unique number. The listers produced the household listings with house number, household number, head of each household and the total members of the household by sex.

The ED listing maps and the Household Listings served three major purposes:

a) The maps and household listings were used as sampling frames for the Household Income and Expenditure Survey;

b) Guide the enumerators during the actual field enumeration; and,

c) Minimize the workload for the enumerators during enumeration.

2.8 Publicity.8 Publicity.8 Publicity

The whole population of Chuuk cooperated to obtain good census results. Everyone became aware of the census and had a basic understanding of why and how it would be conducted. Mappers and listers imparted important publicity in the initial period when they spoke to the communities and local bodies about the census plans during their mapping tour.

The office launched an intensive publicity campaign during July through September 1989. The radio was the best medium to bring the census message to all corners of Chuuk. Several authorities gave speeches. The Governor read a `Census Proclamation' two weeks before the enumeration started. In addition to these programs, numerous service messages appeared on the radio for the census staff concerning recruitment and travel. These messages helped remind people about the coming enumeration. The enumerators and supervisors prepared census posters and pamphlets in English and Chuukese. They distributed these posters in the main centers of Chuuk (e.g., Weno).

The fact that no one resisted the enumeration is one proof of the effectiveness of the publicity campaign.

2.9 Training.9 Training.9 Training

Training took place in three stages: for trainers, enumerators and supervisors. Trainers had either already been involved in previous censuses or in the mapping and listing operation. Four trainers were selected for the four enumerator training classes. These trainers were themselves trained by the National Census and Survey Coordinator for 1 day. The coordinator briefed them on the basic concepts, methods of enumeration, and how to run classes and cope with various problems connected with the training.

The office selected enumerators from teachers and the mappers and listers, with most of the mappers and listers being recruited to work in the census. Enumerators passed a test to participate. Trainer used the enumerators' manual as basis for the training. The trainers, using the manual as the reference material, initiated discussion on the methods and concepts for the enumeration.

The manuals for enumerators, and supervisors outlined the duties and responsibilities of the census personnel. These manuals also served as basic reference materials for the census enumeration, explaining the concepts and definitions in detail. They also described the enumeration procedure. All documents were prepared in English, but instruction was in Chuukese.

The supervisors were selected from the enumerators and received two additional days of training. Basically, the trainers told them about their role in the enumeration and the methods for checking the enumerators' works. The total group of field workers consisted of about 158 persons: 131 enumerators, 23 supervisors and office workers.

Training went smoothly. Training time proved inadequate and lack of training manuals, other than enumeration manual, caused difficulties in the training.

2.10 Transport.10 Transport.10 Transport

Road transport in the Chuuk State is restricted to main centers of the main lagoon areas. Cars were used to transport census staff and materials in main centers. Motorboats and ships provided transport in other areas. The census office did not have its own motorboats, so it hired motorboats and ships providing regular services between islands. In some cases, lack of transport delayed mapping and listing.

2.11 Enumeration.11 Enumeration.11 Enumeration

Despite the shipping problems, transporting supervisors and enumerators was not a problem. The enumerators carried, apart from the questionnaires, an enumerator manual, a diary, an Enumeration District map, a badge, a letter of appointment, and pens.

Enumerators visited each household in each locality of the Enumeration District. Supervisors oversaw six enumerators on average. Supervisors checked the work of each enumerator in the field soon after the beginning of the enumeration to help enumerators cope with problems.

One problem the census office faced was that Education did not release all enumerator-teachers from their duty. These enumerators enumerated in the evening after school. Many of them could not finish the enumeration within the stipulated time. When this happened, supervisors finished the enumeration in next week (23-28 September 1989).

Main centers like Weno posed special problems. A large proportion of the population in these areas were recent arrivals and were ethnically and socially more mixed than in the rural areas. Many people were absent from home. Some of these also had houses in the places from where they came and they wanted to be enumerated in that place and not in the current place of residence. In some other cases other family members did not provide information in the absence of the head of household.

A comparison of the results from the mapping and enumeration was done in May 1990 for 100 Enumeration Districts, excluding Outer Islands. The mapping operation counted about 10 percent more households and persons than the census enumeration, warranting verification. Since 9 Enumeration Districts in Weno showed the highest differences in the number of households and persons, the office verified the work in those Enumeration Districts. Only Weno was chosen simply because of the time and cost involved. Only those Households were chosen for the comparison whose Household head was counted in the mapping but not enumerated.

The investigation in November 1990 showed that most of the missing Households heads were actually enumerated in other areas or combined with other Households or reported as moved out. So significant underenumeration has been ruled out.

Accuracy of the responses to the census questions varied from item to item. Questions on the

economic activity last week proved difficult. In the fertility questions respondents as well as enumerators had to understand concepts as 'live born', 'still born', and 'adopted children.' These items may not always have been reported correctly. Sometimes enumerators did not fill in all necessary information. Sometimes age and fertility questions were left blank. All such cases were sent to the Assistant State Coordinator as call backs which he investigated by comparing with hospital records. Individual schedules were corrected based on the information provided by him.

2.12 Processing of the Data.12 Processing of the Data.12 Processing of the Data

In November, 1989, the SPC Demographer worked with the census project staff in Pohnpei on the coding system and manual. Staff edited and coded Questions 1 to 19 of the individual questionnaires in February and March, 1990. Since editing and coding had to be redone the office prepared instruction materials, and then staff retrained editors and coders. Besides rechecking Questions 1 to 19, they also edited and checked other questions.

Unfortunately, the coding of economic activity questions, particularly on occupation and industry, differed from the Manpower Survey. Since the Survey was done simultaneously with the census, coding on occupation and industry was rechecked for consistency. Job trainees did the checking and editing, supervised by 4 temporary staff. The work of the job trainees was so unreliable that their supervisors rechecked all the work.

Data processing was first done for the preliminary results and a second time for the final results. The office processed items on sex, age, legal residence and education before releasing total number of persons by sex from the Household questionnaires as in the project document. The office wanted to use Entrypoint 90 to enter data for both preliminary and final results. Unfortunately, Entrypoint90 was not made available to the project in time and so the office used Dbase for data entry for Preliminary Results. Data entry for the preliminary results started in February and ended in April 1990. Computer files for the preliminary results were manually verified and edited in May to June, 1990.

Data processing for the final report (Basic Tables) was done in four major stages:

1. Editing, checking and coding, on the actual census forms in Pohnpei.

2. Data entry in Pohnpei.

3. Editing of data base (computer files), partly done at the South Pacific Commission, New Caledonia in February 1991 and partly in Pohnpei in April, 1991.

4. Basic tables were generated in Pohnpei between April and July 1991.

OPS, FSM employed four persons on temporary contracts to edit, code, and do data entry on a full-time basis, from November, 1989 to March, 1991. No major problems were encountered during this phase of data processing and no other major errors were made.

Data entry for the Final Results was done using Entry Point 90. The census used the U.S. Bureau of the Census' software package, CONCOR, for interrecord consistency checks. Tables were produced using CENTS. The tables were converted into Lotus work sheets and the correction of the texts, where necessary, were applied. The final correction on the text and the print out was done using WORD PERFECT.

A list of the basic tables was prepared in July, 1990 and a computer layout for those tables was completed in October 1990.

2.13 Dissemination.13 Dissemination.13 Dissemination

The census results were disseminated to the public in various forms: Provisional results, and in this volume -- the Administrative Report, Basic tables, and an Analytical Report.

Dissemination was also carried out by organizing a "High Level Users' Workshop" in Chuuk in April, 1992. There will be another workshop on "Population and Development" which will be attended by the Members of Congress and State Legislatures and Senior Govt. Officers at national and state level in mid-1992. Both will focus on the results of the Chuuk Census and also present a scenario of the population dynamics for FSM.

CHAPTER 3. POPULATION COMPOSITIONCHAPTER 3. POPULATION COMPOSITIONCHAPTER 3. POPULATION COMPOSITION

3.1 Introduction.1 Introduction.1 Introduction

In this chapter we will look at the geographic distribution of Chuuk's population over time. Table 3.1 shows this population over time, from the Japanese censuses to the first Federated States of Micronesia census of Chuuk in 1989.

3.2 Geographic Distribution over time.2 Geographic Distribution over time.2 Geographic Distribution over time

Table 3.1 shows the numeric distribution of the population in censuses from 1925 to 1989, and Table 3.2 shows the percentage distribution of those islands in the same censuses. We have already discussed the increases over time in the major geographic regions in Chapter 1, so we are presenting all of the municipalities here so readers can trace the population of any particular island or islands during the 20th century.

The biggest change, as already noted, was for Northern Namoneas, which increased from 17 percent of the population in 1925 to 33 percent in 1989 -- that is, about 1 in every 6 persons lived in Northern Namoneas in 1925, but about 1 in every 3 lived there in 1989. Southern Namoneas increased by about 1 percentage point during the more than 6 decades, and Faichuk's proportion of the population was unchanged during the period.

Oksoritod decreased from 10 percent of the population in 1925 to only 8 percent in 1989, with the Western Islands producing most of the decline -- from 5 percent to 3 percent of Chuuk's population (although many of the persons from these islands could have been living on Weno in 1989.)

The Mortlocks experienced a more serious decline -- from about 1 in every 4 persons in Chuuk in 1925 to only about 1 in 8 in 1989. Most of the individual Mortlocks islands had serious decreases as well, the Upper Mortlocks decreasing from 6 per cent to less than 4 percent, the Mid Mortlocks from 9 percent to less than 4 percent, and the Lower Mortlocks, from 10 percent to only 5 percent. That is, even when the populations were increasing, they were not increasing as fast as areas like Weno, but part of the reason for that was because persons from the Mortlocks were moving to Weno, thus increasing its population at the expense of the sending islands.

Table 3.1. Population by Municipality, Chuuk: 1925 to 1989

Region and Municipality	Census Year							
	1925	1930	1935	1958	1967	1973	1980	1989
Total....	14,961	15,200	15,129	20,124	25,107	31,566	37,488	47,871
Chuuk Lagoon....	9,836	10,162	10,180	14,084	18,141	24,216	28,328	38,341
N. Namoneas...	2,543	2,613	2,413	4,367	5,913	9,568	10,351	15,622
S. Namoneas...	3,785	3,911	4,379	4,785	6,062	7,371	9,146	11,455
Fefen/Totiw.	1,173	1,221	1,236	1,546	2,042	2,478	3,076	3,902
Parem.....	151	135	134	101	134	203	225	350
Siis.....	149	143	112	180	244	241	324	438
Tonoas.....	1,456	1,443	1,923	1,528	2,021	2,558	3,223	3,870
Uman.....	856	969	974	1,430	1,621	1,891	2,298	2,895
Faichuk.....	3,508	3,638	3,388	4,932	6,166	7,277	8,831	11,264
Eot.....	NA	120	102	184	217	192	181	279
Falapanges..	171	186	173	261	306	341	401	447
Romanum.....	306	289	229	240	283	375	462	679
Tol.....	2,416	2,508	2,367	3,624	4,486	5,439	6,705	8,346
Udot.....	615	535	517	623	874	930	1,082	1,513
Mortlocks.....	3,637	3,400	3,401	4,224	4,547	4,685	5,941	5,904
Upper.....	888	925	966	1,323	1,199	1,366	1,848	1,692
Losap.....	310	311	326	453	452	438	587	475
Nama.....	382	389	405	689	534	702	1,021	897
Pis-Emwar...	196	225	235	181	213	226	240	320
Mid.....	1,320	1,240	1,125	1,388	1,615	1,355	1,885	1,757
Ettal.....	309	283	238	268	298	266	446	420
Kuttu.....	371	357	330	478	496	383	483	423
Namoluk.....	340	322	287	250	306	263	324	310
Moch.....	300	278	270	392	515	443	632	604
Lower.....	1,429	1,235	1,310	1,513	1,733	1,964	2,208	2,455
Lukunoch....	635	496	476	493	549	505	666	745
Oneop.....	378	333	405	411	427	404	480	534
Satowan.....	300	264	280	421	508	826	767	885
Ta.....	116	142	149	188	249	229	295	291
Oksoritod.....	1,489	1,638	1,548	1,816	2,419	2,665	3,219	3,626
Hall Is.....	430	463	438	634	853	855	1,175	1,318
Fananu.....	126	132	114	104	155	179	235	238
Murilo.....	102	118	118	171	235	203	325	296
Nomwin.....	110	106	101	226	279	293	322	386
Ruo.....	92	107	105	133	184	180	293	398
Namonuito.....	341	305	298	358	434	640	783	944
Makur.....	0	0	0	31	50	66	97	121
Onanu.....	90	64	72	41	37	47	75	80
Onou.....	65	58	55	40	38	41	59	91
Pihararh....	46	52	49	59	67	111	118	139
Unoun.....	140	131	122	187	242	375	434	513
Western Is....	718	870	812	824	1,132	1,170	1,261	1,364
Houk.....	155	226	222	235	290	265	205	346
Polowat.....	287	364	335	288	410	435	441	477

Pollop.....	156	159	153	207	304	316	427	315
Tamatam.....	120	121	102	94	128	154	188	226

Sources: Nan'yo 1927, 1931, 1937; Office of the High Commissioner, TTPI, 1959; School of Public Health, University of Hawaii, n.d.; U.S. Bureau of the Census, 1982a: TTPI, 1975; 1989 Census

Notes: In 1925, Udot included Eot. 1925 to 1935, Pacific Islanders only.

Table 3.2. Percent Distribution by Municipality, Chuuk: 1920 to 1989

Region and Municipality	Census Year							
	1925	1930	1935	1958	1967	1973	1980	1989
Total	14,961	15,200	15,129	20,124	25,107	31,566	37,488	47,871
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Chuuk Lagoon	65.7	66.9	67.3	70.0	72.3	76.7	75.6	80.1
Weno & Fono	17.0	17.2	15.9	21.7	23.6	30.3	27.6	32.6
S. Namoneas	25.3	25.7	28.9	23.8	24.1	23.4	24.4	23.9
Fefen	7.8	8.0	8.2	7.7	8.1	7.9	8.2	8.2
Parem/Totiw	1.0	0.9	0.9	0.5	0.5	0.6	0.6	0.7
Siis	1.0	0.9	0.7	0.9	1.0	0.8	0.9	0.9
Tonoas	9.7	9.5	12.7	7.6	8.0	8.1	8.6	8.1
Uman	5.7	6.4	6.4	7.1	6.5	6.0	6.1	6.0
Faichuk	23.4	23.9	22.4	24.5	24.6	23.1	23.6	23.5
Eot	NA	0.8	0.7	0.9	0.9	0.6	0.5	0.6
Falapanges	1.1	1.2	1.1	1.3	1.2	1.1	1.1	0.9
Romanum	2.0	1.9	1.5	1.2	1.1	1.2	1.2	1.4
Tol	16.1	16.5	15.6	18.0	17.9	17.2	17.9	17.4
Udot	4.1	3.5	3.4	3.1	3.5	2.9	2.9	3.2
Mortlocks	24.3	22.4	22.5	21.0	18.1	14.8	15.8	12.3
Upper	5.9	6.1	6.4	6.6	4.8	4.3	4.9	3.5
Losap	2.1	2.0	2.2	2.3	1.8	1.4	1.6	1.0
Nama	2.6	2.6	2.7	3.4	2.1	2.2	2.7	1.9
Pis-Emwar	1.3	1.5	1.6	0.9	0.8	0.7	0.6	0.7
Mid	8.8	8.2	7.4	6.9	6.4	4.3	5.0	3.7
Ettal	2.1	1.9	1.6	1.3	1.2	0.8	1.2	0.9
Kuttu	2.5	2.3	2.2	2.4	2.0	1.2	1.3	0.9
Namoluk	2.3	2.1	1.9	1.2	1.2	0.8	0.9	0.6
Moch	2.0	1.8	1.8	1.9	2.1	1.4	1.7	1.3
Lower	9.6	8.1	8.7	7.5	6.9	6.2	5.9	5.1
Lukunoch	4.2	3.3	3.1	2.4	2.2	1.6	1.8	1.6
Oneop	2.5	2.2	2.7	2.0	1.7	1.3	1.3	1.1
Satowan	2.0	1.7	1.9	2.1	2.0	2.6	2.0	1.8
Ta	0.8	0.9	1.0	0.9	1.0	0.7	0.8	0.6
Oksoritod	10.0	10.8	10.2	9.0	9.6	8.4	8.6	7.6
Hall Is	2.9	3.0	2.9	3.2	3.4	2.7	3.1	2.8
Fananu	0.8	0.9	0.8	0.5	0.6	0.6	0.6	0.5
Murilo	0.7	0.8	0.8	0.8	0.9	0.6	0.9	0.6
Nomwin	0.7	0.7	0.7	1.1	1.1	0.9	0.9	0.8
Ruo	0.6	0.7	0.7	0.7	0.7	0.6	0.8	0.8
Namonuito	2.3	2.0	2.0	1.8	1.7	2.0	2.1	2.0
Makur	0.0	0.0	0.0	0.2	0.2	0.2	0.3	0.3
Onanu	0.6	0.4	0.5	0.2	0.1	0.1	0.2	0.2
Onou	0.4	0.4	0.4	0.2	0.2	0.1	0.2	0.2
Piharath	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3
Unoun	0.9	0.9	0.8	0.9	1.0	1.2	1.2	1.1
Western Is	4.8	5.7	5.4	4.1	4.5	3.7	3.4	2.8
Houk	1.0	1.5	1.5	1.2	1.2	0.8	0.5	0.7

Polowat.....	1.9	2.4	2.2	1.4	1.6	1.4	1.2	1.0
Pollop.....	1.0	1.0	1.0	1.0	1.2	1.0	1.1	0.7
Tamatam.....	0.8	0.8	0.7	0.5	0.5	0.5	0.5	0.5

Sources: Nan'yo 1927, 1931, 1937; Office of the High Commissioner, TTPI, 1959; School of Public Health, University of Hawaii, n.d.; U.S. Bureau of the Census, 1982a: TTPI, 1975; 1989 Census
Notes: In 1925, Udot included Eot. 1925 to 1935, Pacific Islanders only.

3.3 Persons per Square Mile.3 Persons per Square Mile.3 Persons per Square Mile

In 1925, Chuuk had 303 persons per square mile (Table 3.3). Because the land area was no greater in 1989 than in 1925, the 968 persons per square mile was three times as densely populated as in 1925 (or 1935, since the population was about the same.) The Mortlocks were the most densely populated region in 1925, with 741 persons per square mile; by 1989 their persons per square mile had increased to 1,202, but they were no longer the most densely populated -- Northern Namoneas had that distinction, with 2,016 persons per square mile. Southern Namoneas had 977 persons per square mile, while all of Chuuk lagoon had 990 persons per square mile. Faichuk with 585 persons per square mile and Oksoritod with 624 per square mile remained less densely populated than the other regions.

Table 3.3. Persons Per Square Mile by Municipality, Chuuk: 1925 to 1989

Region and Municipality	Census Year							
	1925	1930	1935	1958	1967	1973	1980	1989
Total.....	303	307	306	407	508	638	758	968
Chuuk Lagoon....	254	262	263	364	469	625	732	990
N. Namoneas...	328	337	311	563	763	1,235	1,336	2,016
S. Namoneas...	323	334	374	408	517	629	780	977
Faichuk.....	182	189	176	256	320	378	459	585
Mortlocks.....	741	692	693	860	926	954	1,210	1,202
Oksoritod.....	256	282	266	313	416	459	554	624

Sources: Nan'yo 1927, 1931, 1937; Office of the High Commissioner, TTPI, 1959; School of Public Health, University of Hawaii, n.d.; U.S. Bureau of the Census, 1982a: TTPI, 1975; 1989 Census
Notes: In 1925, Udot included Eot. 1925 to 1935, Pacific Islanders only.

Table 3.4 shows the population densities for the municipalities, and intermediate levels in the Outer Islands. Moch is the most densely populated municipality -- 5,491 persons per square mile in 1989. Other very densely populated areas were Piis-Emwar (4,571 per square mile), Kuttu (3,845), Nama (3,093), Oneop (2,967), Ruo (2,843), and Tamatam (2,511).

Table 3.4. Persons Per Square Mile by Municipality, Chuuk: 1925 to 1989

Region and Municipality	Census Year							
	1925	1930	1935	1958	1967	1973	1980	1989
Total....	303	307	306	407	508	638	758	968
Chuuk Lagoon....	254	262	263	364	469	625	732	990
Weno & Fono...	328	337	311	563	763	1,235	1,336	2,016
S. Namoneas...	323	334	374	408	517	629	780	977
Fefen.....	226	236	239	298	394	478	594	753
Parem/Totiw.	199	178	176	133	176	267	296	461
Siis.....	648	622	487	783	1,061	1,048	1,409	1,904
Tonoas.....	411	408	543	432	571	723	910	1,093
Uman.....	426	482	485	711	806	941	1,143	1,440
Faichuk.....	182	189	176	256	320	378	459	585
Eot.....	0	632	537	968	1,142	1,011	953	1,468
Falapanges..	276	300	279	421	494	550	647	721
Romanum.....	1,020	963	763	800	943	1,250	1,540	2,263
Tol.....	159	165	156	238	295	358	441	549
Udot.....	210	183	176	213	298	317	369	516
Mortlocks.....	741	692	693	860	926	954	1,210	1,202
Upper.....	1,287	1,341	1,400	1,917	1,738	1,980	2,678	2,452
Losap.....	939	942	988	1,373	1,370	1,327	1,779	1,439
Nama.....	1,317	1,341	1,397	2,376	1,841	2,421	3,521	3,093
Pis-Emwar...	2,800	3,214	3,357	2,586	3,043	3,229	3,429	4,571
Mid.....	1,039	976	886	1,093	1,272	1,067	1,484	1,383
Ettal.....	423	388	326	367	408	364	611	575
Kuttu.....	3,373	3,245	3,000	4,345	4,509	3,482	4,391	3,845
Namoluk.....	1,063	1,006	897	781	956	822	1,013	969
Moch.....	2,727	2,527	2,455	3,564	4,682	4,027	5,745	5,491
Lower.....	484	419	444	513	587	666	748	832
Lukunoch....	629	491	471	488	544	500	659	738
Oneop.....	2,100	1,850	2,250	2,283	2,372	2,244	2,667	2,967
Satowan.....	259	228	241	363	438	712	661	763
Ta.....	193	237	248	313	415	382	492	485
Oksoritod.....	256	282	266	313	416	459	554	624
Hall Is.....	319	343	324	470	632	633	870	976
Fananu.....	1,260	1,320	1,140	1,040	1,550	1,790	2,350	2,380
Murilo.....	392	454	454	658	904	781	1,250	1,138
Nomwin.....	129	125	119	266	328	345	379	454
Ruo.....	657	764	750	950	1,314	1,286	2,093	2,843
Namonuito.....	202	180	176	212	257	379	463	559
Makur.....	0	0	0	172	278	367	539	672
Onanu.....	900	640	720	410	370	470	750	800
Onou.....	542	483	458	333	317	342	492	758
Pihararh....	148	168	158	190	216	358	381	448
Unoun.....	143	134	124	191	247	383	443	523

Western Is....	259	314	293	297	409	422	455	492
Houk.....	144	209	206	218	269	245	190	320
Polowat.....	219	278	256	220	313	332	337	364
Pullop.....	538	548	528	714	1,048	1,090	1,472	1,086
Tamatam.....	1,333	1,344	1,133	1,044	1,422	1,711	2,089	2,511

Sources: Nan'yo 1927, 1931, 1937; Office of the High Commissioner, TTPI, 1959; School of Public Health, University of Hawaii, n.d.; U.S. Bureau of the Census, 1982a: TTPI, 1975; 1989 Census
Notes: In 1925, Udot included Eot. 1925 to 1935, Pacific Islanders only.

3.4 Percent Change by Island over time.4 Percent Change by Island over time.4 Percent Change by Island over time

As noted before, the total population of Chuuk increased by 51 percent between 1973 and 1989. The increase was 19 percent for the 7 years between 1973 and 1980, but was 28 percent for the 9 year period between 1980 and 1989. The Chuuk Lagoon islands increased the most during the 16 years, by 58 percent, with Northern Namoneas having even faster growth -- 63 percent (Table 3.5). Again, the 8 percent increase between 1973 and 1980 for Northern Namoneas looks very suspicious, indicating possible problems with the 1980 census enumeration. Southern Namoneas and Faichuk each increased by about 55 percent. On the other hand, Oksoritod increased by only 36 percent during the period, and the Mortlocks by only 26 percent. In fact, the population of the Mortlock Islands actually decreased between 1980 and 1989, the only area where this occurred; the migration of Mortlockese to Weno, and on to Guam and CNMI has much to do with this decline in the Mortlocks.

Table 3.5. Population by Island, Chuuk: 1973, 1980 and 1989

	Numbers			Percent			Percent Change		
Island	1989	1980	1973	1989	1980	1973	80-89	73-80	73-89
Total.....	47,871	37,488	31,609	100.0	100.0	100.0	27.7	18.6	51.4
Chuuk Lagoon..	38,341	28,328	24,212	80.1	75.6	76.6	35.3	17.0	58.4
N. Namoneas.	15,622	10,351	9,566	32.6	27.6	30.3	50.9	8.2	63.3
S. Namoneas.	11,455	9,146	7,370	23.9	24.4	23.3	25.2	24.1	55.4
Faichuk.....	11,264	8,831	7,276	23.5	23.6	23.0	27.6	21.4	54.8
Mortlocks.....	5,904	5,941	4,689	12.3	15.8	14.8	-0.6	26.7	25.9
Oksoritod.....	3,626	3,219	2,665	7.6	8.6	8.4	12.6	20.8	36.1
Not stated....	...	...	43	0.0	0.0	0.1	...	...	...

Source: U.S. Bureau of the Census, 1989 Census of Chuuk State, table 1, 1980 Census of the Trust Territory of the Pacific Islands, PC80-1-B57B, table 14, and 1973 Population of the Trust Territory of the Pacific Islands, table 2.

The Lagoon increased from being 77 percent of the population of Chuuk State in 1973 to about 80 percent in 1989. The percentage in Northern Namoneas increased from 30 to 33 percent, but the percentages increased only slightly in Southern Namoneas and Faichuk. Mortlocks went from being 15 percent of the state's population to only 12 percent, while Oksoritod decreased by about one percentage point.

Many of the individual Mortlock Islands also experienced decreases during the 1980s -- as much as a 19 percent decrease for Losap, and 12 percent decreases for Nama and Kuttu (Table 3.6). The Upper Mortlocks, in general, decreased by 8 percent during the 1980s, and the Mid-Mortlocks decreased by 7 percent. The Lower Mortlocks, however, increased by 11 percent, with only Ta seeing a slight decrease.

Table 3.6. Population by Island, Chuuk: 1973, 1980 and 1989

Island	Numbers			Percent			Percent Change		
	1989	1980	1973	1989	1980	1973	80-89	73-80	73-89
Total.....	47,871	37,488	31,609	100.0	100.0	100.0	27.7	18.6	51.4
Chuuk Lagoon..	38,341	28,328	24,212	80.1	75.6	76.6	35.3	17.0	58.4
N. Namoneas.	15,622	10,351	9,566	32.6	27.6	30.3	50.9	8.2	63.3
S. Namoneas.	11,455	9,146	7,370	23.9	24.4	23.3	25.2	24.1	55.4
Fefen.....	3,902	3,076	2,478	8.2	8.2	7.8	26.9	24.1	57.5
Param.....	350	225	203	0.7	0.6	0.6	55.6	10.8	72.4
Siis.....	438	324	241	0.9	0.9	0.8	35.2	34.4	81.7
Tonoas....	3,870	3,223	2,557	8.1	8.6	8.1	20.1	26.0	51.3
Uman/Etten	2,895	2,298	1,891	6.0	6.1	6.0	26.0	21.5	53.1
Faichuk.....	11,264	8,831	7,276	23.5	23.6	23.0	27.6	21.4	54.8
Eot.....	279	181	192	0.6	0.5	0.6	54.1	-5.7	45.3
Fanapanges	447	401	341	0.9	1.1	1.1	11.5	17.6	31.1
Ramanum...	679	462	375	1.4	1.2	1.2	47.0	23.2	81.1
Tol.....	8,346	6,705	5,438	17.4	17.9	17.2	24.5	23.3	53.5
Udot.....	1,513	1,082	930	3.2	2.9	2.9	39.8	16.3	62.7
Mortlocks.....	5,904	5,941	4,689	12.3	15.8	14.8	-0.6	26.7	25.9
Upper.....	1,692	1,848	1,366	3.5	4.9	4.3	-8.4	35.3	23.9
Losap.....	475	587	438	1.0	1.6	1.4	-19.1	34.0	8.4
Nama.....	897	1,021	702	1.9	2.7	2.2	-12.1	45.4	27.8
Piis-Emmwr	320	240	226	0.7	0.6	0.7	33.3	6.2	41.6
Mid.....	1,757	1,885	1,355	3.7	5.0	4.3	-6.8	39.1	29.7
Ettal.....	420	446	266	0.9	1.2	0.8	-5.8	67.7	57.9
Kuttu.....	423	483	383	0.9	1.3	1.2	-12.4	26.1	10.4
Namoluk...	310	324	263	0.6	0.9	0.8	-4.3	23.2	17.9
Moch.....	604	632	443	1.3	1.7	1.4	-4.4	42.7	36.3
Lower.....	2,455	2,208	1,968	5.1	5.9	6.2	11.2	12.2	24.7
Lukunoch..	745	666	509	1.6	1.8	1.6	11.9	30.8	46.4
Oneop.....	534	480	404	1.1	1.3	1.3	11.3	18.8	32.2
Satowan...	885	767	826	1.8	2.0	2.6	15.4	-7.1	7.1
Ta.....	291	295	229	0.6	0.8	0.7	-1.4	28.8	27.1
Oksoritod.....	3,626	3,219	2,665	7.6	8.6	8.4	12.6	20.8	36.1
Hall Is.....	1,318	1,175	855	2.8	3.1	2.7	12.2	37.4	54.2
Fananu....	238	235	179	0.5	0.6	0.6	1.3	31.3	33.0
Murilo....	296	325	203	0.6	0.9	0.6	-8.9	60.1	45.8
Nomwin....	386	322	293	0.8	0.9	0.9	19.9	9.9	31.7
Ruo.....	398	293	180	0.8	0.8	0.6	35.8	62.8	121.1
Namonuito...	944	783	640	2.0	2.1	2.0	20.6	22.3	47.5
Makur.....	121	97	66	0.3	0.3	0.2	24.7	47.0	83.3
Onanu.....	80	75	47	0.2	0.2	0.1	6.7	59.6	70.2
Onou.....	91	59	41	0.2	0.2	0.1	54.2	43.9	122.0
Piherarh..	139	118	111	0.3	0.3	0.4	17.8	6.3	25.2
Onoun.....	513	434	375	1.1	1.2	1.2	18.2	15.7	36.8
Western Is..	1,364	1,261	1,170	2.8	3.4	3.7	8.2	7.8	16.6
Houk.....	346	205	265	0.7	0.5	0.8	68.8	-22.6	30.6
Polowat...	477	441	435	1.0	1.2	1.4	8.2	1.4	9.7

Pollap....	315	427	316	0.7	1.1	1.0	-26.2	35.1	-0.3
Tamatam...	226	188	154	0.5	0.5	0.5	20.2	22.1	46.8
Not stated....	...	...	43	...	...	0.1	...	...	...

Source: U.S. Bureau of the Census, 1989 Census of Chuuk State, table 1, 1980 Census of the Trust Territory of the Pacific Islands, PC80-1-B57B, table 14, and 1973 Population of the Trust Territory of the Pacific Islands, table 2.

Note: Tol includes Paata, Polle, and Wonei.

Only Pollop (26 percent) and Murilo (9 percent) in Oksoritod decreased during the 1980s. The whole region increased by 13 percent, with Namonuito increasing the most with 21 percent, followed by the Hall Islands (12 percent), and the Western Islands (8 percent). Although Houk increased by 69 percent during the 1980s, this increase had followed a 23 percent decrease in the 1970s, probably showing the effects of visiting from island to island on the census process -- if large groups of people move from one island to another because a relative on another island is sick, or just to visit, and the census takes place at that time, the results can be affected.

Table 3.7 shows the population distribution within the Chuuk Lagoon during the three census years. Northern Namoneas increased from being 39.5 percent of population in 1973 to 49.7 percent in 1989. On the other hand, Southern Namoneas and Faichuk each decreased by half a percentage point during the period. The distribution among the individual islands changed very little (Tol experiencing a decrease of less than one percentage point.)

Table 3.7. Population by Lagoon Island, Chuuk: 1973, 1980 and 1989

	Numbers			Percent			Percent Change		
Island	1989	1980	1973	1989	1980	1973	80-89	73-80	73-89
Lagoon....	38,341	28,328	24,212	100.0	100.0	100.0	35.3	17.0	58.4
N. Namoneas...	15,622	10,351	9,566	40.7	36.5	39.5	50.9	8.2	63.3
S. Namoneas...	11,455	9,146	7,370	29.9	32.3	30.4	25.2	24.1	55.4
Fefen.....	3,902	3,076	2,478	10.2	10.9	10.2	26.9	24.1	57.5
Param.....	350	225	203	0.9	0.8	0.8	55.6	10.8	72.4
Siis.....	438	324	241	1.1	1.1	1.0	35.2	34.4	81.7
Tonoas.....	3,870	3,223	2,557	10.1	11.4	10.6	20.1	26.0	51.3
Uman/Etten..	2,895	2,298	1,891	7.6	8.1	7.8	26.0	21.5	53.1
Faichuk.....	11,264	8,831	7,276	29.4	31.2	30.1	27.6	21.4	54.8
Eot.....	279	181	192	0.7	0.6	0.8	54.1	-5.7	45.3
Fanapanges..	447	401	341	1.2	1.4	1.4	11.5	17.6	31.1
Ramanum.....	679	462	375	1.8	1.6	1.5	47.0	23.2	81.1
Tol.....	8,346	6,705	5,438	21.8	23.7	22.5	24.5	23.3	53.5
Udot.....	1,513	1,082	930	3.9	3.8	3.8	39.8	16.3	62.7

Source: U.S. Bureau of the Census, 1989 Census of Chuuk State, table 1, 1980 Census of the Trust Territory of the Pacific Islands, PC80-1-B57B, table 14, and 1973 Population of the Trust Territory of the Pacific Islands, table 2.

Note: Tol includes Paata, Polle, and Wonei.

The population distribution in the Mortlock Islands also changed very little during the period (Table 3.8). The percentage living in the Mid Mortlocks increased slightly relative to the Upper and Lower areas. The largest change was for Satowan, which decreased from 18 percent of the Mortlocks population to only 15 percent during the 16 years -- Satowan had decreased to just 13 percent in 1980. Lukunoch's percentage decreased by almost 2 percentage points during the 1973 to 1989 period.

Table 3.8. Population by Mortlocks Island, Chuuk: 1973, 1980 and 1989

	Numbers			Percent			Percent Change		
Island	1989	1980	1973	1989	1980	1973	80-89	73-80	73-89
Mortlocks..	5,904	5,941	4,689	100.0	100.0	100.0	-0.6	26.7	25.9
Upper.....	1,692	1,848	1,366	28.7	31.1	29.1	-8.4	35.3	23.9
Losap.....	475	587	438	8.0	9.9	9.3	-19.1	34.0	8.4
Nama.....	897	1,021	702	15.2	17.2	15.0	-12.1	45.4	27.8
Piis-Emmwar.	320	240	226	5.4	4.0	4.8	33.3	6.2	41.6
Mid Mortlocks.	1,757	1,885	1,355	29.8	31.7	28.9	-6.8	39.1	29.7
Ettal.....	420	446	266	7.1	7.5	5.7	-5.8	67.7	57.9
Kuttu.....	423	483	383	7.2	8.1	8.2	-12.4	26.1	10.4
Namoluk.....	310	324	263	5.3	5.5	5.6	-4.3	23.2	17.9
Moch.....	604	632	443	10.2	10.6	9.4	-4.4	42.7	36.3
Lower.....	2,455	2,208	1,968	41.6	37.2	42.0	11.2	12.2	24.7
Lukunoch....	745	666	509	12.6	11.2	10.9	11.9	30.8	46.4
Oneop.....	534	480	404	9.0	8.1	8.6	11.3	18.8	32.2
Satowan.....	885	767	826	15.0	12.9	17.6	15.4	-7.1	7.1
Ta.....	291	295	229	4.9	5.0	4.9	-1.4	28.8	27.1

Source: U.S. Bureau of the Census, 1989 Census of Chuuk State, table 1, 1980 Census of the Trust Territory of the Pacific Islands, PC80-1-B57B, table 14, and 1973 Population of the Trust Territory of the Pacific Islands, table 2.

The population distribution of Oksoritod changed more than the other areas (Table 3.9). The Hall Islands percentage increased from 32 percent to 36 percent of the total during the 16 years, and Namonouito increased by 2 percentage points, while the Western Islands portion of Oksoritod decreased from 44 percent to 38 percent. Some islands showed large changes -- Ruo was only 7 percent of Oksoritod's population in 1973, but increased to 11 percent of the population by 1989. On the other hand, Polowat decreased from 16 percent to 13 percent, and Pollap from 12 percent to 9 percent during the period.

Table 3.9. Population by Island in Oksoritod, Chuuk: 1973, 1980 and 1989

	Numbers			Percent			Percent Change		
Island	1989	1980	1973	1989	1980	1973	80-89	73-80	73-89
Oksoritod..	3,626	3,219	2,665	100.0	100.0	100.0	12.6	20.8	36.1
Hall Islands..	1,318	1,175	855	36.3	36.5	32.1	12.2	37.4	54.2
Fananu.....	238	235	179	6.6	7.3	6.7	1.3	31.3	33.0
Murilo.....	296	325	203	8.2	10.1	7.6	-8.9	60.1	45.8
Nomwin.....	386	322	293	10.6	10.0	11.0	19.9	9.9	31.7
Ruo.....	398	293	180	11.0	9.1	6.8	35.8	62.8	121.1
Namonuito.....	944	783	640	26.0	24.3	24.0	20.6	22.3	47.5
Makur.....	121	97	66	3.3	3.0	2.5	24.7	47.0	83.3
Onanu.....	80	75	47	2.2	2.3	1.8	6.7	59.6	70.2
Onou.....	91	59	41	2.5	1.8	1.5	54.2	43.9	122.0
Piherarh....	139	118	111	3.8	3.7	4.2	17.8	6.3	25.2
Onoun.....	513	434	375	14.1	13.5	14.1	18.2	15.7	36.8
Western Is....	1,364	1,261	1,170	37.6	39.2	43.9	8.2	7.8	16.6
Houk.....	346	205	265	9.5	6.4	9.9	68.8	-22.6	30.6
Polowat.....	477	441	435	13.2	13.7	16.3	8.2	1.4	9.7
Pollap.....	315	427	316	8.7	13.3	11.9	-26.2	35.1	-0.3
Tamatam.....	226	188	154	6.2	5.8	5.8	20.2	22.1	46.8

Source: U.S. Bureau of the Census, 1989 Census of Chuuk State, table 1, 1980 Census of the Trust Territory of the Pacific Islands, PC80-1-B57B, table 14, and 1973 Population of the Trust Territory of the Pacific Islands, table 2.

Table 3.10 shows the land area of the islands, the populations in the 1973, 1980, and 1989 censuses, and the persons per square mile. Although we have already discussed population densities, this table lets the reader assess the relationship between the size of an island and its density. It is important to remember that although we include the land areas only, the liveability of most of the islands in Chuuk State is partially dependent on the sea resources. It is difficult to obtain a "sea area" for an island or atoll since where people fish or go to collect seafood depends on the particular situation of the island's ecology.

This chapter presented information about the geographic and population make-up of Chuuk State's islands. All of the regions in the state, and almost all of the islands, are experiencing considerable population growth, and increasing densities on scarce resources. We have not looked at the population by age or sex or migration yet, and we start to do that in the next chapter.

Table 3.10. Persons Per Square Mile, Chuuk: 1973, 1980 and 1989

Island	Land Area	Numbers			Persons Per Square Mile		
		1989	1980	1973	1989	1980	1973
Total.....	49.44	47,871	37,488	31,609	968	758	639
Chuuk Lagoon..	38.72	38,341	28,328	24,212	990	732	625
N. Namoneas.	7.75	15,622	10,351	9,566	2,016	1,336	1,234
Weno.....	7.52	15,253	NA	NA	2,028	NA	NA
Fono.....	0.23	369	NA	NA	1,604	NA	NA
S. Namoneas.	11.72	11,455	9,146	7,370	977	780	629
Fefen.....	5.18	3,902	3,076	2,478	753	594	478
Param.....	0.76	350	225	203	461	296	267
Siis.....	0.23	438	324	241	1,904	1,409	1,048
Tonoas....	3.54	3,870	3,223	2,557	1,093	910	722
Uman.....	2.01	2,895	2,298	1,891	1,440	1,143	941
Faichuk.....	19.25	11,264	8,831	7,276	585	459	378
Eot.....	0.19	279	181	192	1,468	953	1,011
Fanapanges	0.62	447	401	341	721	647	550
Ramanum...	0.30	679	462	375	2,263	1,540	1,250
Tol.....	15.21	8,346	6,705	5,438	549	441	358
Tol.....	6.29	4,846	NA	3401	770	NA	541
Polle...	4.96	1,327	NA	827	268	NA	167
Paata...	2.64	1,299	NA	689	492	NA	261
Wonei...	1.32	874	NA	521	662	NA	395
Udot.....	2.93	1,513	1,082	930	516	369	317
Mortlocks.....	4.91	5,904	5,941	4,689	1,202	1,210	955
Upper.....	0.69	1,692	1,848	1,366	2,452	2,678	1,980
Losap.....	0.33	475	587	438	1,439	1,779	1,327
Nama.....	0.29	897	1,021	702	3,093	3,521	2,421
Piis-Emmwr	0.07	320	240	226	4,571	3,429	3,229
Mid.....	1.27	1,757	1,885	1,355	1,383	1,484	1,067
Ettal.....	0.73	420	446	266	575	611	364
Kuttu.....	0.11	423	483	383	3,845	4,391	3,482
Namoluk...	0.32	310	324	263	969	1,013	822
Moch.....	0.11	604	632	443	5,491	5,745	4,027
Lower.....	2.95	2,455	2,208	1,968	832	748	667
Lukunoch..	1.01	745	666	509	738	659	504
Oneop.....	0.18	534	480	404	2,967	2,667	2,244
Satowan...	1.16	885	767	826	763	661	712
Ta.....	0.60	291	295	229	485	492	382
Oksoritod.....	5.81	3,626	3,219	2,665	624	554	459
Hall Is.....	1.35	1,318	1,175	855	976	870	633
Fananu....	0.10	238	235	179	2,380	2,350	1,790
Murilo....	0.26	296	325	203	1,138	1,250	781
Nomwin....	0.85	386	322	293	454	379	345
Ruo.....	0.14	398	293	180	2,843	2,093	1,286
Namonuito...	1.69	944	783	640	559	463	379
Makur.....	0.18	121	97	66	672	539	367
Onanu.....	0.10	80	75	47	800	750	470
Onou.....	0.12	91	59	41	758	492	342

Piherarh..	0.31	139	118	111	448	381	358
Onoun.....	0.98	513	434	375	523	443	383
Western Is..	2.77	1,364	1,261	1,170	492	455	422
Houk.....	1.08	346	205	265	320	190	245
Polowat...	1.31	477	441	435	364	337	332
Pollap....	0.29	315	427	316	1,086	1,472	1,090
Tamatam...	0.09	226	188	154	2,511	2,089	1,711
Not stated....	...	...	...	43	...	...	...

Source: See Previous Tables

CHAPTER 4. DEMOGRAPHIC CHARACTERISTICSCHAPTER 4. DEMOGRAPHIC CHARACTERISTICSCHAPTER 4. DEMOGRAPHIC CHARACTERISTICS

4.1 Introduction.1 Introduction.1 Introduction

Fertility, mortality and migration are the three demographic characteristics of a population which chart its growth. Populations grow when births and immigrants exceed deaths and emigrants. Generally, the growth of a population is more heavily influenced by births than deaths because many more births occur than deaths, but, in recent years on Chuuk, migration has become an increasingly important factor as well. In this chapter we look first at the general population structure at different points in times -- at census dates -- and then look at fertility and mortality. We also look at marriage patterns in this chapter. We will look at migration in Chapter 7.

4.2 Age and Sex Characteristics.2 Age and Sex Characteristics.2 Age and Sex Characteristics

The age and sex structure is important because of its relationship to many planning activities -- where to put new schools and medical clinics, recreation facilities, places for elderly to meet, etc. In chapter 1 we looked at some historical age and sex distribution, and here we look at some more recent ones.

4.2.1 Age Distribution in recent censuses.2.1 Age Distribution in recent censuses.2.1 Age Distribution in recent censuses

Table 4.1 shows data from the three most recent censuses of Chuuk. It is important to remember that each census is unique in development, execution, and analysis, so results are not always completely comparable. Demographers, however, usually assume that they are comparable, that is, that any problems in enumeration or processing cancel each other out. When censuses are taken at regular intervals, say, every 5 or 10 years, demographers can follow a group of people, called a cohort, through time, so that the people who are 15 to 19 in one census will be 25 to 29 in a census 10 years later. In the absence of migration, demographers can then determine the mortality of the cohort, and can determine the mortality of the population in general by looking at all the cohorts. Unfortunately, as can be seen in the table, there was an interval of 7 years between the 1973 census and the 1980 census, and then an interval of 9 years between the 1980 and the 1989 census. It is still possible to do cohort analysis if single years of age are used to reclassify the cohorts into age groupings which we could follow between pairs of censuses, but we will have to leave that to a future Chuukese demographer.

Table 4.1. Population Distribution Change: 1973, 1980, and 1989

	Numbers			Percent Change		
Age Group	1989	1980	1973	1980-1989	1973-1980	1973-1989
Total....	47,871	37,488	31,609	27.7	18.6	51.4
0 to 4.....	8,558	6,738	5,830	27.0	15.6	46.8
5 to 9.....	7,934	5,751	4,750	38.0	21.1	67.0
10 to 14....	6,581	4,922	4,062	33.7	21.2	62.0
15 to 19....	5,074	4,038	3,517	25.7	14.8	44.3
20 to 24....	3,403	3,285	2,633	3.6	24.8	29.2
25 to 29....	3,157	2,854	1,933	10.6	47.6	63.3
30 to 34....	2,833	2,203	1,318	28.6	67.1	114.9
35 to 39....	2,510	1,312	1,458	91.3	-10.0	72.2
40 to 44....	1,787	1,239	1,240	44.2	-0.1	44.1
45 to 49....	1,081	1,210	1,026	-10.7	17.9	5.4
50 to 54....	1,131	975	1,040	16.0	-6.3	8.8
55 to 59....	1,022	923	709	10.7	30.2	44.1
60 to 64....	878	778	803	12.9	-3.1	9.3
65 to 69....	742	583	484	27.3	20.5	53.3
70 to 74....	458	354	346	29.4	2.3	32.4
75 +.....	467	323	309	44.6	4.5	51.1
Not stated..	255	...	151	...	...	68.9

Source: U.S. Bureau of the Census, 1989 Census of Chuuk State, table 5, 1980, PC80-1-B57B, table 15 and 1973 Population of Trust Territory of the Pacific Islands, table 3.

Table 4.1. shows that Chuuk's population increased by more than 50 percent between 1973 and 1980. The population increased 19 percent between 1973 and 1980, but 28 percent between 1980 and 1989. Since 7 years lapsed between the first two censuses, and 9 years between the second two censuses, we would expect the latter growth figure to be greater, but the annual increase in the second period was still greater than during the first.

Why might this happen? There are several possible explanations. It is possible that the data were collected somewhat differently in the three censuses, and that in one census persons were enumerated exactly where they were and in another they were enumerated where they were supposed to be. But, in this case, all three censuses were collected in approximately the same way -- as a modified de jure census, meaning that, where possible, people were enumerated where they lived most of the time whether or not they happen to be there at the time.

There were some other differences in the way the censuses were collected. The 1973 Census was collected as a special census from the office of the High Commissioner in collaboration with the demographer at the South Pacific Commission. The Congress of Micronesia rejected the results of the 1970 United States decennial census because of an enormous undercount and miscount, Chuuk being most affected by the many questionnaires collected but not sent back to the United States mainland for processing. In the 1973, ships were brought out of mothballs, extensive mapping was done, and enumerators were carefully recruited and trained. Data were punched and tabulated at the

East-West Center in Hawaii.

The 1980 census was part of the United States Bureau of the Census' Trust Territory of the Pacific Islands' census. Meetings were held with TTPI personnel while developing the questionnaires and procedures, but this was the time when the Federated States of Micronesia were being established, so little time could be devoted to participating in or monitoring the census. Recruitment was much more haphazard then in the 1973 census, and ships and other vehicles were not diverted to assist in the census process. Much less publicity was involved as well, so that persons who were familiar with the 1973 census before the enumerator arrived at the door, may not similarly have been informed before the 1980 census. Coding and processing were done on the mainland, and the results sent back somewhat later.

The 1989 census was still different. The 1989 had the backing of both the FSM National Government and the State government. In fact, the National and State governments provided personnel, expertise, and facilities to develop, collect, and process the census data. The questionnaire was developed in cooperation with the South Pacific Commission so was more in line with the specific needs of Chuuk. The Chuuk State government was behind the census, making it easier to recruit personnel, and conduct the enumeration. Processing was done in Pohnpei and Noumea with assistance from the South Pacific Commission.

Besides the difference in the way the data were collected, some other factors must be considered in deciding the quality of the various censuses, factors not demographic in nature. For example, in the late 1970s, particularly in 1978, 1979, and 1980, the Carter Administration had instituted the Basic Education Opportunity Grant (Pell Grant), and many students were out of Chuuk for schooling. Many of these students later returned as college graduates (or not quite graduates). So these students may have appeared in the 1973 census, not appeared in the 1980 census, and then reappeared in the 1989 census. It is not really possible at this time to tell whether this was a factor in the seeming dip for the 1980 census.

When looking at the changes for specific age groups, it is important to remember that we are not seeing the same people in the the specific age groups over time. So, while the number of 0 to 4 year olds increased by 16 percent between 1973 and 1980, a smaller increase than for the population as a whole (and, thus, indirectly showing decreased fertility, the people 0 to 4 in 1973 were already 7 to 11 in 1980, and show up in those age groups. (Also, note that the increase for 0 to 4 years olds between 1980 and 1989 was 27 percent, about the same as for the population as a whole.)

Some anomalies in the data exist. The number of 35 to 39 year olds decreased by 10 percent between 1973 and 1980 which could either be attributed to the migration discussed earlier, other migration, for example, to Saipan to work at TTPI Headquarters, or, perhaps underenumeration.
The population of persons 30 to 34 more than doubled during the period, which may be attributable to peak fertility -- that period in the early 1960s when mortality had been brought firmly under control, and women in Micronesia, like women almost everywhere, were having a lot of babies during the "baby boom." On the other hand, the percent of persons 45 to 54 increased very little during the period.

The fact that there were only 709 persons 55 to 59 in 1973 influenced the 44 percent change for this age group during the period. Since these people came of age during the war, some may have been killed, or physically moved to other places where they stayed. Also, there may have been some age heaping to age 60 since it looks like that group may have been larger than expected.

4.2.2 Age and Sex Distributions in Recent Censuses.2.2 Age and Sex Distributions in Recent Censuses.2.2 Age and Sex Distributions in Recent Censuses

Table 4.2 shows the age and sex distributions for the three most recent censuses. The number of children less than 10 years old in 1989 was greater than the total population of Chuuk at the beginning of the American Administration. And, the number of young children continues to increase. The numbers less than 5 years old increased from 5,800 in 1973 to 6,700 in 1980, and 8,600 in 1989.

Table 4.2. Population by Age and Sex: 1973, 1980 and 1989

	1989			1980			1973		
Age Group	Total	Males	Fmles	Total	Males	Fmles	Total	Males	Fmles
Total.	47,871	24,203	23,668	37,488	19,243	18,245	31,609	16,153	15,456
0 to 4...	8,558	4,499	4,059	6,738	3,546	3,192	5,830	3,039	2,791
5 to 9...	7,934	4,076	3,858	5,751	3,006	2,745	4,750	2,496	2,254
10 to 14.	6,581	3,487	3,094	4,922	2,622	2,300	4,062	2,082	1,980
15 to 19.	5,074	2,583	2,491	4,038	2,060	1,978	3,517	1,839	1,678
20 to 24.	3,403	1,658	1,745	3,285	1,628	1,657	2,633	1,277	1,356
25 to 29.	3,157	1,491	1,666	2,854	1,435	1,419	1,933	970	963
30 to 34.	2,833	1,337	1,496	2,203	1,128	1,075	1,318	665	653
35 to 39.	2,510	1,247	1,263	1,312	651	661	1,458	693	765
40 to 44.	1,787	898	889	1,239	595	644	1,240	659	581
45 to 49.	1,081	517	564	1,210	622	588	1,026	494	532
50 to 54.	1,131	529	602	975	490	485	1,040	515	525
55 to 59.	1,022	501	521	923	454	469	709	332	377
60 to 64.	878	431	447	778	385	393	803	423	380
65 to 69.	742	364	378	583	299	284	484	232	252
70 to 74.	458	210	248	354	169	185	346	187	159
75 +.....	467	218	249	323	153	170	309	155	154
Not stated	255	157	98	...	...	...	151	95	56
Median age	15.8	15.1	16.6	16.5	16.1	17.2	16.7	16.2	17.1

Source: U.S. Bureau of the Census, 1989 Census of Chuuk State table 5, 1980, PC80-1-B57B table 15 and 1973 Population of Trust Territory of the Pacific Islands table 3.

The median age for Chuuk was 15.8 years in 1989, an extremely low median. Once again, the median is the mid-point -- half of Chuuk's population was older than 15.8 years, and half was younger. Since migration to Guam of persons primarily older than the median was in full swing at the time of the 1989 census, planning and policy makers must be quite alarmed at this figure because it means that the government is almost certainly going to have to stretch itself to provide

elementary schools, medical clinics (for both prenatal and pediatric services), and recreational facilities if all these young people stay on Chuuk.

The median age for females was 16.6 years, about 1.5 years older than the median for males, the usual situation in most populations. Males have higher adult mortality, so females live longer, and influence the median. The median ages for both sexes, like the median for the total population must give policy makers cause to stop and think. This thinking is especially important because the median age is decreasing, rather than increasing, over time. The median age was 16.7 years in 1973, already very low, and decreased to 16.5 in 1980, and then continued to decrease to 15.8 in 1989[7]. This decreasing median age is due to continued high fertility, because even if the fertility rate is decreasing (something we will consider later in the section on fertility), if the larger group of females in the fertile ages continues to have many children, the numbers will continue to rise for a while even if the rate is not.

The median age for males is decreasing more rapidly than the median age for females -- a full year for males compared to about half a year for females. This seeming anomaly may be explained by the post-Compact outward migration of males in the late 1980s. As we note elsewhere, we expect the females to follow. However, if males over 15 depart, and most of the migration is likely to be persons 15 and over, then the median for males will decrease.

Notice that there is an inverse correlation between age and percentage in the age groups (Table 4.3). That is, every age group is smaller than the one preceding. When this trend is graphed for males and females, with males on the left, and females on the right, we have a classic "population pyramid." In recent years, in most countries, the shape is no longer that of a pyramid since many countries have active family planning programs, so fertility is declining, and this is seen as a tucking in the lower age groups. Chuuk does not show this pattern. In fact, Chuuk's population forms the classic pyramid as if it were designed for it. Whether family planning (and, more specially, birth control) is desired for Chuuk is a political and moral issue, not a statistical one, but what is clear is that, based on the 1989 population, little decrease in the population for younger ages is seen.

[7]Because the edit in 1989 like 1973 did not allocate unknown ages, these are ignored in determining the median. The base is the population with known ages.

Table 4.3. Population by Age and Sex: 1973, 1980 and 1989-con.

	1989			1980			1973		
Age Group	Total	Males	Fmles	Total	Males	Fmles	Total	Males	Fmles
Total	47,871	24,203	23,668	37,488	19,243	18,245	31,609	16,153	15,456
Prcnt.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
0 to 4...	17.9	18.6	17.1	18.0	18.4	17.5	18.4	18.8	18.1
5 to 9...	16.6	16.8	16.3	15.3	15.6	15.0	15.0	15.5	14.6
10 to 14.	13.7	14.4	13.1	13.1	13.6	12.6	12.9	12.9	12.8
15 to 19.	10.6	10.7	10.5	10.8	10.7	10.8	11.1	11.4	10.9
20 to 24.	7.1	6.9	7.4	8.8	8.5	9.1	8.3	7.9	8.8
25 to 29.	6.6	6.2	7.0	7.6	7.5	7.8	6.1	6.0	6.2
30 to 34.	5.9	5.5	6.3	5.9	5.9	5.9	4.2	4.1	4.2
35 to 39.	5.2	5.2	5.3	3.5	3.4	3.6	4.6	4.3	4.9
40 to 44.	3.7	3.7	3.8	3.3	3.1	3.5	3.9	4.1	3.8
45 to 49.	2.3	2.1	2.4	3.2	3.2	3.2	3.2	3.1	3.4
50 to 54.	2.4	2.2	2.5	2.6	2.5	2.7	3.3	3.2	3.4
55 to 59.	2.1	2.1	2.2	2.5	2.4	2.6	2.2	2.1	2.4
60 to 64.	1.8	1.8	1.9	2.1	2.0	2.2	2.5	2.6	2.5
65 to 69.	1.5	1.5	1.6	1.6	1.6	1.6	1.5	1.4	1.6
70 to 74.	1.0	0.9	1.0	0.9	0.9	1.0	1.1	1.2	1.0
75 +.....	1.0	0.9	1.1	0.9	0.8	0.9	1.0	1.0	1.0
Not state	0.5	0.6	0.4	0.0	0.0	0.0	0.5	0.6	0.4

Source: U.S. Bureau of the Census, 1989 Census of Chuuk State table 5, 1980, PC80-1-B57B table 15 and 1973 Population of Trust Territory of the Pacific Islands table 3.

Similarly, the dependency ratio is very high. A dependency ratio of 116, as seen in table 4.4, means that for every 116 persons less than 15 years old and 60 years and older, there were 100 persons between 15 and 59 years old -- the potential workers to take care of these dependents. We will see later on that many persons 15 to 59 were not working for pay, but most were doing some sort of subsistence -- whether recorded in the census or not -- so we can probably accept the dependency ratio. The ratios by sex have little meaning for Chuuk, but the average female dependent is slightly less "dependent" on other females, than the average male, perhaps because some males in the working ages have left Chuuk for schooling or for jobs.

Table 4.4. Population by Age and Sex: 1973, 1980 and 1989

	1989			1980			1973		
Age Group	Total	Males	Fmles	Total	Males	Fmles	Total	Males	Fmles
Total..	47,871	24,203	23,668	37,488	19,243	18,245	31,609	16,153	15,456
Prcnt.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
0 to 14..	48.2	49.8	46.5	46.4	47.7	45.1	46.3	47.2	45.5
15 to 29.	24.3	23.7	24.9	27.1	26.6	27.7	25.6	25.3	25.9
30 to 44.	14.9	14.4	15.4	12.7	12.3	13.0	12.7	12.5	12.9
45 to 59.	6.8	6.4	7.1	8.3	8.1	8.5	8.8	8.3	9.3
60 to 74.	4.3	4.2	4.5	4.6	4.4	4.7	5.2	5.2	5.1
75 +.....	1.0	0.9	1.1	0.9	0.8	0.9	1.0	1.0	1.0
N.S.....	0.5	0.6	0.4	0.0	0.0	0.0	0.5	0.6	0.4
Dpndncy..	116	123	110	108	112	103	111	116	107

Source: U.S. Bureau of the Census, 1989 Census of Chuuk State table 5, 1980, PC80-1-B57B table 15 and 1973 Population of Trust Territory of the Pacific Islands table 3.

This difference for males is clearly seen in the trend over time. The "dependency ratio" for males in 1973 was 116, dipped slightly to 112 in 1980, but jumped back up to 123 in 1989, indicating that there were more males less than 15 and over 59 compared to the middle age group than in the previous censuses. The total dependency ratio also declined between 1973 and 1980, from 111 to 108, before rebounding to 116 in 1989. Since the percentage of elderly (those 60 years and over) decreased between 1973 and 1989 -- from 6.2 percent to 5.3 percent, the increase is due to the increase in those less than 15 -- from 46.3 percent in 1973 to 48.2 percent in 1989.

During the 16 year period between 1973 and 1980 the population increased by 51 percent, but while males increased by only 50 percent, females increased by more than 53 percent. Males increased more rapidly than females in the youngest age group -- 0 to 14 years old -- but females increased faster than males in all the other age groups. For example, while males 30 to 44 years old increased by 73 percent during the period, females increased by 82 percent during the same time. Similarly, males 75 years and over increased by 40 percent while females of that age increased by 62 percent.

Table 4.5. Population Change by Age and Sex: 1973, 1980 and 1989

	1980 to 1989			1973 to 1980			1973 to 1989		
Age Group	Total	Males	Fmles	Total	Males	Fmles	Total	Males	Fmles
Total..	27.7	25.8	29.7	18.6	19.1	18.0	51.4	49.8	53.1
0 to 14..	32.5	31.5	33.7	18.9	20.4	17.3	57.6	58.4	56.7
15 to 29.	14.3	11.9	16.8	25.9	25.4	26.4	43.9	40.3	47.7
30 to 44.	50.0	46.7	53.3	18.4	17.7	19.1	77.5	72.6	82.5
45 to 59.	4.1	-1.2	9.4	12.0	16.8	7.5	16.5	15.4	17.6
60 to 74.	21.2	17.8	24.5	5.0	1.3	9.0	27.3	19.4	35.7
75 +.....	44.6	42.5	46.5	4.5	-1.3	10.4	51.1	40.6	61.7

Source: U.S. Bureau of the Census, 1989 Census of Chuuk State table 5, 1980, PC80-1-B57B table 15 and 1973 Population of Trust Territory of the Pacific Islands table 3.

Changes in the 15 year age groups emphasize some of the points we have been discussing already for the 5 years age groups. Look, for example, at the change in the 30 to 44 year age groups between 1980 and 1989. Again, while the specific people may have moved into or out of the age group, an increase of 50 percent cannot be explained by fertility alone (or, in fact, at all!) That is, something happened here, either because of migration or underreporting in the 1980 census (or, much less likely, overreporting in the 1989 census.) As noted before, some of these people may have been off island in 1980, and returned before 1989 to be counted in the subsequent. Or, for one reason or another, they were missed in the 1980 census.

Table 4.6 shows the distribution by five year age group by region for Chuuk. Percentages are shown to make the table easier to use.

Table 4.6. Chuukese Population by Five Year Age Group and Region, Chuuk: 1989

Age Group	Total	Northern Namoneas	Southern Namoneas	Faichuk	Mortlocks	Oksoritod
Total.....	47,376	15,225	11,430	11,224	5,888	3,609
Percent.	100.0	100.0	100.0	100.0	100.0	100.0
0-4.....	18.0	16.6	18.6	19.6	17.1	18.6
5-9.....	16.7	14.7	17.4	17.5	18.1	18.6
10-14.....	13.8	13.2	14.0	14.0	14.3	14.7
15-19.....	10.5	12.5	9.9	10.3	7.8	8.8
20-24.....	7.1	8.1	6.6	7.2	6.1	6.0
25-29.....	6.6	6.8	6.4	6.3	7.0	6.4
30-34.....	5.9	6.3	5.6	5.5	5.8	6.3
35-39.....	5.2	6.0	5.3	4.7	4.7	4.0
40-44.....	3.7	4.1	3.6	3.2	4.1	3.6
45-49.....	2.2	2.2	2.1	2.2	2.5	2.5
50-54.....	2.4	2.3	2.6	2.3	2.5	1.9
55-59.....	2.1	2.1	2.3	2.0	2.3	2.1
60-64.....	1.8	1.6	2.0	1.8	2.2	1.9
65-69.....	1.6	1.4	1.5	1.5	1.9	1.8
70-74.....	1.0	0.7	1.0	0.9	1.6	1.1
75-79.....	0.7	0.6	0.7	0.5	1.2	0.9
80 +.....	0.3	0.1	0.4	0.2	0.7	0.5
Not Stated..	0.4	0.6	0.2	0.3	0.3	0.3
Median.....	15.6	17.1	15.0	15.6	15.2	14.3

Source: 1989 Census, unpublished tabulations.

The median age for Chuukese only was 15.6 years, slightly lower than for all persons living on Chuuk, as would be expected, since older people rather than youngsters would be more likely to migrate. The median age in Northern Namoneas was higher -- 17.1 -- still, not a very high median age, and the medians in the other areas were all 15.0 years or younger, with Oksoritod having the youngest median age of 14.3 years. The birth rate for Chuuk remains alarmingly high. In Faichuk, for example, almost 1 out of every 5 people is less than 5 years old, and since the percentage for all of Chuuk state is about 18 percent, the other regions are also experiencing high levels of fertility.

It is useful to note, however, that in Oksoritod, the percentage 0 to 4 matches the population 5 to 9, indicating some decrease in fertility. Some of this decrease is also seen in the Mortlocks; however, migration from these two areas could influence the population structure of the population.

Table 4.7 shows similar results with data grouped by 15 years instead of 5 year age groups. As already seen partially in the median age data, both Oksoritod and Faichuk have populations with more than half being less than 15 years old. Many researchers have noted that many of the Outer Islands had the look of nursery schools and old age homes because people in the "middle" years move to economic centers to work (and send remittances home.) We see some of this in the data by region, with Northern Namoneas having only 44 percent of its population 0 to 14, and less than 5 percent 60 years and over. More than 7 percent of the Mortlocks population was 60 years and older

in 1989, as was more than 6 percent of the Oksoritod population.

Table 4.7. Chuukese Population by Five Year Age Group and Region, Chuuk: 1989

Age Group	Total	Northern Namoneas	Southern Namoneas	Faichuk	Mortlocks	Oksoritod
Total.....	47,376	15,225	11,430	11,224	5,888	3,609
Percent.	100.0	100.0	100.0	100.0	100.0	100.0
0-14.....	48.5	44.5	49.9	51.1	49.5	51.8
15-29.....	24.2	27.4	22.9	23.9	20.9	21.2
30-44.....	14.8	16.5	14.5	13.4	14.5	13.9
45-59.....	6.7	6.6	7.0	6.5	7.3	6.5
60-74.....	4.3	3.8	4.4	4.2	5.6	4.8
75 and over.	1.0	0.7	1.1	0.7	1.8	1.4
Not Stated..	0.4	0.6	0.2	0.3	0.3	0.3

Source: 1989 Census, Table 9

Note also, that while 24 percent of Chuuk's population was 15 to 29, more than 27 percent of the population of North Namoneas was in this age group, indicating movement for attendance at Chuuk high school, and to take jobs in the "big city." Similarly, the peak working group, those aged 30 to 44 years, were disproportionately on Weno -- more than 16 percent compared to less than 15 percent for the whole state.

The importance of data on the age-sex composition of the population need hardly be emphasized. Social scientists of practically all types are interested in the age-sex distribution of the population for several reasons. Social and economic relationships within a community are considerably affected by the relative numbers at each age and the balance of the sexes. From birth, through infancy to school, marriage, work childbearing, widowhood, retirement - all are closely associated with age and sex.

4.2.3 Sex Ratios.2.3 Sex Ratios.2.3 Sex Ratios

The sex ratio (defined as the number of males for 100 females) for Chuuk was 102 for all ages in 1989. This ratio had declined from the 1973 and 1980 censuses, censuses which showed sex ratios more likely to be seen in other Pacific Islands countries. The sex ratio at 0-4 age groups of 111 should be considered very high compared to world standards but is consistent with what is found in other Pacific countries.

Table 4.8. Males per 100 Females: 1973, 1980 and 1989

Age Group	1989	1980	1973
Total....	102.3	105.5	104.5
0 to 4.....	110.8	111.1	108.9
5 to 9.....	105.7	109.5	110.7
10 to 14....	112.7	114.0	105.2
15 to 19....	103.7	104.1	109.6
20 to 24....	95.0	98.2	94.2
25 to 29....	89.5	101.1	100.7
30 to 34....	89.4	104.9	101.8
35 to 39....	98.7	98.5	90.6
40 to 44....	101.0	92.4	113.4
45 to 49....	91.7	105.8	92.9
50 to 54....	87.9	101.0	98.1
55 to 59....	96.2	96.8	88.1
60 to 64....	96.4	98.0	111.3
65 to 69....	96.3	105.3	92.1
70 to 74....	84.7	91.4	117.6
75 +.....	87.6	90.0	100.6
Not stated..	160.2	...	169.6

Source: 1989 Census of Chuuk State, table 5, PC80-1-B57B (1980), table 15, and 1973 Population of Trust Territory of the Pacific Islands, table 3.

A downward trend existed in the sex ratio after reaching a very high of 113 at the age groups 10-14. Except for the age group 40-44, the sex ratios for age groups above 19 had sex ratios lower than 100. This change might be due to heavier male mortality, but is more likely due to higher levels of male out-migration in the age groups below 50. In the early years after the signing of the Compact of Free Association, single males in these "middle" ages were more likely than females to leave for Guam. Evidence of this is seen by comparing the 25 to 34 year old age groups which went from being somewhat more male in 1973 and 1980 to being decided more female in 1989. However, if the census were taken a few years later, more of a balance between the sexes would probably be found since whole families are now departing for Guam. For the older ages, higher mortality among males than females is probably the cause of the female dominated sex ratios.

Without knowing more about the sex-selectivity in the census enumeration, it is difficult to decide whether low sex ratios are due to out-migration or male underenumeration or both. It is also possible that this may be the actual pattern for Chuuk.

4.2.4 Indices.2.4 Indices.2.4 Indices[8]

[8]P. Dixit wrote this section.

The age data from any census enumeration contains various kinds of errors and biases. To minimize errors in age reporting, questions were asked on the date of birth and completed age but still there might have been cases where both respondents and enumerators guessed ages, particularly in the older age groups. These guesses sometimes result in a concentration of ages having certain terminal digits which is known as age heaping. In the case of Chuuk Census that heaping of ages was not significant.

The Whipple Index showed no preferences for 0 terminal age, slight preference for terminal age 5 (the range of Whipple Index is 0 to 500)(Table 4.9). UN Index showed some inaccuracies in the reported age and sex (a value between 20 and 40 is termed as inaccurate; over that is highly inaccurate). Myers Index showed no preferences for any digit in the reported ages.

Table 4.9. Whipple's, United Nations, and Myers' Indices, Chuuk: 1989

Index	Total	Males	Females
Whipple's Index			
For digit 0.....	103.0	101.0	104.8
For digit 5.....	121.0	118.1	123.6
For digits 5 and 0.	112.0	109.6	114.2
United Nations Index.	30.0	...	...
Myers' Index.....	1.6	1.8	1.7

Source: Unpublished data, Dixit, 1991

4.3 Fertility.3 Fertility.3 Fertility

The following items related to fertility in the 1989 Chuuk census:

23. OWN CHILDREN - FOR FEMALES born in 1975 or before ONLY

Number of CHILDREN ever born ALIVE
Number of these children STILL ALIVE on census night
Age of Mother at first birth
Last live child born:
Date of Birth
Sex of last child
Is this child alive still?
If NO give date of death

The census asked all women aged 14 and over to report on the babies they had given birth to in their lifetime, and particularly in the last year. Data on fertility are used by governments in planning for educational and medical facilities. Also, fertility is one of the key variables, with mortality and migration, determining the population dynamics of a population. Populations with high birth rates

must spend more of their resources on early child care and schooling.

4.3.1 Children Ever Born and Children Surviving.3.1 Children Ever Born and Children Surviving.3.1 Children Ever Born and Children Surviving

The three most recent censuses each asked questions about the number of children ever born alive and children surviving to females. The 1980 results were published in a way that makes comparison difficult, since some age groups were for 10 years instead of 5 years. On the other hand, the 1973 and 1989 censuses published similar results, so we can compare these. Table 4.10 shows these data for 5 years age groups of females, where possible.

Table 4.10. Children Ever Born and Surviving by Age of Mother, Chuuk: 1973, 1980 and 1989

Age of Women	Children Ever Born Per Woman			Children Still Alive Per Woman			Percentage of Children Still Alive		
	1989	1980	1973	1989	1980	1973	1989	1980	1973
15-19..	0.1	0.1	0.2	0.1	0.1	0.2	95.8	92.1	92.9
20-24..	0.9	1.1	1.5	0.8	1.0	1.4	96.7	93.8	91.9
25-29..	2.2	2.6	3.5	2.1	2.5	3.2	95.6	93.6	90.9
30-34..	3.8	4.5	5.3	3.6	4.2	4.8	95.6	93.7	90.4
35-39..	5.2	6.3	6.8	5.0	5.8	5.9	94.8	92.0	87.4
40-44..	6.0	NA	7.0	5.6	NA	5.9	93.3	NA	83.5
45-49..	6.3	6.3	6.4	5.8	5.7	5.3	93.2	90.2	82.1
50-54..	6.3	NA	5.2	5.8	NA	4.0	91.3	NA	76.6
55-59..	5.9	5.1	4.7	5.3	4.5	3.2	89.7	88.2	68.5

Sources: 1989 Census, Table 44; 1980 Census, Table 19: 1973 Census,
Note: For 1980, ages 35-39 and 40-44 combined and 45-49 and 50-54 combined.

If we use the 45 to 49 age group as a group representing females who have completed fertility, we find no change in the number children ever born alive during the period -- 6.4 children ever born per female in 1973 and 6.3 in 1989. (It is important to note, however, than significantly more of the children to these females survived to census date -- only 5.3 children per female in 1973 compared to 5.8 in 1989, an increase, on average, of half a child.)

If we look only at children ever born, we find that women older than this age group had one child, on average, more in 1989 than in 1973. Women 55 to 59 in 1989 had 5.9 children on average -- with each census showing more children -- 4.7 in 1973 to 5.1 in 1980 to 5.9 in 1989. On the other hand, younger women tended to have fewer children in 1989 than in 1973. Those 35 to 39, for example, had an average of 6.8 children in 1973, 6.3 in 1980, and 5.2 in 1989, a decrease of more than one and a half children per woman over the period. Younger women showed similar declines. As we will see, since more women are moving into the labor force, they are more likely to start families later, and to have fewer children; as we have also seen, and will be discussing further, since

there are more of these females, even though the fertility rate may be declining, many babies are still being born.

Table 4.11 shows age specific and total fertility rates using the number of women in five year age groups from the 1973, 1980, and 1989 censuses as denominators, and the item on children born in the last year before the census as numerators. For example, the 2,491 women in 1989 aged 15 to 19 years old produced 103 children in the year before the census, that is, from mid-September, 1988 to mid-September, 1989. Because the census date was partly through the year, some of the women are misclassified by age in terms of actual age at the birth of their child. The estimates are still useful since this failing occurred in all three census years. Hence, the age-specific fertility rate for females 15 to 19 in 1989 was 41.3 births per 1,000 women.

Table 4.11. Children Born in the Year Before the Census and Age Specific Birth Rates, Chuuk, 1973, 1980 and 1989

Age of Women	Women			Children Born in Year Before Census			Age-Specific Birth Rates		
	1989	1980	1973	1989	1980	1973	1989	1980	1973
15-19..	2491	1978	1676	103	91	114	41.3	46.0	68.0
20-24..	1745	1657	1349	338	331	393	193.7	199.8	291.3
25-29..	1666	1419	934	395	371	366	237.1	261.5	391.9
30-34..	1496	1075	640	387	259	221	258.7	240.9	345.3
35-39..	1263	1305	756	259	221	184	205.1	169.3	243.4
40-44..	889	NA	578	92	NA	60	103.5	NA	103.8
45-49..	564	...	526	13	...	9	23.0	...	17.1
TFR....	...	...	...	...	...	...	5312.2	5534.0	7304.1

Sources: 1989 Census, Table 45; 1980 Census, Table 19; 1973 Census, Table 30

Note: For 1980, ages 35-39 and 40-44 combined, data not compiled for 45-49. TFR assumes 169 per 1000 for 40-44 and 20 for 45-49

Note: 1989 excludes 9 babies born to mothers of unknown age.

The age specific rate for women in this age group -- 15 to 19 years old -- decreased from 68 per 1,000 women in 1973 to 41.3 in 1989, a decrease of more than one-third. Similar decreases were recorded for females 20 to 24, 25 to 29, and 30 to 34. The data shown for 1980 for females 35 to 39 are misleading since the published results combined females 35 to 39 and 40 to 44. So the apparent drop in fertility for the 35 to 39 year old women is not real, but combines the two groups. However, the decrease between 1973 and 1989 is similar to the other decreases, that is, age groups below 40 years old all experienced fertility decline.

Fertility did not seem to decrease for women 40 years and over, and even increased slightly for females over 44, although the numbers are small. Any increase, if real, could be attributed to better health care, allowing women in this age group who would not previously have been able to have a child, to in fact, have a child.

The total fertility rate is the sum of the age-specific fertility rates multiplied by 5 to account for the 5 year age groups. Based on the children born in the year before the census in 1973, the average woman had about 7.3 children, a very high fertility rate, even at that time. By 1980, however, the total fertility rate by this method had decreased to 5.5 children, a decrease of almost two children per woman over the period. This rate is still very high, since 2 children per woman is replacement, so the total fertility is more than twice what is needed to have "zero" population group. That is, without migration, the population is very likely going to continue to grow rapidly.

The total fertility rate decreased only slightly, from 5.5 to 5.3 during the decade of the 1980s, indicating that whatever mechanisms were causing the fertility to decline during the 1970s were not continuing to function during the 1980s.

Table 4.12 compares the births in the year before the census with those recorded by the Department of Public Health in Chuuk during the same period. While the census recorded 1,596 births between mid-September 1988 and mid-September 1989, there were only 1,125 registered live births during the period, 471 less than were counted in the census, and, if really true, about a 42 percent under-registration rate. However, since many births, particularly from the Outer Islands (the Mortlocks and Oksoritod) get reported months late (although births from months before might appear here), the under-reporting is probably not what it seems. Still, it is likely that there is some under-reporting, and the government of Chuuk State is likely to want to continue using the "births in the last year" in censuses to help in checking the vital registration system.

Table 4.12. Comparison of Births in the Last Year in Census and Registered Live Births, October 1988 to September 1989

Months Before Census	Census Births in Last Year	Registered Live Births	Births in Census Not Registered	Percent Under-registration
Total.....	1,596	1,125	471	41.9
Less than 1.....	126	111	15	13.5
1.....	119	77	42	54.5
2.....	131	77	54	70.1
3.....	109	76	33	43.4
4.....	124	85	39	45.9
5.....	116	67	49	73.1
6.....	117	80	37	46.3
7 or 8.....	223	170	53	31.2
9 or 10.....	275	195	80	41.0
11 or 12.....	254	187	67	35.8
Not Stated.....	2	...	...	...

Sources: 1989 Census, Table 45 and 1990 Chuuk State Yearbook, table 11.4

Births were "under-registered" in every month and time period in the table, at rates up to 73 percent. Again, it is likely that there is a discrepancy between the data reported in the Chuuk Statistical Yearbook, which probably do not include late registered births with the census data.

The 1989 Census collected information on children ever born and children surviving by sex (Table 4.13). Again, the average female in 1989 had had 2.97 children, and, obviously, in general, the older the woman, the more children she had ever borne.

Table 4.13. Children Ever Born and Surviving by Age of Mother and Sex of Child, Chuuk: 1989

Age of Women	Children Ever Born Per Woman			Children Still Alive Per Woman			Percentage of Children Still Alive		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total.	2.97	1.55	1.42	2.79	1.45	1.34	93.9	93.3	94.5
15-19..	0.08	0.04	0.03	0.07	0.04	0.03	95.8	95.3	96.4
20-24..	0.86	0.47	0.39	0.83	0.46	0.38	96.7	97.2	96.2
25-29..	2.20	1.15	1.05	2.10	1.10	1.01	95.6	95.2	96.0
30-34..	3.77	1.97	1.80	3.61	1.88	1.73	95.6	95.4	96.0
35-39..	5.24	2.72	2.52	4.97	2.56	2.41	94.8	94.2	95.4
40-44..	6.01	3.13	2.88	5.60	2.90	2.70	93.3	92.8	93.8
45-49..	6.27	3.28	2.99	5.85	3.04	2.81	93.2	92.5	94.0
50-54..	6.32	3.23	3.09	5.77	2.91	2.86	91.3	90.1	92.6
55-59..	5.88	3.13	2.74	5.27	2.78	2.49	89.7	88.7	90.8

Source: 1989 Census, Table 44

The average woman aged 50 to 54 had had 6.32 children, slightly more males than females. The oldest group of females, aged 55 to 59, had slightly fewer recorded children ever born, which may be true because of later improved health care, or these women, because they were older, may have forgotten children who died young.

There was generally a direct relationship between age and children ever born, that is, the older woman, the more children she had. Partly this relationship was due to younger women not having completed (or, in some cases, even started) their families, and to younger women delaying fertility or spreading their children out for schooling or jobs.

The percentage of females 15 years and over having no children increased only slightly between 1973 and 1989 (Table 4.14). However, the percentage having many children decreased considerably. While 11.5 percent of the females in this age group had 10 or more children in 1973, only 8.3 percent of this age group were in this upper end category in 1989. The percentage of these females having 10 or more surviving children actually went up slightly (although possibly not statistically) between 1973 and 1989, presumably because of better health care.

Table 4.14. Females 15 Years and Over By Number of Children Born Alive and Children Still Alive, Chuuk: 1973 and 1989

	Numbers				Percents, excluding unknowns			
	Children Ever Born		Children Surviving		Children Ever Born		Children Surviving	
Children	1989	1973	1989	1973	1989	1973	1989	1973
Total	12,657	8,346	12,657	8,346	100.0	100.0	100.0	100.0
None	3,533	2,521	3,580	2,670	32.3	31.4	32.7	33.2
1 child	948	803	1,005	925	8.7	10.0	9.2	11.5
2 children	890	640	942	744	8.1	8.0	8.6	9.2
3 children	865	601	919	702	7.9	7.5	8.4	8.7
4 children	847	518	860	590	7.7	6.4	7.9	7.3
5 children	702	505	780	554	6.4	6.3	7.1	6.9
6 children	715	452	756	491	6.5	5.6	6.9	6.1
7 children	592	403	564	371	5.4	5.0	5.2	4.6
8 children	525	376	513	340	4.8	4.7	4.7	4.2
9 children	413	296	397	257	3.8	3.7	3.6	3.2
10 + children	902	926	616	409	8.3	11.5	5.6	5.1
Not stated	1,725	305	1,725	293	...	...	...	...

Sources: 1989 Census, Tables 44, and 1973 Census, Tables 25 and 26.

4.3.2 Estimates of Current Fertility.3.2 Estimates of Current Fertility.3.2 Estimates of Current Fertility[9]

The question on date of birth of last child born could be used in estimating the Age Specific Fertility Rates (ASFR) and Total Fertility Rates (TFR). A tabulation of births reported for one year preceding the census by age of mother in five year age groups was made. The usual problem in these data, in addition to the omission of births (especially ones who had died), is time reference error. Reporting of date of birth may not be accurate hence resulting in births that were born in the last year having been born before that and vice versa. If we choose more than one year as our reference period, the proportion of such errors to total births is smaller. On the other hand, in periods more than one year, chances of multiple births increase. So we kept the reference period as one year. Since only month of birth and not the date of birth was recorded, a prorating for the month of September (census month) provided the number of births that occurring in the 12 months preceding the census. This value was 105.5, within the expected range.

P/F Ratio Method[10]

Table 4.15 presents current fertility f(i) obtained from births in the 12 months preceding the census.

[9]This section written by A.C. Muthiah, Population Specialist, South Pacific Commission.

[10]This section written by A.C. Muthiah, Population Specialist, South Pacific Commission.

Age of mother at the time of birth is used in calculating these rates. Since the reported ages of mothers at the census are on an average half a year more than the age at the time of birth. Hence, adjusted rates are also presented. The Total Fertility Rate is 5.49.

In view of the time reference error, the estimates of current fertility obtained from data on births in the last 12 months may be distorted. Hence the reported births may not correspond to exactly one year but may be shorter or longer than a year. William Brass developed a method to be applied in such situations using data on Children ever born by age of mother (Brass, 1964).

For a high proportion of women aged 15 to 49 years, parity data (CEB) was coded as blank (12.6 percent). An examination of the relation between the proportions with parity not stated and proportions reported childless in the various age groups of mothers revealed that the relationship acceptably linear, although not at the lower end of the ages. However, El-Badry's correction (El-Badry, 1961) for arriving at estimated childless in each age group with the Brass Technique treating all blanks as zero resulted in Table 4.15.

Table 4.15. Estimation of Current Fertility: P/F Ratio Method Using Women Obtained by El-Badry Method, Chuuk: 1989

Age Group	Average parity per woman P(i)	Reported Fertility Rate f(i)	Fertility Rate for Conventional age Groups $f^{+}(i)$	Estimated Parity Equivalant F(i)	P/F Ratio	Adjusted Fertility Rate K=1.169
(1)	(2)	(3)	(4)	(5)	(6)	(7)
15-19.....	0.083	0.0439	0.0550	0.085	0.974	0.0643
20-24.....	0.942	0.2078	0.2208	0.806	1.169	0.2581
25-29.....	2.406	0.2541	0.2575	2.000	1.203	0.3010
30-34.....	4.126	0.2674	0.2636	3.354	1.230	0.3081
35-39.....	5.730	0.1972	0.1896	4.485	1.278	0.2216
40-44.....	6.568	0.1026	0.0923	5.187	1.266	0.1079
45-49.....	6.859	0.0244	0.0186	5.459	1.257	0.0217
Total.....	...	1.0973	1.0973	...	...	1.2827
TFR.....	...	5.49	5.49	...	...	6.41

Source: Muthiah, 1991:5

Table 4.16 shows results using data with all blanks treated as childless.

Table 4.16. Estimation of Current Fertility: P/F Ratio Method Treating All Blanks as Zero Children Ever Born, Chuuk: 1989

Age Group	Average parity per woman P(i)	Reported Fertility Rate f(i)	Fertility Rate for Conventional age Groups $f^{+}(i)$	Estimated Parity Equivalant F(i)	P/F Ratio	Adjusted Fertility Rate K=1.169
(1)	(2)	(3)	(4)	(5)	(6)	(7)
15-19.....	0.076	0.0439	0.0550	0.085	0.895	0.0588
20-24.....	0.862	0.2078	0.2208	0.806	1.069	0.2360
25-29.....	2.200	0.2541	0.2575	2.000	1.110	0.2753
30-34.....	3.773	0.2674	0.2636	3.354	1.125	0.2819
35-39.....	5.240	0.1972	0.1896	4.485	1.168	0.2027
40-44.....	6.007	0.1026	0.0923	5.187	1.158	0.0986
45-49.....	6.275	0.0244	0.0186	5.459	1.150	0.0198
Total.....	...	1.0973	1.0973	...	...	1.1732
TFR.....	...	5.49	5.49	...	...	5.87

Source: Muthiah, 1991:5

In both tables the parity ratios increase with age indicating a fertility decline in the near past. Since the P/F ratio method assumes constant fertility, the applicability of this method can be questioned. However, assuming that fertility decline is a phenomenon associated with older women only we applied this method. Applying the P/F ratio for the ages 20 to 24 to the fertility rates adjusted for age, gives a Total Fertility Rate of 6.41 using El-Badry's correction and 5.87 when all women with parity coded as blank are treated as childless.

The Total Fertility Rates of the other three states -- Pohnpei 1985 (5.2), Kosrae 1986 (5.5), and Yap 1987 (5.3) -- indicate that even the unadjusted TFR of 5.49 of Chuuk's fertility is about the same as Kosrae's.

Also, lower levels of child mortality obtained for Chuuk are inconsistent with fertility as high as 6.41 children per woman. Low levels of child mortality are generally associated with low levels of fertility because two of the possible contributing factors to decline in child mortality are the decline in higher order births and increasing birth intervals.

The P/F ratios suggest a fertility decline. If that were the case and the current TFR is 6.41, fertility in the recent past should have been around 7 or more. This level looks unlikely in view of generally lower levels of natural fertility in the South Pacific.

Also, examination of the age and marital status of those for whom parity is coded as blank suggests that most of these women were likely to be childless.

Using the above arguments we suggest using 5.87 as the Total Fertility Rate for Chuuk State.

4.3.3 Own Children Fertility Estimates.3.3 Own Children Fertility Estimates.3.3 Own Children Fertility Estimates

The own-children method has been described in earlier publications and needs only to be recapitulated briefly here. (For more detailed accounts, see, for example, Cho 1973 and Retherford and Cho 1978.) The method is a census- or survey-based reverse-survival technique for estimating age-specific birth rates for years previous to a census or household survey. In most applications, enumerated children are first matched to mothers within households on the basis of responses to questions on age, sex, marital status, relation to head of household (or householder), and number of children still living. (For the 1973 and 1980 censuses, matching was based on a special question on mother's line number or person number in the household schedule, if mother was present.) These matched (i.e., own) children, classified by child's age and mother's age, are reverse-survived to estimate numbers of births by age of mother in previous years. Reverse-survival is also used to estimate numbers of women in previous years. After adjustments are made for incorrect enumeration and unmatched (non-own) children, age-specific birth rates are calculated by dividing the number of births by the number of women. Estimates are computed for each previous year or group of years back to fifteen years before the census. Estimates are not computed further back than fifteen years because births must then be based on children at ages 15 or older at enumeration, a large proportion of whom do not reside in the same household as their mother, and hence cannot be matched. All calculations are done initially by single years of age and time (years before the census). We obtain estimates for groups of ages or groups of calendar years by aggregating numerators and denominators of single-year rates and then dividing the aggregated numerator by the aggregated denominator. For reasons of economy, the method is usually applied to census samples rather than complete counts, but because Chuuk has a relatively small population, the applications are to the complete counts.

We allocate non-own (unmatched) children to mothers by multiplying each age-specific category of own (matched) children, specified by mother's age, by the corresponding age-specific ratio of all children to own children. Thus the number of own children at a given age is adjusted upward by the same factor regardless of mother's age, thereby introducing some error in the fertility estimates. The proportionate distribution of non-own children by age of mother generally differs somewhat from the proportionate distribution of own children by age of mother. We cannot specify non-own adjustment factors by age of mother since the mother of an unmatched child is by definition not in the household. Since older women are usually in more stable households than younger women, the nature of the error from not specifying non-own adjustment factors by mother's age is usually to reallocate erroneously a certain proportion of non-own children of a given age from younger mothers to older mothers. This error, if present, usually has little effect on the total fertility rate, but it produces an age pattern of fertility that is too low at the younger ages and too high at the older ages. The error is minor if the adjustment factors for non-own children are low, but sometimes these factors can be quite high, as is the case for Chuuk.

Unfortunately, we ran out of time on this publication before we could make the own children estimates from the 1989 census. The FSM Office of Planning and Statistics will be making a

special publication based on own children fertility estimates for Chuuk, Kosrae, and Pohnpei soon, and readers should refer to that for the most recent fertility estimates.

Table 4.17 shows own children fertility estimates from the last two censuses. The data mesh well with what we discussed in earlier sections of this chapter. The total fertility rates throughout the period, roughly from 1960 to 1980, remained at about 7 children per woman. That is, the average woman in Chuuk during this time had an average of 7 children over her reproductive period. Since the 1989 data show a total fertility rate below 6, the average woman in the late 1980s was having an average of one child less than in the 1960 to 1980 period.

Table 4.17. Total fertility Rates and Age-Specific Birth Rates, Derived by Own-children Method, Chuuk: 1973, 1980, and 1989

Period of Estimate	TFR	Age Specific Fertility Rates 15-19	20-24	25-29	30-34	35-39	40-44	45-49
1973:								
1959-63.....	6.78	158	302	325	267	187	85	32
1964-68.....	7.16	134	292	328	308	238	96	35
1969-73.....	7.40	103	286	344	329	258	125	35
1980:								
1966-70.....	7.28	128	295	325	308	227	123	50
1971-75.....	7.17	90	268	320	306	254	135	61
1976-80.....	6.68	80	247	306	279	228	144	53

Source: Levin and Retherford, 1986, and unpublished data
Note: Rate per woman for TFRs, per 1000 women for Age-Specific Rates

The age specific rates also did not change very much between 1960 and 1980. However, the age specific rates for females aged 15 to 19 decreased by about half during the period. Most of the rest of the decrease probably came during the 1980s. However, as noted earlier, even 5 children per woman is extremely high for the 1990s.

Table 4.18 shows total fertility rates for married females only, based on the 1973 and 1980 censuses. Based on these two censuses, the marital total fertility rate actually increased from 7 to 8 children during the 1960s and 1970s. Later on, when OPS runs the own children estimates for the 1989 census, we will see if this trend continued into the late 1980s.

Table 4.18. Marital Total Fertility Rates and Age-Specific Marital Birth Rates Derived by Own-children Method, Chuuk: 1973, 1980, and 1989

Period of Estimate	MTFR	Marital Age Specific Birth Rates 15-19	20-24	25-29	30-34	35-39	40-44	45-49
1973:								
1959-63.....	7.15	1231	417	380	295	203	97	39
1964-68.....	7.95	921	429	395	348	265	110	42
1969-73.....	8.67	631	448	426	382	294	144	42
1980:								
1966-70.....	8.24	836	444	395	352	256	141	60
1971-75.....	8.55	530	430	399	358	293	156	74
1976-80.....	8.28	428	427	393	336	269	167	64

Source: Levin and Retherford, 1986, and unpublished data
Note: Rate per woman for TFRs, per 1000 women for Age-Specific Rates

The own children method is useful for estimating fertility over time since the numerators (the births) and the denominators (the mothers) come from the same source, in this case the 1973 and 1980 censuses, and later the 1989 census. When FSM has a fertility survey, we will be to obtain even fuller fertility data for this type of analysis.

4.3.4 Conclusions

Fertility in Chuuk remains very high. Although the total fertility rate decreased from 7.2 to 5.3 children per woman from 1973 to 1989, even this rate will cause potential infrastructure problems. However, because the number of women in childbearing ages continues to increase, the number of children born each year will continue to increase. The Total Fertility Rate and the Gross Reproduction Rate are still high. If a woman was to experience during her lifetime the age specific fertility rates as they were recorded in 1989, then she would have ___ daughters when surviving to the end of her reproductive years. Taking mortality into account, a Net Reproduction Rate is estimated as ___ daughters per woman. This means that in one generation (the average length of a generation is equal to the mean age at childbearing or ____ years in 1989) the population will increase _____.

4.4 Mortality.4 Mortality.4 Mortality

4.4.1 Introduction.4.1 Introduction.4.1 Introduction

An accurate analysis of mortality is unfortunately handicapped by the lack of reliable data. Estimating mortality is more complex since women generally are very reluctant to speak about deaths particularly deaths of their young children. There are several methods to obtain an

approximate estimate of mortality.

The incidence of deaths among a population is generally measured by the Crude Death Rate (CDR) which is the number of deaths in a year per thousand population. Although the CDR has certain limitations in the detailed study of mortality, it is easily computed and is a simple and convenient measure for examining approximate trends in mortality.

The only source of information obtained from the census is the number of children died in the year preceding the census which we already mentioned that are subject to different types of errors. Using indirect demographic methods, the crude death rate for Chuuk was estimated to lie between 6.5 to 8.9. Then based on the CBR and CDR, the rate of natural increase comes between 32.1 and 29.7 per 1,000 per year. This rate of natural increase is very high for a state like Chuuk which has small land area and limited resources.

4.4.2 Estimates of Child Mortality.4.2 Estimates of Child Mortality.4.2 Estimates of Child Mortality[11]

Muthiah applied the method originally developed by Brass using Children Ever Born and Children alive to the census data in arriving at child mortality estimates. One of the assumptions underlying this method is that fertility has remained constant in the last 30 or 35 years. This may not be strictly true for Chuuk and has to be kept in mind in interpreting the estimates. The most basic assumption is that there is no under-reporting of dead children, that is, that reported proportions of children dead are correct.

The census provides data on children ever born (CEB) and Children surviving (CS), obtained from answers to questions on Number of Children Born Alive and Number of these children still alive on census night, both by sex. We made estimates for both sexes combined as well as separately for each sex. However, we use the estimates for both sexes combined in selecting a life table, simply in view of larger numbers.

The sex ratio of CEB was 110 for women of ages 15 to 49, a fairly high value. Though there could be variations in the sex ratio at birth in different societies, the usual ratio is around 105. The sex ratio is uniformly high in all age groups of mothers, more so among younger women of ages below 30. Though the differences are small, the proportion dead is slightly higher among females than among males. In the absence of culturally specific reasons, we expect proportions to be higher among males. This pattern also suggests that female children who died might be slightly under-reported resulting in not only a slightly lower proportion dead among females, but also a slightly higher sex ratio[12].

[11]This section was written by A.C. Muthiah, Population Specialist, South Pacific Commission.

[12]The sex ratio for the live births in the year preceding the census was 105.5, which is in the expected range. This suggests that the sex ratio at birth for Chuuk may be around the expected 105.

If there is such under-reporting, it does not appear to be age related. The mean parities by age (using all women except those coded specifically as not stated and including women with a blank code as childless) increased until the age of 55.

The Table 4.19 shows the average parity, P(i), proportion dead, D(i), which are converted to probability of dying by age x, q(x), reference dates for q(x) and corresponding West model life tables of the Coale-Demeny Regional Model Life Tables (Coale and Demeny, 1966).

Table 4.19. Estimation of Child Mortality Using the Trussel Version of the Brass Method for Data on Both Sexes, Chuuk: 1989

(i)	Age of women (2)	P(i) (3)	D(i) (4)	x (5)	q(x) (6)	t(x) (7)	Reference date (8)	$q^c(5)$ (9)	West Level (10)
1	15-19	0.076	0.053	1	0.063	0.8	Nov 88	0.086	18.4
2	20-24	0.862	0.043	2	0.047	1.9	Oct 87	0.053	20.4
3	25-29	2.200	0.053	3	0.055	3.7	Jan 86	0.059	20.1
4	30-34	3.773	0.053	5	0.055	5.9	Oct 83	0.055	20.3
5	35-39	5.240	0.061	10	0.064	8.4	Apr 81	0.058	20.0
6	40-44	6.007	0.076	15	0.078	11.1	Aug 78	0.068	19.5
7	45-49	6.275	0.077	20	0.079	14.1	Aug 75	0.066	19.8

P(1)/P(2) = .0882
P(2)/P(3) = .3918

Multipliers based on West Model

Though the method assumes that the mortality risk of children is independent of mother's age, it is well documented that children born to very young mothers experience higher risks that others. Hence, the very high value of q(1) has to be disregarded. Even q(2) would be affected to a lesser extent by this phenomenon as a good proportion of births to these women would have been born in ages below 20. Column (10) provides corresponding West model life table levels for each q(x). By the reasoning above, the life table level of 20 may be considered to be appropriate for Chuuk.

The trend in $q^c(5)$ is a common index arrived at by interpolating between q(x) values of the West Model Life Table. For example q(1) in the Table 4.19 is .063. This value lies between q(1) in model 18 for both sexes combined (.06734) and model 19 (.05656). Interpolating, .063 relates to model 18.4. Interpolating for q(5), the value corresponding to 18.4 is .086 as given in Table 4.19. Disregarding the $q^c(5)$ for the children of mothers of age 15-19, there appears to be a declining trend $q^c(5)$, about 20 percent in a decade, except for the children of mothers of ages 25-29 where $q^c(5)$ slightly increases.

A comparison with the estimated probabilities of death for the other three states reveals that Chuuk enjoys considerably better mortality conditions.

4.4.3 Choosing a Life Table for Chuuk[1].4.3 Choosing a Life Table for Chuuk[1].4.3 Choosing a

Life Table for Chuuk[1]

When vital registration data are not available, we use indirect methods of estimation to arrive at a reasonable life table. However, these methods require several pieces of information, including estimates of child mortality, some estimates of adult mortality (both preferably by sex) and some information to provide clues about the relationship between these two. The most common question in censuses of the South Pacific allowing estimation of female adult mortality is that of vital status of own mother. Data on the living status of own mother can be converted to probabilities of death for adult women. This question was asked in the Chuuk census but only to obtain information on the mothers who live in the same household as that of children. So this data cannot be used for adult mortality that could be used only for estimating fertility. So a life table has to be chosen based on estimates of child mortality presented in Table 4.19. Levels of West Model Life Tables corresponding to q(3) and q(5), are around level 20. This is higher than those for the other three states. It was decided, however, to use West level 20 as the life table for Chuuk with an expectation of life of 63.6 for males and 67.5 for females.

4.5 Household Size.5 Household Size.5 Household Size

The 47,871 persons in Chuuk state in 1989 lived in 5,982 households, an average of 8.00 persons per household (Table 4.20). The size of households in Chuuk is large even by Pacific Islands standards, and is getting larger. Also, as Table 4.20 shows, almost 3 out of every 10 households in Chuuk had 10 or more persons. Unfortunately, the tabulations stopped with the category "10 or more" so percentages for even larger households are not available.

[13]This section written by A.C. Muthiah.

Table 4.20. Persons per Household and Households with 10 or More Persons, Chuuk: 1989

Municipality of Enumeration	Persons	House-holds	Persons Per Household	Households with 10 or more persons	
				Number	Percent
Total.....	47,871	5,982	8.00	1,764	29.5
Lagoon.....	38,341	4,633	8.28	1,483	32.0
Weno.....	15,253	1,754	8.70	585	33.4
Fono.....	369	38	9.71	17	44.7
Tonoas.....	3,870	503	7.69	145	28.8
Fefen.....	3,902	457	8.54	156	34.1
Siis.....	438	57	7.68	14	24.6
Uman.....	2,895	308	9.40	134	43.5
Parem.....	350	38	9.21	15	39.5
Eot.....	279	33	8.45	12	36.4
Udot.....	1,513	195	7.76	60	30.8
Ramanum.....	679	98	6.93	16	16.3
Fanapanges.....	447	75	5.96	11	14.7
Tol.....	8,346	1,077	7.75	318	29.5
Wonei.....	874	115	7.60	39	33.9
Paata.....	1,299	156	8.33	57	36.5
Tol.....	4,846	635	7.63	172	27.1
Polle.....	1,327	171	7.76	50	29.2
Mortlocks.....	5,904	809	7.30	194	24.0
Nama.....	897	150	5.98	21	14.0
Losap.....	475	65	7.31	16	24.6
Piis-Emwar.....	320	45	7.11	11	24.4
Namoluk.....	310	48	6.46	8	16.7
Ettal.....	420	51	8.24	12	23.5
Lukunoch.....	745	85	8.76	31	36.5
Oneop.....	534	44	12.14	31	70.5
Satowan.....	885	110	8.05	29	26.4
Kuttu.....	423	80	5.29	9	11.3
Moch.....	604	74	8.16	25	33.8
Ta.....	291	57	5.11	1	1.8
Oksoritod.....	3,626	540	6.71	87	16.1
Houk.....	346	57	6.07	5	8.8
Polowat.....	477	76	6.28	10	13.2
Pollap.....	315	43	7.33	12	27.9
Tamatam.....	226	37	6.11	5	13.5
Makur.....	121	20	6.05	3	15.0
Onoun.....	513	65	7.89	8	12.3
Onou.....	91	14	6.50	1	7.1
Onanu.....	80	13	6.15	1	7.7
Piherarh.....	139	26	5.35	3	11.5
Nomwin.....	386	74	5.22	4	5.4
Fananu.....	238	33	7.21	9	27.3
Ruo.....	398	44	9.05	16	36.4
Murilo.....	296	38	7.79	10	26.3

Source: 1989 Census, Tables 1 and 3

The lagoon islands tended to more crowded than this average (8.28 persons per household in 1989), while the Mortlocks (7.30 persons per household) and Oksoritod (6.71 persons per household) tended to be smaller. However, some of this difference has to do with internal migration. Many Mortlockese and Oksoritod residents have been moving from their home islands to the lagoon, particularly to Weno, for schooling and jobs, thus decreasing the size of the households on their home islands, while increasing the size of households in the lagoon.

Table 4.20 also shows the considerable variation in household size among the various municipalities. Frequently, enumerators use definitions to define households, or householders when questioned insist on certain household structures which influence the number of households, and their composition. The most crowded municipality -- Oneop, with more than 12 persons per household on average -- was more than twice as crowded as the least densely populated islands (Ta), even though the two Mortlock Islands are fairly close to each other geographically.

About 1 in every 3 houses on Weno had 10 or more persons in 1989. By comparison, on Oneop, about 7 in every 10 houses had 10 or more persons. More than 4 in every 10 households on Uman were in this category.

Large households are not surprising since little time is actually spent in houses. Most activities, whether social, economic, or political, occur outdoors so houses are used mainly for sleeping. As seen in the section on housing inventory (Chapter 8), most Chuukese families have few appliances or even furniture, so space in the house is usually kept for sleeping. Family members pool economic resources, whether from wages or when fishing or gardening, so large families are frequently preferred.

Table 4.21 compares household sizes in 1980 and 1989. Although the number of households increased by 20 percent between 1980 and 1989, the percentage of households with 8 or more persons increased by more than 43 percent. The percentages of small households -- those with 3 or fewer persons -- increased much more slowly than for all of Chuuk. One person households increased by only 7 percent, and 3 person households by less than 3 percent. Part of the reason for these smaller increases has to do with a limited housing inventory, particularly on some of the islands in the lagoon. But cultural factors also play an important role here. Few Micronesians like living alone, even when the opportunity presents itself.

Table 4.21. Persons per Household, Chuuk: 1980 and 1989

Size of Household	Numbers 1989	Numbers 1980	1980-89 Change	Percent 1989	Percent 1980	Cum. Percent 1989	Cum. Percent 1980
Total..	5,982	4,979	20.1	100.0	100.0	...	...
1.....	157	147	6.8	2.6	3.0	100.0	100.0
2.....	289	266	8.6	4.8	5.3	97.4	97.0
3.....	370	361	2.5	6.2	7.3	92.5	91.7
4.....	521	423	23.2	8.7	8.5	86.4	84.5
5.....	527	532	-0.9	8.8	10.7	77.6	76.0
6.....	613	493	24.3	10.2	9.9	68.8	65.3
7.....	628	746	-15.8	10.5	15.0	58.6	55.4
8 or more.	2,877	2,011	43.1	48.1	40.4	48.1	40.4

Source: 1989 Census, Table 3, and 1980 Census, Housing Table 3

The percentage of households with 8 or more persons increased from 40 percent of all households in 1980 to 48 percent in 1989 - almost half. The data show that households are increasing in size as the cumulative percents at each level increased between 1980 and 1989.

The number of households on Weno increased by more than one-third between 1980 and 1989 (Table 4.22). More than half of all households on Weno in 1989 had 8 or more persons, a more than 10 percentage point increase since 1980. On Weno, the number of households with 1 or 2 persons actually decreased during the period, showing again the increasing household size on Weno as Chuukese pour in from outlying areas. The cumulative percents, again, show increasing household size at every level.

Table 4.22. Persons per Household, Weno: 1980 and 1989

Size of Household	Numbers 1989	Numbers 1980	1980-89 Change	Percent 1989	Percent 1980	Cum. Percent 1989	Cum. Percent 1980
Total..	1,754	1,307	34.2	100.0	100.0	...	...
1.....	36	38	-5.3	2.1	2.9	100.0	100.0
2.....	72	73	-1.4	4.1	5.6	97.9	97.1
3.....	90	88	2.3	5.1	6.7	93.8	91.5
4.....	145	103	40.8	8.3	7.9	88.7	84.8
5.....	139	133	4.5	7.9	10.2	80.4	76.9
6.....	176	129	36.4	10.0	9.9	72.5	66.7
7.....	165	190	-13.2	9.4	14.5	62.5	56.8
8 or more.	931	553	68.4	53.1	42.3	53.1	42.3

Source: 1989 Census, Table 3, and 1980 Census, Housing Table 3

The number of households in the rest of Chuuk increased by only 15 percent during the 9 years between censuses (Table 4.23). Again, the largest increase was in households with 8 or more persons, increasing by more than one-third. However, these households still constituted less than

half of all households outside Weno. On the other hand, as for Weno, the cumulative percentages showed that household sizes were increasing at every level in these areas as well.

Table 4.23. Persons per Household, Chuuk Outside Weno: 1980 and 1989

Size of Household	Numbers 1989	Numbers 1980	1980-89 Change	Percent 1989	Percent 1980	Cum. Percent 1989	Cum. Percent 1980
Total..	4,228	3,672	15.1	100.0	100.0	...	...
1.....	121	109	11.0	2.9	3.0	100.0	100.0
2.....	217	193	12.4	5.1	5.3	97.1	97.0
3.....	280	273	2.6	6.6	7.4	92.0	91.8
4.....	376	320	17.5	8.9	8.7	85.4	84.3
5.....	388	399	-2.8	9.2	10.9	76.5	75.6
6.....	437	364	20.1	10.3	9.9	67.3	64.8
7.....	463	556	-16.7	11.0	15.1	57.0	54.8
8 or more.	1,946	1,458	33.5	46.0	39.7	46.0	39.7

Source: 1989 Census, Table 3, and 1980 Census, Housing Table 3

Household size continues to increase on Chuuk. These large households bode both well and ill for Chuuk. Fewer households mean, at least potentially, fewer total appliances and vehicles, since extended rather than nuclear families may use refrigerators and televisions and video recorders. On the other hand, the household sizes are so large that the government almost certainly has to be concerned about possible sanitation and other medical problems deriving from crowded conditions. While Chuukese culture virtually dictates large families, modern health conditions sometimes conflict with this status.

4.6 Marriage.6 Marriage.6 Marriage

The marital status distribution for males and females aged 15 years and over is shown in the Table 4.24. As would be expected, the proportion of never married males is less than the females because females generally get married at earlier ages than males. The difference in proportion ever-married is reflected in the average age at marriage. Rates for divorced/separated and widowhood are, in contrast, higher for females than men. The most obvious explanation for the higher female rates is that widowed or divorced men tend to remarry more often and more quickly than do women.

Table 4.24. Marital Status for Chuuk: 1973, 1980, and 1989

Marital Status	Numbers			Percent		
	1989	1980	1973	1989	1980	1973
Total, 15 + years...	24,798	20,077	16,677	100.0	100.0	100.0
Single.....	8,755	6,406	5,159	35.2	31.9	30.9
Now married, except sep..	13,596	11,924	9,921	54.9	59.4	59.5
Separated/divorced.....	929	891	999	3.8	4.4	6.0
Widowed.....	1,367	856	580	5.5	4.3	3.5
Not stated.....	151	...	18	0.6	...	0.1
Male, 15 + years....	12,141	10,069	8,324	100.0	100.0	100.0
Single.....	4,827	3,647	3,015	39.7	36.2	36.2
Now married, except sep..	6,645	5,929	4,862	54.8	58.9	58.4
Separated/divorced.....	293	298	190	2.4	3.0	2.3
Widowed.....	284	195	244	2.3	1.9	2.9
Not stated.....	92	...	13	0.8	...	0.2
Female, 15 + years..	12,657	10,008	8,353	100.0	100.0	100.0
Single.....	3,928	2,759	2,144	30.9	27.6	25.7
Now married, except sep..	6,951	5,995	5,059	55.0	59.9	60.6
Separated/divorced.....	636	593	809	5.0	5.9	9.7
Widowed.....	1,083	661	336	8.6	6.6	4.0
Not stated.....	59	...	5	0.5	...	0.1

Source: U.S. Bureau of the Census, 1989 Census of Chuuk State, table 20, 1980 PC80-1-B57B, table 15, and 1973 Population of the Trust Territory of the Pacific Islands, table 5.

The singulate mean age at marriage for males in 1989 was 26.2 years, and 2 and 1/2 years older than for females (Table 4.25). The singulate mean age at marriage is an indirect measure using percentages not married at different ages to obtain an average age at first marriage. Males often delay marriage for schooling, for voyaging or visiting, and for getting established economically.

Table 4.25. Population by Marital Status by Age for Males: 1989

Age Group	Total Number	Total Percent	Never married	Married	Widowed	Separated	Not stated
Males...	24,203	100.0	69.8	27.5	1.2	1.2	0.4
0 to 4.....	4,499	100.0	100.0	-	-	-	-
5 to 9.....	4,076	100.0	100.0	-	-	-	-
10 to 14...	3,487	100.0	100.0	-	-	-	-
15 to 19...	2,583	100.0	96.2	3.3	0.2	0.2	0.1
20 to 24...	1,658	100.0	72.4	25.6	0.4	1.4	0.1
25 to 29...	1,491	100.0	38.5	58.8	0.1	2.4	0.1
30 to 34...	1,337	100.0	17.5	78.9	-	3.6	-
35 to 39...	1,247	100.0	9.3	87.4	0.5	2.6	0.2
40 to 44...	898	100.0	7.3	89.9	0.7	2.1	-
45 to 49...	517	100.0	4.3	92.5	1.4	1.7	0.2
50 to 54...	529	100.0	4.9	89.8	3.4	1.9	-
55 to 59...	501	100.0	2.4	87.0	5.6	4.6	0.4
60 to 64...	431	100.0	3.2	79.8	9.3	7.2	0.5
65 to 69...	364	100.0	4.1	75.8	13.2	6.6	0.3
70 to 74...	210	100.0	2.4	68.6	21.0	7.1	1.0
75 +.....	218	100.0	3.2	57.8	31.2	6.4	1.4
Not stated.	157	100.0	31.8	17.2	3.2	1.9	45.9

Source: 1989 Census of Chuuk State, table 20.

The singulate mean age at marriage for females was 23.7 years; that is, the average female was 23.7 years old when she was married for the first time (Table 4.26). For most ages, females married earlier and were more likely to be widowed and more likely to separated than males.

Table 4.26. Population by Marital Status by Age for Females: 1989

Age Group	Total Number	Total Percent	Never married	Married	Widowed	Separated	Not stated
Females..	23,668	100.0	63.1	29.4	4.6	2.7	0.2
0 to 4.....	4,059	100.0	100.0	-	-	-	-
5 to 9.....	3,858	100.0	100.0	-	-	-	-
10 to 14...	3,094	100.0	100.0	-	-	-	-
15 to 19...	2,491	100.0	89.9	9.0	0.2	0.8	0.1
20 to 24...	1,745	100.0	48.4	46.4	0.8	4.2	0.2
25 to 29...	1,666	100.0	23.6	68.5	1.3	6.4	0.1
30 to 34...	1,496	100.0	11.5	79.7	1.9	6.8	0.1
35 to 39...	1,263	100.0	7.3	84.0	2.6	6.1	-
40 to 44...	889	100.0	6.3	81.7	6.9	5.1	0.1
45 to 49...	564	100.0	3.0	78.7	12.1	6.2	-
50 to 54...	602	100.0	2.8	75.9	14.6	6.6	-
55 to 59...	521	100.0	1.2	67.0	24.4	7.5	-
60 to 64...	447	100.0	2.9	55.3	33.6	7.8	0.4
65 to 69...	378	100.0	4.8	43.9	43.7	7.1	0.5
70 to 74...	248	100.0	4.4	31.0	56.0	8.1	0.4
75 +.....	249	100.0	3.2	19.7	71.1	4.8	1.2
Not stated.	98	100.0	41.8	7.1	5.1	2.0	43.9

Source: 1989 Census of Chuuk State, table 20.

The average age at first marriage for Chuukese is rising as both males and females enter the labor force and delay marriage and having children until they are established economically. We do not know the full effects of selective migration under the Compacts. If single people, both males and females go to Guam or CNMI to work, the marriage patterns at home are almost certain to be affected. The next census will probably give us added insight into these changes.

4.8. Conclusions.8. Conclusions.8. Conclusions

In this chapter we have considered population dynamics and demographic characteristics of Chuuk's population. Chuuk's population remains extreme young, younger than the other FSM states, and than most countries in the world. The population remains young because modern medicine has greatly reduced the mortality rate in Chuuk, but the fertility rates remain high. Women continue to want and have large families, and, as we shall see in the chapter on economic activity little incentive exists to limit family size for economic advantage. Marriage rates remain high, with little delay for early labor force participation. We will come back later to look at the relationship between economic activity, migration, and population structure as we look at the next chapters on economic activity, migration, and Chuukese outside Chuuk.

CHAPTER 5. SOCIAL CHARACTERISTICSCHAPTER 5. SOCIAL CHARACTERISTICSCHAPTER 5. SOCIAL CHARACTERISTICS

The questionnaire used in the Chuuk census contained several questions on social characteristics of the population -- ethnic origin, religion, school attendance and educational level and attainments. Ethnic origin tells about where a person's ancestors came from, but since Chuuk experiences little immigration, the specific data from the 1989 census only reconfirm that most people living in Chuuk are Chuukese. The data on religion tell us about what churches people attend, although not their degree of affiliation with those churches. The data on education tell us about how educated the current population is and something about how educated the future population of Chuuk will be.

5.1 Ethnic Characteristics.1 Ethnic Characteristics.1 Ethnic Characteristics

The following item obtained information on ethnic origin:

8. ETHNIC ORIGIN
   Trukese, Part-Trukese, Pohnpeian, Caucasian, Other, etc.

Fully 99 percent of the 47,871 persons enumerated in the Chuuk census were Chuukese (table 5.1). The percentage Chuukese did not change between 1980 and 1989. Although the 1989 Census did not distinguish between Lagoon Chuukese, Mortlockese, and Oksoritod residents, the 1980 Census did make these distinctions. In 1980, 82 percent of Chuuk's population were "Chuukese", 15 percent were Mortlockese, and 3 percent claimed to be "Oksoritod residents", although, undoubtedly many Oksoritod residents claimed "Chuukese" identity on the Ethnicity question.

Table 5.1. Ethnic origin, Chuuk: 1980 and 1989

Ethnic origin	Numbers 1989	Numbers 1980	Percents (excluding unknowns) 1989	Percents (excluding unknowns) 1980
Total.....	47,871	37,488	100.0	100.0
Chuukese.....	47,376	36,308	99.2	99.3
Chuukese.....	NA	29,799	NA	81.5
Mortlockese...	NA	5,421	NA	14.8
Oksoritod.....	NA	1,088	NA	3.0
Non-Chuukese....	495	1,180	0.8	0.7
Pohnpeian.....	80	39	0.2	0.1
Kosraean.....	17	16	0.0	0.0
Yapese.....	43	17	0.1	0.0
Guamanian.....	4	6	0.0	0.0
White.....	116	4	0.2	0.0
Filipino.....	44	27	0.1	0.1
Other Asian...	22	14	0.0	0.0
Other islands.	63	75	0.1	0.2
Others.....	8	62	0.0	0.2
Not stated....	98	920	...	...

Sources: 1989 Census, Table 8 and 1980 Census, Table 21.

Of the 495 persons not being Chuukese, the largest group were the 116 Whites, followed by 80 Pohnpeians. Some of these Pohnpeians were students at Xavier High School; others were married to Chuukese and living on Chuuk.

5.2 Religion.2 Religion.2 Religion

The following item obtained information on religion:

12. RELIGION
RC, Protestant, C of C, Bapt, SDA or other

The main religions of the Chuuk State are Roman Catholicism and Congregational Protestant, together accounting for 97 percent of the population (Table 5.2). Other Protestant sects made up most of the rest of the population.

Table 5.2. Religion by Region, Chuuk: 1989

Region	Numbers				Percent			
	Total	Cath-olic	Con-grega-tional	All Others	Total	Cath-olic	Con-grega-tional	All Others
Total	47,871	24,260	22,142	1,469	100.0	50.7	46.3	3.1
North Namoneas	15,622	6,831	8,045	746	100.0	43.7	51.5	4.8
South Namoneas	11,455	7,114	4,082	259	100.0	62.1	35.6	2.3
Faichuk	11,264	5,172	5,753	339	100.0	45.9	51.1	3.0
Mortlocks	5,904	2,562	3,229	113	100.0	43.4	54.7	1.9
Oksoritod	3,626	2,581	1,033	12	100.0	71.2	28.5	0.3

Source: 1989 Census, Table 19

Oksoritod had the largest percentage of Catholics, more than 7 out of every 10 residents in that region. More than 6 of every 10 residents in Southern Namoneas were Catholic, but more than half the persons in Northern Namoneas, Faichuk, and the Mortlocks were Protestant. Almost 5 percent of Northern Namoneas residents were "other" religions, mostly other Protestant sects, either because of these people were migrants from other areas, or because of the current, minimal missionary activity in the islands.

The percentage Catholic increased slightly between 1973 and 1989, while the percentage Protestant decreased slightly during the period (Table 5.3).

Table 5.3. Religion by Sex, Chuuk: 1973 and 1989

Religion	1989			1973		
	Total	Males	Females	Total	Males	Females
Total	47,871	24,203	23,668	31,609	16,153	15,456
Percent	100.0	100.0	100.0	100.0	100.0	100.0
Catholic	50.7	50.6	50.8	49.7	49.3	50.1
Protestant	48.8	48.8	48.9	49.2	49.4	49.0
Other Religions	0.1	0.1	0.1	0.2	0.2	0.2
No religion	0.0	0.0	0.0	0.3	0.6	0.1
Not Stated	0.4	0.5	0.3	0.6	0.6	0.7

Source: 1989 Census of Chuuk, Table 19 and 1973 Census, Table 11

In Table 5.4 we rank the municipalities by the percent Catholic. This ranking is not meant to be a reflection of preference, but Catholic appeared first on the questionnaire, and was the larger religion in 1989. Two municipalities - Makur and Onanu -- were completely Catholic. It is likely that some of the other islands near the top of the list were also all Catholic. but individuals either refused to answer, or were misclassified somewhere along the way.

Table 5.4. Religion by Municipality Ranked by Percentage Catholic, Chuuk: 1989

	Numbers				Percent			
Municipality	Total	Cath-olic	Con-grega-tional	All Others	Total	Cath-olic	Con-grega-tional	All Others
Makur.....	121	121	0	0	100.0	100.0	0.0	0.0
Onanu.....	80	80	0	0	100.0	100.0	0.0	0.0
Fanapanges.....	447	444	3	0	100.0	99.3	0.7	0.0
Piherarh.....	139	138	0	1	100.0	99.3	0.0	0.7
Houk.....	346	342	3	1	100.0	98.8	0.9	0.3
Tamatam.....	226	223	3	0	100.0	98.7	1.3	0.0
Pollap.....	315	310	4	1	100.0	98.4	1.3	0.3
Onou.....	91	89	0	2	100.0	97.8	0.0	2.2
Parem.....	350	339	10	1	100.0	96.9	2.9	0.3
Siis.....	438	423	11	4	100.0	96.6	2.5	0.9
Moch.....	604	578	23	3	100.0	95.7	3.8	0.5
Lukunoch.....	745	693	48	4	100.0	93.0	6.4	0.5
Onoun.....	513	453	58	2	100.0	88.3	11.3	0.4
Wonei.....	874	749	120	5	100.0	85.7	13.7	0.6
Ramanum.....	679	564	77	38	100.0	83.1	11.3	5.6
Murilo.....	296	240	54	2	100.0	81.1	18.2	0.7
Ettal.....	420	318	101	1	100.0	75.7	24.0	0.2
Uman.....	2895	2121	691	83	100.0	73.3	23.9	2.9
Polowat.....	477	322	153	2	100.0	67.5	32.1	0.4
Fefen.....	3902	2626	1259	17	100.0	67.3	32.3	0.4
Polle.....	1327	856	466	5	100.0	64.5	35.1	0.4
Satowan.....	885	556	320	9	100.0	62.8	36.2	1.0
Udot.....	1513	931	496	86	100.0	61.5	32.8	5.7
Kuttu.....	423	254	169	0	100.0	60.0	40.0	0.0
Namoluk.....	310	138	171	1	100.0	44.5	55.2	0.3
Weno.....	15253	6743	7766	744	100.0	44.2	50.9	4.9
Ruo.....	398	170	227	1	100.0	42.7	57.0	0.3
Tonoas.....	3870	1605	2111	154	100.0	41.5	54.5	4.0
Paata.....	1299	424	836	39	100.0	32.6	64.4	3.0
Fananu.....	238	73	165	0	100.0	30.7	69.3	0.0
Fono.....	369	88	279	2	100.0	23.8	75.6	0.5
Tol..... ..	4846	1144	3537	165	100.0	23.6	73.0	3.4
Eot.....	279	60	218	1	100.0	21.5	78.1	0.4
Nomwin.....	386	20	366	0	100.0	5.2	94.8	0.0
Losap.....	475	7	465	3	100.0	1.5	97.9	0.6
Nama.....	897	11	794	92	100.0	1.2	88.5	10.3
Piis-Emwar.....	320	3	317	0	100.0	0.9	99.1	0.0
Oneop.....	534	4	530	0	100.0	0.7	99.3	0.0
Ta.....	291	0	291	0	100.0	0.0	100.0	0.0

Source: 1989 Census, Table 19

At the other end of the spectrum, Ta was completely Protestant. Others, like Oneop and Piis-

Emwar, were almost completely Protestant. As would be expected, most municipalities were largely Catholic or largely protestant. No island had between 45 and 60 percent Catholic -- meaning that few islands were "even divided". Weno, with 44 percent Catholic and 51 percent, would be expected to show relatively even proportions. Some of the smaller islands like Kuttu, Namoluk, and Ruo, seem to be showing the results of the historical missionary activity discussed in the earlier section on internecine fighting during Japanese times and missionary activity at other times, as well.

5.3 Education.3 Education.3 Education

The following education items were included in the 1989 Census:

17. SCHOOL ATTENDANCE
Too young - At school - Left school - Never at school

18. EDUCATIONAL ATTAINMENT
Highest level reached

19. PERSONS WITH POST-SECONDARY QUALIFICATIONS.
Specify with level and field.

The Chuuk questionnaire contained three questions on education: school attendance, educational attainment, and post secondary qualifications. The information on the post secondary qualifications was so incomplete that it could not be used.

In the mid-1930s the Japanese made three years of school attendance compulsory within the Chuuk Lagoon (Fischer 1961:516). In fact, Mirror (1971:27) notes that "by May, 1937, there were 24 public schools in the Pacific Islands with 58 classes, 60 Japanese teachers who were mainly assigned to the higher elementary grades, 24 native assistants who were at first interpreters and disciplinarians but later teachers of the lower elementary grades, and 3097 students of which 649 were in the intermediate course and 2448 in the three year course."

Few Chuukese attended school, and none went beyond the fifth grade, except when they went for vocational training. The system was set up to provide general laborers who understood Japanese and to develop a small administrative group.

Missionaries were prohibited in the early Japanese period, but began to return later on. By 1936 there were 14 mission schools (run by Spanish Jesuits, German Lutherans, and Japanese Congregationalists). These schools had 1,523 students (Mirror 1971:30). Mirror further notes that "by the beginning of 1948 the Chuuk District had 39 public schools covering all local districts. Total school attendance was 3001 (1497 males, 1504 females, 644 adults) or over 20 % of the population...The staff of 58 included 2 civil administrators, and 45 indigenous teachers. The only nonindigenous teachers were those at PITTS and in some of the intermediate schools (Richard

1957:979)".

5.3.1 Experience of Formal Education.3.1 Experience of Formal Education.3.1 Experience of Formal Education

In 1989, 15,584 students were attending school in Chuuk, 8,128 males and 7,594 females. As would be expected, almost all of these students were attending primary or secondary school, either at a public school or a private school. The Community College of Micronesia and other colleges and universities offer extension courses in Chuuk, so a few students were availing themselves of these courses.

5.3.2 School Attendance in 1989.3.2 School Attendance in 1989.3.2 School Attendance in 1989

Table 5.5 shows the number of persons in Chuuk aged 6-29 by age attending school in 1973, 1980 and 1989. Although the minimum age for starting school in the FSM is 6 years, some children 5 years old also attend school. In this analysis only persons aged 6 years and above are considered.

Table 5.5. Percentage Enrolled in School by Age and Sex, Chuuk: 1973, and 1980, and 1989

	Total			Males			Females		
Age	1989	1980	1973	1989	1980	1973	1989	1980	1973
6 years..	90.4	74.7	69.0	90.6	73.7	70.8	90.3	75.7	67.2
7 years..	93.6	81.5	90.9	92.7	82.3	89.9	94.6	80.7	91.9
8 years..	95.7	82.6	94.5	95.7	82.4	94.3	95.7	82.9	94.8
9 years..	94.3	82.6	96.6	93.6	83.6	95.8	95.1	81.3	97.5
10 years.	96.1	82.0	97.4	95.9	80.3	98.1	96.2	84.0	96.8
11 years.	95.0	84.8	97.9	94.6	83.5	97.6	95.4	86.4	98.1
12 years.	93.7	84.2	97.9	93.8	85.3	98.2	93.5	82.9	97.6
13 years.	90.9	79.9	96.0	90.7	76.5	96.3	91.2	83.7	95.7
14 years.	85.7	68.8	92.9	85.5	67.3	91.9	86.0	70.3	93.9
15 years.	77.6	58.8	85.4	77.4	61.1	86.8	77.8	56.3	83.6
16 years.	62.5	49.5	75.8	58.6	53.4	82.2	66.2	45.4	68.9
17 years.	57.6	41.2	68.7	57.6	44.7	78.0	57.6	37.3	59.5
18 years.	43.4	29.9	54.0	45.7	31.8	64.2	40.8	28.1	42.6
19 years.	27.2	27.9	42.5	27.7	32.8	56.7	26.6	23.3	26.7
20 years.	14.6	14.7	26.5	15.1	18.0	38.8	14.1	11.1	15.5
21 years.	9.3	14.3	14.6	10.0	15.7	22.4	8.6	13.0	7.0
22 years.	4.4	9.4	7.9	5.9	12.7	11.9	3.1	6.1	4.1
23 years.	2.9	12.0	4.8	3.2	15.7	8.0	2.7	8.3	1.5
24 years.	1.6	11.6	2.4	1.7	15.1	3.5	1.5	8.6	1.5
25 years.	1.9	8.1	1.7	1.9	10.3	2.4	2.0	5.8	0.9
26 years.	1.5	NA	2.5	2.7	NA	3.6	0.3	NA	1.6
27 years.	1.8	NA	1.6	2.2	NA	1.5	1.5	NA	1.6
28 years.	1.0	NA	1.4	1.1	NA	0.7	1.0	NA	2.0
29 years.	1.3	NA	0.0	1.9	NA	0.0	0.6	NA	0.0

Sources: 1989 Census, Table 25; 1980 Census, 34; 1973 Census, Table 12A
Note: For 1980, combined 25 to 29 years figures shown in 25 years row.

More than 90 percent of the children 6 years old were in school in 1989, up from only 69 percent in 1973. Also, larger percentages of children 7 and 8 years old were attending school in 1989 than 1973. However, at every single age from 8 years old on up, a higher percentage of children and young adults attended school in 1973 than in 1989. In 1973, 93 percent of the 14 year olds attended school, but this figure decreased to only 86 percent in 1989. An 86 percent attendance rate obviously means a drop out rate of 14 percent -- and this is for 14 year olds. By 16 years old, 76 percent were still in school in 1973, but only 62 percent were attending in 1989.

The figures for males and females were similar to the percentages for the whole population. Students of neither sex were likely to stay in school, in fact, they were equally likely to leave school early.

5.3.3 Educational Attainment.3.3 Educational Attainment.3.3 Educational Attainment

Although educational attainment was collected in the 1980 census, we use the 1973 census and the 1989 census to show changes in educational attainment over time. Table 5.6 shows the educational distribution by age for 1973. In 1973, 10.5 percent of the population on Chuuk 15 years old and over were high school graduates, and 1.3 percent were college graduates. The age group 25 to 29 years, the first group which would have finished college, had the highest percentage graduated from high school (22 percent), and the highest percentage of college graduates (3 percent). The cumulative percentages shown in this and the subsequent tables sum the persons in the categories by education. That is, the high school graduates also include those who finished high school and also had some college as well as those who are shown as college graduates. That is, we accumulate the percents for educational levels.

Table 5.6. Persons Not Attending School by Highest Grade Attained, Chuuk: 1973 *** Cumulative percents ***

		Age Group							
Education	Total	15-19	20-24	25-29	30-34	35-44	45-54	55-64	65+	N.S
Total...	14,280	1,185	2,335	1,903	1,315	2,694	2,066	1,512	1,139	131
None.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Elem/HS...	82.2	96.9	97.4	96.9	93.2	85.9	75.9	58.8	33.8	65.9
HS Grad...	10.5	3.3	18.1	22.2	15.6	9.9	3.6	2.7	1.2	4.9
Some Coll.	4.9	0.2	4.5	10.2	9.0	6.4	3.0	2.4	1.1	1.6
Coll Grad.	1.3	0.0	0.7	3.1	3.2	1.5	0.9	0.5	0.1	0.8

Source: 1973 Census, Table 16

For persons 25 years and over, there was a direct correlation between age and education, that is, the younger the age group, the greater the educational attainment. Hence, only about 1 in every 3 persons in Chuuk 65 years and over had even attended elementary school compared to almost all (97 percent) of the those 25 to 29 years old.

Males had higher educational attainment than females in 1973, with about 1 in every 3 males 25 to 29 being high school graduates and about 4 percent being college graduates (Table 5.7). The overall percentage high school graduates for males was 16 percent, and 2 percent were college graduates.

Table 5.7. Males Not Attending School by Highest Grade Attained, Chuuk: 1973 *** Cumulative percents ***

		Age Group							
Education	Total	15-19	20-24	25-29	30-34	35-44	45-54	55-64	65+	N.S
Total...	6,912	471	1,061	952	662	1,348	1,009	755	574	80
None.....	100.0	100.0	100.0	100.0	99.9	99.9	100.0	100.0	100.0	100.0
Elem/HS...	86.7	97.2	97.0	98.2	96.4	91.1	84.5	71.6	44.7	68.4
HS Grad...	16.1	4.5	27.1	33.1	25.7	16.6	5.1	3.7	1.6	6.6
Some Coll.	7.5	0.4	7.4	13.9	14.1	10.2	4.2	3.1	1.4	1.3
Coll Grad.	1.9	0.0	1.2	3.8	4.4	2.4	1.4	0.9	0.2	0.0

Source: 1973 Census, Table 16

Only 5 percent of the females 15 years and over were high school graduates, less than one-third the percentage for males, and less than one percent of the females were college graduates (Table 5.8). About 11 percent of the females 25 to 29 years old were high school graduates -- about one third the rate of the males -- while about 2 percent of the females were college graduates.

Table 5.8. Females Not Attending School by Highest Grade Attained, Chuuk: 1973 *** Cumulative percents ***

		Age Group							
Education	Total	15-19	20-24	25-29	30-34	35-44	45-54	55-64	65+	N.S
Total...	7,368	714	1,274	951	653	1,346	1,057	757	565	51
None.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Elem/HS...	78.0	96.8	97.8	95.7	89.9	80.7	67.8	46.1	22.8	61.7
HS Grad...	5.2	2.5	10.7	11.3	5.3	3.3	2.2	1.7	0.9	2.1
Some Coll.	2.5	0.0	2.1	6.5	3.9	2.5	1.8	1.7	0.7	2.1
Coll Grad.	0.8	0.0	0.3	2.4	2.0	0.7	0.5	0.0	0.0	2.1

Source: 1973 Census, Table 16

The adult Chuukese population in 1989 was not well educated, at least in formal, Western educational terms. However, there may have been data problems with this item. More than 1 in every 4 Chuukese, according to the item on educational attainment, had never attended school at all (Table 5.9). Although the 96 percent of the population 75 years and over never having attended school is not surprising, it is surprising to see than 12 percent of those 15 to 19 were reported as never having attended school. According to the census, almost 1 in every 8 Chuukese adults 15 to 19 never attended school. Except for this youngest age group, there was a direct correlation, as expected, between age and percentage never having attended school.

Table 5.9. Chuukese Not Attending School by Educational Attainment and Age, Chuuk: 1989

Age	Total	No School	Finished Elementary School	High School Graduate	College Graduate
Total...	21,140	26.0	51.8	17.4	1.2
15-19.....	2,220	12.1	51.0	5.3	0.0
20-24.....	3,124	9.0	69.5	20.8	0.1
25-29.....	3,062	9.0	70.4	23.1	0.6
30-34.....	2,763	9.8	72.7	29.0	1.9
35-39.....	2,443	9.8	64.6	27.6	3.3
40-44.....	1,761	16.8	52.1	21.3	3.1
45-49.....	1,054	27.8	37.4	14.1	2.2
50-54.....	1,114	45.2	28.2	8.8	1.3
55-59.....	1,010	67.4	19.8	7.1	0.8
60-64.....	868	89.1	5.4	2.3	0.3
65-69.....	736	93.1	2.5	0.8	0.1
70-74.....	453	97.1	0.7	0.2	0.0
75 and over..	460	96.5	0.2	0.2	0.0
Not stated...	72	52.2	30.4	8.7	1.4

Source: 1989 Census, Unpublished tabulations

Table 5.10 shows certain aspects of the education problem facing Chuuk. We cannot tell how selective emigration to Guam, CNMI and the United States is affecting the percentages we see here (although we will discuss some of this problem in Chapter 9), but it is clear that the young adult population in Chuuk is less well educated than their parents. For example, while 21 percent of the persons 25 to 29 were high school graduates in 1989, more than 28 percent of those 30 to 34 years old year high school graduates. In fact, the percentage graduating from high school is decreasing for the younger ages, rather than increasing.

Table 5.10. Educational Attainment for Persons 15 Years and Older: 1989
*** Cumulative percents ***

Age Group	Total	None	Elem-High School	High School Graduate	Some College	College Graduate
Total.....	20,885	100.0	74.0	17.2	5.8	1.6
15 to 19 yrs.....	2,204	100.0	87.9	5.5	0.0	0.0
20 to 24 yrs.....	3,107	100.0	91.0	20.6	1.8	0.4
25 to 29 yrs.....	3,008	100.0	90.9	22.5	5.0	1.0
30 to 34 yrs.....	2,708	100.0	90.1	28.4	10.5	2.5
35 to 39 yrs.....	2,408	100.0	90.2	27.0	12.5	3.9
40 yrs and over...	7,450	100.0	44.8	9.9	5.6	1.8

Source: 1989 Census, Table 27.

Similarly, while almost 4 percent of the 35 to 39 year olds were college graduates, the percentage decreased to 2.5 percent for those 30 to 34, and only 1 percent for those 25 to 29, although some of this latter group may not have returned from college as yet. These figures should be somewhat depressing for planners and policy makers since economic development depends on an educated population.

The trends for males are similar, but higher, than for the total population (Table 5.11). More than 1 in every 3 males between 30 and 39 years old was a high school graduate in 1989, but the percentages are decreasing for the younger ages. And while more than 6 percent of the males 35 to 39 years old were college graduates, this was true for only 4 percent of those 30 to 34 years old, and 1 percent of those 25 to 29.

Table 5.11. Educational Attainment for Persons 15 Years and Older: 1989
*** Cumulative percents ***

Age Group	Total	None	Elem-High School	High School Graduate	Some College	College Graduate
Males.....	10,093	100.0	76.0	20.9	8.5	2.5
15 to 19 yrs.....	1,139	100.0	86.7	4.4	0.0	0.0
20 to 24 yrs.....	1,501	100.0	89.5	19.3	1.8	0.3
25 to 29 yrs.....	1,411	100.0	90.2	24.3	6.0	1.1
30 to 34 yrs.....	1,264	100.0	90.9	32.4	13.7	3.7
35 to 39 yrs.....	1,182	100.0	91.6	36.7	20.0	6.5
40 yrs and over...	3,596	100.0	51.1	16.2	9.4	3.0

Source: 1989 Census, Table 27.

The trends for females are similarly depressing (Table 5.12). The females experienced a not unexpected lag in high school graduates by age, that is, a smaller percentage of females 35 to 39 years old than 30 to 34 years old graduated from high school, almost certainly because for many years few females went to high school (but now many do). These pattern is seen for females finishing some college, as well as for college graduates. Only 14 percent of all adult females graduated from high school and less than one percent of the adult females graduated from college.

Table 5.12. Educational Attainment for Persons 15 Years and Older: 1989
*** Cumulative percents ***

Age Group	Total	None	Elem-High School	High School Graduate	Some College	College Graduate
Females.....	10,792	100.0	72.0	13.7	3.3	0.8
15 to 19 yrs.....	1,065	100.0	89.2	6.7	0.1	0.0
20 to 24 yrs.....	1,606	100.0	92.3	21.8	1.7	0.4
25 to 29 yrs.....	1,597	100.0	91.4	20.9	4.1	1.0
30 to 34 yrs.....	1,444	100.0	89.3	24.8	7.6	1.5
35 to 39 yrs.....	1,226	100.0	88.7	17.6	5.3	1.4
40 yrs and over...	3,854	100.0	39.0	4.0	2.2	0.6

Source: 1989 Census, Table 27.

In sum, while most Chuukese start school, many do not stay in school for long, and smaller percentages by age attended school in 1989 than in 1973. Planning and policy makers may want to consider rectifying this situation which is almost certain to lead to problems in time. This diminished school attendance is also seem in the statistics for educational attainment. In 1989, smaller percentages of young adults had finished high school and college than older adults. The State's economic future may well depend on encouraging, and perhaps, fining some incentives to keep its school going population in school.

Finally, although we will be discussing employment in detail in Chapter 6, it is useful to show the effects of education on employment before we go on. Table 5.13 shows that of the employed population 15 years and over, about 5 percent were college graduates, and 15 percent more had some college education.

Table 5.13. Educational Attainment by Occupation: 1989

Occupation	Total	Total	None	Elem./ H.S.	H.S. grad	Some Col- lege	Col- lege Grad	Others N.S.
			Educational Attainment (Percent)					
Employed 15 + yrs..	4,579	100.0	10.4	44.5	20.7	15.1	5.0	4.1
Legislators & Officials.	161	100.0	4.3	17.4	16.1	26.7	23.6	11.8
Professionals.....	400	100.0	3.5	14.0	16.3	24.8	33.5	8.0
Technical and Associate.	1,178	100.0	3.9	20.0	28.4	37.5	4.2	6.0
Clerks.....	316	100.0	1.3	29.7	49.1	13.3	1.6	5.1
Service, Market & Sales.	990	100.0	13.5	63.5	17.9	2.7	0.3	2.0
Agri. & Fisheries.....	86	100.0	22.1	65.1	7.0	1.2	0.0	4.7
Craft & related.....	349	100.0	17.5	59.6	16.3	4.0	0.3	2.3
Plant machinery oper....	250	100.0	12.0	67.6	14.8	4.0	0.0	1.6
Elementary occupations..	784	100.0	19.8	65.8	11.0	1.5	0.1	1.8
Not stated.....	65	100.0	9.2	72.3	10.8	4.6	0.0	3.1

Source: 1989 Census, Table 43.

As would be expected, a direct relationship existed between educational attainment and job status. That is, the more education, the better the job. So, while 22 percent of the persons doing agriculture and fishing activities had no education, only 4 percent of the government officials and professionals were in that category; conversely more than 1 out of every 3 professionals had college degrees.

Several Basic Tables look at census items tabulated by educational attainment. We are unable to discuss all of them here. Policy makers, particularly those concerned with education and employment need to look at these tables to see the relationship between the two, and to development methods of improving the educational levels in Chuuk.

5.4 Conclusions

This chapter presented data on social characteristics of Chuuk's population in 1989. Chuuk was over-whelming Chuukese, almost certainly the most homogeneous of the four states, except for Kosrae. And like Kosrae, most Chuukese speak languages mutually intelligible to the whole population. (Chuuk has no Polynesian speakers like Pohnpei or Yap High Islanders and Outer Islanders like Yap.) Chuuk is almost evenly divided between Catholics and Protestants. And, while educational attainment is improving, much still needs to be gained.

CHAPTER 6. ECONOMIC ACTIVITYCHAPTER 6. ECONOMIC ACTIVITYCHAPTER 6. ECONOMIC ACTIVITY

6.1 Introduction.1 Introduction.1 Introduction

> Throughout FSM the traditional self-sufficient agricultural systems have been modified by modern trends towards both cash crop production (especially of copra) and wage labor employment, both resulting in the purchase rather than production of food...In some places the movement away from dependence on locally produced food has been accentuated by rapid population growth; for example, by 1975 it was argued that some of the outer islands of Chuuk were fast approaching a situation where self-sufficiency was no longer possible due to very high population pressure on limited land resources, necessitating either out-migration or family planning (Migvar, 1975:10). In others, such as Piis-Emmwar, Yap and elsewhere the trend has been accelerated by federal surplus food distribution programmers (Severance, 1980; Marksbury, 1980) and almost everywhere by a situation that discourages local agricultural development, and hence results in high prices (and less convenience) for local produce (Peoples, 1978). Generally population pressure is increasing and self-sufficiency on atolls in an aim that could not now be realized (Connell 1983:4/5).

Economic activities are activities concerned with the production, distribution and exchange of commodities, goods, and services. The 1989 Chuuk Census asked questions about what each adult did during the week before enumeration. Economic activity questions were designed to get the economically active population by determining how many persons aged 15 years and over worked in the week before enumeration.

Definitions of "work" and "labor force" used in industrialized countries are not always appropriate in determining economic activity when a high proportion of the population do subsistence. Many people in Chuuk do traditional activities -- working in their gardens or farms, very often as subsistence farmers, or fishing. For the census, all those who worked in such jobs, whether they sold some of their produce in the market or whether they gathered only what they needed for their own consumption at home, were included in the "employed" population. So, following the Recommendations of the Expert Group on the Economic Activity of the South Pacific Commission, the census separated economic activities into wage/salary employment, traditional activities resulting in potential income, and subsistence for own consumption.

Housewives who combined domestic duties with working on the family farm, in the family business, or in other employment were not always enumerated correctly. Thus, females in the subsistence sector is understated in many parts of Chuuk. Also, instructions on the questionnaire and in the enumeration manual were not completely clear, so some persons engaged in wage employment might not have been asked about traditional and subsistence activities.

In addition to learning whether a person worked in the previous week, enumerators got information about the kind of work the person did (occupation) and the kind of business or activity (industry). Precise definitions, for both enumerators and coders were difficult to get. Some minor

inconsistencies remain in the data, particularly for non-professional staff in government services. For example, persons employed by the Ministry of Agriculture may, in some cases, have been coded as being in the Agriculture, Forestry, and Fishing sector, particularly if they were field extension workers or non-professional staff, whereas in others they may have been placed in the Community, Social and Personal Services sector under ISIC code 9100.

In reviewing the occupational data, note that unavoidable inaccuracies occur from a desire of some persons to impress members of their household or the enumerator. For example, a bookkeeping clerk might describe him or herself as an accountant. Also, lack of sufficient information in occupation questions on the census schedules may have created problems in coding resulting from arbitrary coding decision. In most cases such cases were classified as "Others".

During the census enumeration all persons 15 years and over were asked about work during the week before enumeration. Also, during the coding stage persons aged under 15 years were converted to too young for economic activities.

Not all people aged 15 years and over were working. Some were without work, but were actively seeking a job during the reference period. These people were described as unemployed.

Almost all other persons were described as not economically active, that is, they neither did economic work nor looked for work during the reference period. However, a few exceptions existed where a person was clearly doing a job but was on leave and expected to return to work soon.

Populations working, on leave, and unemployed together comprised the economically active population.

After we consider an overview of the economic activities in the following section, we look at each type of economic activity separately.

6.2 Economically Active Population.2 Economically Active Population.2 Economically Active Population

Of the total population aged 15 years and over, about 25 percent were economically active during the reference week. Male participation was considerably higher than for females. As Table 6.1 shows 37 per cent of males were economically active compared with 14 per cent of females.

Table 6.1. Percentage Economically Active by Sex and Age, Chuuk: 1980 and 1989

	Total		Males		Females	
Age Group	1989	1980	1989	1980	1989	1980
Total..	24.8	23.6	36.6	32.1	13.6	15.1
15-19 years.	6.1	11.2	9.0	11.6	3.2	10.8
20-24 years.	18.1	19.0	23.1	21.3	13.4	16.8
25-29 years.	26.9	31.1	38.4	40.7	16.6	21.4
30-34 years.	35.8	33.6	50.9	47.1	22.3	19.4
35-44 years.	43.0	32.4	63.9	49.4	22.1	16.2
45-54 years.	37.8	29.0	61.5	45.8	16.6	11.6
55-59 years.	33.1	22.6	54.7	33.7	12.3	11.9
60 + years..	10.8	12.6	18.6	15.9	3.6	9.4

Source: 1989 Census, Table 38, and 1980 Census, Table 36

The percentage economically active did not change very much between 1980 and 1989, although it is very doubtful that the same criteria were used in the two censuses. The 1980 census tried only to isolate subsistence activities in order to obtain less biased reporting for wage and salary labor; the 1989 census tried to incorporate subsistence activities into the labor force scheme. Nonetheless, the two measures obtained approximately the same proportion economically active for the two census years -- either there was no change during the 9 year period, or the two measures are <u>not</u> measuring same characteristic.

Assuming the same measure applies, we find that the percentage of economically active males increased during the period while the percentage of economically active females decreased during the period. The percentage for males increased by more than 4 percentage points during the period, for females decreased by about a point and a half.

The percentages by age from the two censuses show remarkably different trends. For example, while 11 percent of the 15 to 19 year olds in 1980 were economically active, only 6 percent were economically active in 1989. The percentages for the 20 to 24 year olds were similar, a smaller percentage of 25 to 29 year olds were active in 1989 than 1980, but for the older ages (until 60 years and over), the percentages economically active in 1989 were greater in 1989 than 1980. It is possible that young people are staying in school longer, which would contribute to their delayed entry into being economically active; also, because of difficulty in obtaining jobs, there may be a time lag for some persons in obtaining first time employment. If the two censuses were comparable in these measures, generally increased percentages of persons were able to enter the labor force over time.

Females were much less likely to be economically active that males, at every age. In fact, for ages up to the 30 to 34 year age group, a smaller percentage of females were economically active in 1989 than in 1980. For the older, working ages, a larger percentage of females were economically active than in 1980, but above age 35, the percentages were still less than one-third those of men. In

general, females seem to be under-used economically, even given the likelihood that many of these females were having and rearing children.

Male labor force participation, while noticeably better, was still not as strong as it might be. Only about half of the males 30 to 34 years old were economically active, which means, of course, that about half of these males were not economically active. Some of the males may have been laid off from work during the reference week. Less than one-fourth of the males 20 to 24 were economically active, as were about 3 in every 8 of those 25 to 29.

For all practical purposes, Weno is the "urban" area of Chuuk State. For that reason, Table 6.1A shows the number and percentage distribution of all adults in Chuuk in 1989 and whether they were economically active by whether they were living on Weno. About 1 in every 4 adults was economically active in 1989. On Weno, though, more than 31 percent were economically active compared to only 21 percent in the rest of Chuuk.

Table 6.1A. Economically Active Aged 15 Years and Over by Age: 1989

	Economically Active			Percent of Population		
Age Group	Total	Weno	Other Chuuk	Total	Weno	Other Chuuk
Total.....	6,086	2,624	3,462	24.8	31.1	21.5
15 to 19 yrs...	312	134	178	6.1	6.9	5.7
20 to 24 yrs...	616	317	299	18.1	26.0	13.7
25 to 29 yrs...	850	363	487	26.9	35.2	22.9
30 to 34 yrs...	1,013	456	557	35.8	46.2	30.2
35 to 39 yrs...	1,066	502	564	42.5	53.9	35.7
40 to 44 yrs...	780	324	456	43.6	51.5	39.4
45 to 49 yrs...	425	163	262	39.3	47.7	35.5
50 to 54 yrs...	411	159	252	36.3	44.7	32.5
55 to 59 yrs...	338	127	211	33.1	40.4	29.8
60 + yrs.....	275	79	196	10.8	11.7	10.5

Source: 1989 Census, Tables 6 and 31

A larger percentage of adults on Weno in every age group were more economically active than in the rest of Chuuk. For example, more than half of those 35 to 44 years old were economically active on Weno, compared to less than 40 percent of those in the rest of Chuuk. This pattern prevailed even though persons doing traditional and subsistence activities were considered to be economically active. The numbers in Basic Table 31 differs somewhat from the numbers discussed in the rest of this chapter.

Of the 5,943 economically active persons 15 years and over, 4,579 (77 percent) were engaged in wage or salary employment -- again, we are not saying that 77 percent of adults were employed, only that of those who were economically active in 1989, 77 percent were working for wages or salaries. Another 17 percent were doing "traditional" activities -- collecting and selling copra,

making handicrafts, fishing for later sale -- and 20 percent were engaged in subsistence activities. These activities sum to more than 100 percent because some persons were engaged in more than one type of activity, and reported the various activities.

Table 6.2. Economically active population 15 years and over, by region of enumeration, and type of activity, Chuuk: 1989

	Numbers				Percent		
Region	Economically Active	Wage or Salary Job	Traditional Activ.	Subsistence	Wage or Salary Job	Traditional Activ.	Subsistence
Total.....	5,943	4,579	1,001	1,795	77.0	16.8	30.2
North Namoneas..	2,560	2,422	196	214	94.6	7.7	8.4
South Namoneas..	1,113	808	202	325	72.6	18.1	29.2
Faichuk.....	939	611	205	383	65.1	21.8	40.8
Mortlocks.....	834	471	268	525	56.5	32.1	62.9
Oksoritod.....	497	267	130	348	53.7	26.2	70.0

Source: 1989 Census, Table 29
Note: Percentages sum to more than 100 percent because persons often did more than one activity

As would be expected, the activities varied, depending on what part of Chuuk a person lived. North Namoneas, the most Westernized in terms of wage and salary employment, showed 95 percent of those economically active working for wages and salaries. The farther from North Namoneas geographically, the less wage and salary employment. That is, while 95 percent of the economically active in North Namoneas were engaged in wage and salary employment, this was true for 73 percent of those in South Namoneas, and 65 percent for Faichuk, but only 56 percent of those in the Mortlocks, and 54 percent of those in the Western Islands.

Wage and salary employment was inversely correlated with subsistence activities. That is, the farther away from North Namoneas, the more likely to do subsistence activities. While about 1 in every 12 economically active in North Namoneas were engaged in subsistence activities, this was true for about 3 in 10 of those in South Namoneas, 2 of 5 for Faichuk, 5 of 8 for the Mortlocks and fully 7 of every 10 economically active in Oksoritod. Traditional activities showed yet another trend -- as with subsistence activities, the percentages in the lagoon were lower than in the outer islands, but while a little more than 1 in 4 economically active persons in Oksoritod were engaged in traditional activities, only 1 in 3 of those in the Mortlocks did these traditional activities.

Patterns differed for males and females (Tables 6.3 and 6.4). About 3 in every 4 of the economically active males had wage and salary employment, while about 1 in 3 were doing subsistence. Males had higher percentages than females for all three categories. Almost all economically active females in North Namoneas were reported to have engaged in wage and salary employment which is probably not likely -- perhaps over enthusiastic census office workers had a role here. Females were more likely than males to have wage and salary jobs in South Namoneas

as well, but less likely to have these jobs in the Mortlocks and in Oksoritod.

Table 6.3. Economically active males 15 years and over, by region of enumeration, and type of activity, Chuuk: 1989

	Numbers				Percent			
Region	Economically Active	Wage or Salary Job	Traditional Activ.	Subsistence	Wage or Salary Job	Traditional Activ.	Subsistence
Total.....	4,294	3,283	809	1,454	76.5	18.8	33.9
North Namoneas..	1,766	1,636	174	189	92.6	9.9	10.7
South Namoneas..	843	591	163	285	70.1	19.3	33.8
Faichuk.....	730	471	175	305	64.5	24.0	41.8
Mortlocks.....	604	363	194	447	60.1	32.1	74.0
Oksoritod.....	351	222	103	228	63.2	29.3	65.0

Source: 1989 Census, Table 29
Note: Percentages sum to more than 100 percent because persons often did more than one activity

About 1 in every 3 males was engaged in subsistence activities compared to only about 1 in every 5 females. The percentage of females doing subsistence in North Namoneas was less than one-third that of males, probably because there is little space to do taro and other "gardening" in North Namoneas, but men can still fish. About 1 in every 3 males in South Namoneas did subsistence compared to only 1 in every 7 females. The percentages for Faichuk were closer, about 4 in 10 for both sexes. However, while about 3 in every 4 males in the Mortlocks did subsistence, only about 1 in every 3 females were reported in this category (perhaps a case of male chauvinist enumerators?) Finally, about 2 in 3 males in Oksoritod compared to more than 4 in every 5 females worked at subsistence.

As with subsistence activities, females in North Namoneas were only about one-third as likely as the males to be doing traditional activities. Females in South Namoneas, Faichuk and Oksoritod were less likely than males to be engaged in these activities, but males and females in the Mortlocks were equally likely to be doing traditional activities -- that is, about 1 in 3 of the economically active males and females in the Mortlocks did traditional activities.

Table 6.4. Economically active females 15 years and over, by region of enumeration, and type of activity, Chuuk: 1989

Region	Numbers: Economically Active	Numbers: Wage or Salary Job	Numbers: Traditional Activ.	Numbers: Subsistence	Percent: Wage or Salary Job	Percent: Traditional Activ.	Percent: Subsistence
Total.....	1,649	1,296	192	341	78.6	11.6	20.7
North Namoneas..	794	786	22	25	99.0	2.8	3.1
South Namoneas..	270	217	39	40	80.4	14.4	14.8
Faichuk.....	209	140	30	78	67.0	14.4	37.3
Mortlocks.....	230	108	74	78	47.0	32.2	33.9
Oksoritod.....	146	45	27	120	30.8	18.5	82.2

Source: 1989 Census, Table 29
Note: Percentages sum to more than 100 percent because persons often did more than one activity

As noted before, about 1 in every 4 adults in Chuuk in 1989 was economically active. Only about 11 percent of those 15 to 24 were economically active, compared to 31 percent of those 25 to 34, and 43 percent of those 35 to 44. In the older ages, the percentage decreased again, to 38 percent for those 45 to 54, and 17 percent for those 55 years and over.

Table 6.5. Chuukese 15 Years and Over and Economically Active by Type of Activity and Age, Chuuk: 1989

Age Group	Total	Economically Active: Number	Economically Active: Percent	Percent of Total Chuukese Population: Wage & Salary	Percent of Total Chuukese Population: Traditional	Percent of Total Chuukese Population: Subsistence	Percent of Economic Active Population: Wage & Salary	Percent of Economic Active Population: Traditional	Percent of Economic Active Population: Subsistence
Total	24,376	5,943	24.4	18.8	4.1	7.4	77.0	16.8	30.2
15-24...	8,342	903	10.8	6.5	2.0	3.8	60.2	18.4	35.2
25-34...	5,906	1,807	30.6	23.7	4.7	8.9	77.6	15.5	29.2
35-44...	4,234	1,803	42.6	36.2	6.7	11.6	85.1	15.7	27.2
45-54...	2,181	818	37.5	30.9	6.4	11.1	82.5	17.1	29.6
55 + ...	3,536	599	16.9	11.7	3.6	6.0	69.1	21.5	35.6
NS.....	177	13	7.3	5.6	1.7	2.3	76.9	23.1	30.8

Source: 1989 Census, Table 29
Note: Percents for economically active distribution sum to more than 100 percent because persons could engage in more than one activity

About 19 percent of Chuuk's total adult population was engaged in wage and salary employment, the percentages, like those for all economically active, increasing with age to the 35 to 44 year age group, and then decreased for older ages. The percentage in traditional activities showed the same

general pattern, peaking in the same age group, but with the percentages diminished. Less than 7 percent of the 35 to 44 year olds were doing traditional activities in 1989. Persons doing subsistence also showed the same pattern, with 12 percent of those 35 to 44 and 11 percent of those 45 to 54 engaged in subsistence activities in 1989.

The percentages economically active showed different patterns because the economically active, when used as denominator, showed different trends. As noted before, while 77 percent of the economically active had wage and salary employment, 17 percent were doing traditional activities, and 30 percent were doing subsistence. The percentage in wage and salary employment increased with age to 85 percent for those 35 to 44 years, and then decreased for the older groups -- again, these percentages are of the economically active, those contributing to the economic well-being of the households. Apparently young people, those less than 25, were slightly more likely than those a bit older to do traditional and subsistence activities. The percentages increase again for persons 45 and older. These patterns can probably be attributed to the increased participation in the paid labor force in the middle age groups.

The patterns for males and females were similar to those for the total population, but, as expected, males, in general, were much more likely to be economically active, at what ever age than females (Tables 6.6 and 6.7). While 64 percent of all males 35 to 44 were economically active, only 22 percent of the females were in this category; 55 percent of the males 35 to 44 were in wage and salary employment compared to 18 percent of the females.

Table 6.6. Chuukese 15 Years and Over and Economically Active by Type of Activity and Age, Chuuk: 1989 *** MALES ***

Age Group	Total	Economically Active		Percent of Total Chuukese Population			Percent of Economic Active Population		
		Number	Percent	Wage & Salary	Tradi-tional	Sub-sis-tence	Wage & Salary	Tradi-tional	Sub-sis-tence
Total	11,881	4,294	36.1	27.6	6.8	12.2	76.5	18.8	33.9
15-24	4,163	605	14.5	7.6	3.4	6.3	52.1	23.3	43.3
25-34	2,788	1,220	43.8	33.2	8.2	14.8	75.9	18.7	33.8
35-44	2,103	1,339	63.7	54.9	10.8	19.4	86.3	17.0	30.5
45-54	1,022	629	61.5	51.7	10.5	19.0	83.9	17.0	30.8
55 +	1,704	490	28.8	20.6	6.0	10.3	71.6	21.0	35.7
NS	101	11	10.9	7.9	2.0	3.0	72.7	18.2	27.3

Source: 1989 Census, Tables 29, 34, 37 and 39
Note: Percents for economically active distribution sum to more than 100 percent because persons could engage in more than one activity

About 86 percent of the males and 82 percent of the females 35 to 44 who were economically active were in wage and salary employment. The percentage for females was so high because a much smaller percentage of females were economically active than males. The percentages for females at all ages and for all categories -- wage and salary employment, traditional activities, and

subsistence -- were lower than for males (except for females 45 years and older doing traditional activities.)

Table 6.7. Chuukese 15 Years and Over and Economically Active by Type of Activity and Age, Chuuk: 1989 *** FEMALES ***

Age Group	Total	Economically Active		Percent of Total Chuukese Population			Percent of Economic Active Population		
		Number	Percent	Wage & Salary	Traditional	Subsistence	Wage & Salary	Traditional	Subsistence
Total	12,495	1,649	13.2	10.4	1.5	2.7	78.6	11.6	20.7
15-24...	4,179	298	7.1	5.5	0.6	1.3	76.8	8.4	18.8
25-34...	3,118	587	18.8	15.3	1.7	3.7	81.1	8.9	19.6
35-44...	2,131	464	21.8	17.8	2.6	3.9	81.7	11.9	17.9
45-54...	1,159	189	16.3	12.7	2.8	4.1	77.8	17.5	25.4
55 + ...	1,832	109	5.9	3.4	1.4	2.1	57.8	23.9	34.9
NS.....	76	2	2.6	2.6	1.3	1.3	100.0	50.0	50.0

Source: 1989 Census, Tables 29, 34, 37 and 39
Note: Percents for economically active distribution sum to more than 100 percent because persons could engage in more than one activity

Table 6.8, while not showing the counts by sex and age for persons doing traditional activities does show the percentage distribution of these activities. Altogether, about 36 percent of the males and 18 percent of the females engaged in traditional fishing activities, and, of course, we see the inverse for farming activities -- 46 percent of the females, but only 3 percent of the males. Males were almost twice as likely to be making handicrafts -- 39 percent compared to 21 percent for the females -- and were also more likely to be making copra -- 20 percent of the males and 13 percent of the females doing traditional activities. Of course, these latter activities, handicrafts and copra, may be seen as somewhat "seasonal", that is, on some of the outer islands, at least, copra making and handicrafts may be partly related to field trip voyages, and may reflect this in their reporting. Seasonal foods, like breadfruit or certain species of fish, would not affect the statistics as much because other products could be substituted in some cases.

Table 6.8. Chuukese 15 Years and Over Doing Traditional Activities by Type and Age, Chuuk: 1989

	Males					Females				
	Total	Copra	Fishing	Farming	Handicrafts	Total	Copra	Fishing	Farming	Handicrafts
Total	100.0	20.5	36.5	3.0	38.6	100.0	13.0	17.7	46.4	20.8
15-24..	100.0	16.3	38.3	2.1	42.6	100.0	16.0	24.0	48.0	12.0
25-34..	100.0	22.8	41.2	1.3	33.3	100.0	21.2	25.0	32.7	21.2
35-44..	100.0	20.6	36.8	5.3	36.0	100.0	10.9	14.5	49.1	23.6
45-54..	100.0	17.8	32.7	0.9	45.8	100.0	12.1	12.1	48.5	21.2
55 + ..	100.0	24.3	25.2	4.9	43.7	100.0	0.0	7.7	65.4	23.1
NS.....	100.0	0.0	100.0	0.0	0.0	100.0	0.0	100.0	0.0	0.0

Source: 1989 Census, Tables 39 and 40
Note: Not stated traditional activities not shown separately.

As before, most economic activities by age showed a peak at ages 35 to 44, the age group when persons have gone into the labor force and are still young and strong. Some variations are seen in the traditional activities, however. A larger percentage of males 15 to 24 made handicrafts, than did older men. The 35 to 44 year olds also were the peak for farming with 5 percent engaged in that activity; however, almost 5 percent of those 55 years and over also engaged in farming.
About 1 in 5 of the 25 to 34 year old females made copra, the largest percentage for any age group; similarly, this group was the most likely to fish, with 1 in 4 engaging in that activity. However, while only 1 in 3 of this age group of women were farmers, as noted before, somewhat less than half of all females doing traditional activities were farming.

Table 6.9. Chuukese 15 Years and Over Doing Traditional Activities and Also Working at a Paid Job by Type and Age, Chuuk: 1989

	Males					Females				
	Total	Copra	Fishing	Farming	Handicrafts	Total	Copra	Fishing	Farming	Handicrafts
Total	40.7	52.4	39.7	25.0	34.6	29.2	28.0	17.6	23.6	45.0
15-24..	18.4	56.5	7.4	66.7	10.0	16.0	0.0	0.0	25.0	33.3
25-34..	37.3	51.9	34.0	33.3	30.3	28.8	27.3	15.4	29.4	45.5
35-44..	56.6	61.7	59.5	16.7	54.9	29.1	50.0	12.5	22.2	38.5
45-54..	46.7	42.1	51.4	0.0	42.9	45.5	25.0	50.0	25.0	85.7
55 + ..	36.9	40.0	46.2	20.0	28.9	19.2	0.0	0.0	17.6	16.7

Source: 1989 Census, Table 39 and Table 40
Note: Not stated traditional activities not shown separately.

Of those males doing subsistence, about 34 percent were raising food crops, 60 percent fished, and 4 percent did other activities (Table 6.10). The majority of males fished except for the oldest age group (where the majority grew food crops).

Table 6.10. Chuukese 15 Years and Over Doing Subsistence Activities by Type and Age, Chuuk: 1989

Age Group	Males Total	Males Food Crops	Males Fishing	Males Others	Males Not Stated	Females Total	Females Food Crops	Females Fishing	Females Others	Females Not Stated
Total	100.0	33.9	60.3	4.3	1.4	100.0	61.3	24.9	11.7	2.1
15-24..	100.0	29.8	63.7	5.3	1.1	100.0	67.9	17.9	14.3	0.0
25-34..	100.0	30.3	62.9	5.1	1.7	100.0	60.9	27.0	10.4	1.7
35-44..	100.0	29.2	65.9	3.9	1.0	100.0	59.0	26.5	12.0	2.4
45-54..	100.0	42.8	52.6	3.1	1.5	100.0	58.3	20.8	16.7	4.2
55 + ..	100.0	50.3	44.0	3.4	2.3	100.0	63.2	28.9	5.3	2.6

Source: 1989 Census, Table 39
Note: Not stated age not shown separately.

For the females, a different pattern pertained. While 61 percent grew food crops, only 25 percent fished, and 12 percent did other subsistence activities. The majority of all age groups grew food products as subsistence.

6.3 Not Economically Active Population.3 Not Economically Active Population.3 Not Economically Active Population

The population not economically active aged 15 years and over was made up of those individuals who did not work for wages and did not do any traditional and subsistence work, and were neither on leave nor were unemployed in the week preceding of the enumeration. They still may have worked. Many persons cleaned, washed clothes, cared for their families, or did other household duties. Similarly, many young people aged 15 years and over were full-time students, so were not classified as economically active. Other people were not very active. Many older people had retired from the labor force. Others were disabled so could not work. Some not economically active people were classified under "Other reasons" because of lack of information on the reason. Students were not coded separately. Also, some coders included students in "Other reasons" category while others put them in the "Too young" category. Table 6.11 shows the non-economically active population by sex and type of non-economic activity.

Table 6.11. Persons 15 years and over by Reason for Non-economic Activity and Sex: 1989

Non-economic activity	Numbers			Percents		
	Total	Males	Females	Total	Males	Females
Total	18,497	7,626	10,871	100.0	100.0	100.0
Household work	8,866	1,729	7,137	47.9	22.7	65.7
Too young	1,211	636	575	6.5	8.3	5.3
Visiting	160	80	80	0.9	1.0	0.7
On leave	64	45	19	0.3	0.6	0.2
Sick	204	113	91	1.1	1.5	0.8
Disabled	316	167	149	1.7	2.2	1.4
Too old	1,448	672	776	7.8	8.8	7.1
Retired-Social security	211	175	36	1.1	2.3	0.3
Retired other	27	15	12	0.1	0.2	0.1
Unemployed - Prev. employment	2,534	1,724	810	13.7	22.6	7.5
Unemployed - No Prev employ	2,028	1,311	717	11.0	17.2	6.6
Other reasons	1,221	812	409	6.6	10.6	3.8
Not stated	207	147	60	1.1	1.9	0.6

Source: 1989 Census, Table 30

Non-economic activities varied markedly according to sex. More females than males were classified as not economically active. About two-thirds of women who were not economically active were involved with "home duties" (Table 6.11). Only 23 per cent males reported doing home duties. More males than females were reported as "Too young" but more females than males were reported as "Too old." Males were much more likely than females to be "unemployed."

Table 6.12 shows the percentage of non-economic activity by age and sex. About 63 percent of the males and 86 percent of the females over 15 were non-economically active. Generally, almost all of the young people were not economically active since they were in school or just starting to look for a job. The percentage decreased considerably during the middle years, and then increased sharply and strongly for the older ages.

Table 6.12. Persons 15 years and over Doing Non-economic Activities by Age and Sex: 1989

Age Group	Numbers			Percents		
	Total	Males	Females	Total	Males	Females
Total	18,497	7,626	10,871	75.3	63.4	86.5
15 to 19 years	4,758	2,347	2,411	95.6	93.1	98.0
20 to 24 years	2,777	1,267	1,510	83.9	79.4	88.1
25 to 29 years	2,291	904	1,387	74.8	63.3	84.9
30 to 34 years	1,812	652	1,160	66.2	51.2	79.2
35 to 39 years	1,440	468	972	59.6	39.5	79.0
40 to 44 years	1,004	303	701	59.3	36.3	81.8
45 to 49 years	655	189	466	66.4	41.6	87.6
50 to 54 years	719	213	506	69.4	45.7	88.8
55 to 59 years	683	226	457	73.7	51.6	93.5
60 years and over	2,263	994	1,269	92.4	85.7	98.4
Not stated	95	63	32	...	...	...

Source: 1989 Census, Table 30

6.4 Population engaged in Economic Activities.4 Population engaged in Economic Activities.4 Population engaged in Economic Activities

The census asked all persons aged 15 years and over to describe the kind of work they did during the previous seven days. To provide additional information, questions were also asked about traditional and subsistence activities. The former was defined as activities meant to generate some income and the later was for own consumption only. A separate question on wage and salary employment, with information on occupation and industry, was also asked. Questions were not asked to find out primary and secondary activities.

Many different salaried jobs were reported in the census. To produce useful statistics, wage and salary jobs were classified according to the International Standard Classification of Occupations and Industries.

Out of the total Chuukese population aged 15 and above, 5,943 persons (24 percent) were reported as engaged in some economic activities. Males participation at 36 percent was almost three times higher than females (13 percent).

Again, out of the total Chuukese population aged 15 years and over engaged in economic activities in 1989, 77 per cent were in wage and salary jobs, 17 per cent in traditional type of activities and 30 per cents in the subsistence type of activities. Altogether 38 percent of the population engaged in the economic activities were either in traditional or subsistence Agriculture and Fishery sector. Of the total in the traditional and subsistence sector 555 (9 percent) reported as engaged in both.

6.4.1 Wage and Salary Employment.4.1 Wage and Salary Employment.4.1 Wage and Salary Employment

Out of the total Chuukese population, aged 15 and over, who were economically active in 1989, 4,579 were engaged in wage and salary jobs. Fully 76 per cent of economically active males and 79 per cent of females were working for wages. Out of the total in wage employment 2,861 (62 percent) were in the education or medical services or public administration. Since the number of persons in the private sector in these industries was very small, we assume that about 62 percent of all the wage employment came from the State Government.

Overall, female participation in the labor-force lagged behind that of males. Females counted for only 28 per cent of the total wage and salary employed population.

6.4.1.1 Occupations in Wage and Salary Employment

Table 6.13 gives a very broad grouping of occupations, but it does provide a useful indication of the distribution of the salaried population according to the skill level of occupation. Since separate questions on traditional and subsistence agriculture were asked the figures in Table 6.13 for agriculture represents the population employed by the government and the other institutions for salary and so do not include self employed and unpaid family workers. Unfortunately, no questions were asked to find out the status of employment, so status of employment for agriculture could not be differentiated.

Table 6.13. Occupation for Chuukese by Sex, Chuuk: 1989

Occupation	Total	Males	Females	Males per 100 Females
Total	4,579	3,283	1,296	253
Percent	100.0	100.0	100.0	...
Legislatures and officials	3.5	4.5	1.0	449
Professionals	8.7	9.1	7.7	118
Technical & assoc. professions	25.7	24.9	27.9	89
Clerks	6.9	3.2	16.3	20
Service, market, and sales	21.6	18.0	30.8	58
Agriculture and fisheries	1.9	2.3	0.8	269
Craft and related workers	7.6	9.1	3.9	231
Plant machinery operators	5.5	7.6	0.1	9,830
Elementary occupations	17.1	19.7	10.5	188
Not Stated	1.4	1.6	1.0	158

Source: 1989 Census, Table 34

Not surprisingly, Table 6.13 reflects some of the features of the employed population. As usual males dominated the so-called `heavy' occupations, in plant and machine operating and assembling. The dominance of males in the craft and related workers can not be said as unusual but the ratio of 9 percent to 4 percent was not easy to explain. One explanation may be that females engaged in the handicraft business are also mostly sales persons and so might have reported themselves as sales

persons. It was also usual that males dominated in the elementary occupations.

Out of the total Non-Chuukese (not shown in these tables), 144 persons, employed in wage and salary jobs, 117 (81 percent) persons are employed in the highly skilled occupations: Senior Government Officials, Managers, Professionals and Technicians. Out of the total Non-Chuukese employed in wage and salary jobs, 78 percent males and 86 percent females were employed in these occupations.

The relationship of age to occupation is important. Table 6.14 gives the breakdown of the broad occupation of Chuukese population employed in wage and salary jobs in 1989. The age pattern of employment varied considerably in the different occupation groups.

As noted above, about 26 percent of the employed adults were in technical and related occupations, 21 percent in service, marketing or sales, and 17 percent laborers. The distribution by age varied considerably -- about 3 in every 10 of the youngest workers, those 15 to 24, were laborers and an almost equal number were working as service or sales workers. Less than 1 in 12 were in technical and related occupations. The pattern for these three occupational categories was similar to that of the whole for the 25 to 34 year olds, but the 35 to 44 year age group showed a different pattern -- 31 percent of this group were in technical and related fields, only 17 percent were in service and sales, and 13 percent were laborers.

Table 6.14. Major occupations by Age, Chuuk: 1989

		Age Group					
Occupation	Total	15-24	25-34	35-44	45-54	55+	NS
Total.....	4,731	565	1,456	1,577	692	427	14
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Legislators & officials	3.7	0.5	2.5	4.7	5.9	4.9	7.1
Professionals.....	9.6	2.3	8.6	12.6	11.3	9.1	14.3
Technical and related..	25.9	8.0	26.0	31.2	28.3	25.1	35.7
Clerks.....	6.8	9.0	9.9	6.4	2.7	1.9	0.0
Service, market, sales.	20.9	30.1	22.6	17.2	19.4	19.9	7.1
Agriculture & fisheries	1.8	1.9	1.6	1.6	1.9	3.3	0.0
Craft and related.....	7.6	9.4	6.5	7.4	8.4	9.1	7.1
Plant machinery oper...	5.3	5.7	5.2	4.9	6.1	5.2	14.3
Laborers.....	16.7	30.6	15.9	12.6	14.0	20.4	7.1
Not stated.....	1.5	2.5	1.2	1.3	2.0	1.2	7.1

Source: 1989 Census, Table 33a

The data for males were similar to the data for the total population with respect to age and occupation. However, almost 46 percent of the 15 to 24 year old male workers were laborers while only 6 percent were doing technical and related occupations.

Table 6.15. Major occupations by Age for Males, Chuuk: 1989

		Age Group					
Occupation	Total	15-24	25-34	35-44	45-54	55+	NS
Males.....	3,382	324	957	1,187	541	361	12
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Legislators & officials	4.8	0.6	3.3	5.9	6.7	5.5	8.3
Professionals.....	9.8	1.2	7.9	12.6	11.8	9.7	16.7
Technical and related..	25.0	5.9	23.6	30.3	27.4	24.9	33.3
Clerks.....	3.2	3.1	4.9	2.8	2.0	1.7	0.0
Service, market, sales.	17.5	14.8	19.7	15.8	18.5	18.6	0.0
Agriculture & fisheries	2.2	3.4	2.1	1.9	1.5	3.6	0.0
Craft and related.....	9.2	12.3	8.9	8.7	8.7	9.4	8.3
Plant machinery oper...	7.4	9.6	7.9	6.6	7.8	6.1	16.7
Laborers.....	19.3	45.7	20.2	13.9	14.0	19.1	8.3
Not stated.....	1.7	3.4	1.4	1.5	1.7	1.4	8.3

Source: 1989 Census, Table 33a

The distribution for females by age was quite different (Table 6.16). More than half of the females 15 to 24 years old were in service, marketing, and sales. The percentage of female clerks was consistently higher than male clerks, while smaller percentages of females were laborers and technical and related staff.

Table 6.16. Major occupations by Age for Females, Chuuk: 1989

		Age Group					
Occupation	Total	15-24	25-34	35-44	45-54	55+	NS
Females.....	1,349	241	499	390	151	66	2
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Legislators & officials	1.1	0.4	0.8	1.0	3.3	1.5	0.0
Professionals.....	9.3	3.7	9.8	12.8	9.3	6.1	0.0
Technical and related..	27.9	10.8	30.7	33.8	31.8	25.8	50.0
Clerks.....	16.0	17.0	19.4	17.4	5.3	3.0	0.0
Service, market, sales.	29.6	50.6	28.1	21.5	22.5	27.3	50.0
Agriculture & fisheries	0.9	0.0	0.6	0.8	3.3	1.5	0.0
Craft and related.....	3.8	5.4	1.8	3.3	7.3	7.6	0.0
Plant machinery oper...	0.1	0.4	0.0	0.0	0.0	0.0	0.0
Laborers.....	10.1	10.4	7.8	8.5	13.9	27.3	0.0
Not stated.....	1.2	1.2	1.0	0.8	3.3	0.0	0.0

Source: 1989 Census, Table 33a

Whatever the age pattern according to occupational groupings, it is clear that the population was young. Most employment became available to the local population only recently, after independence.

Although we do not discuss it here, Basic Table 42 shows the occupations of economically active married females by age. These data are useful in tracing movements of females into the labor force, what they are doing, and how well they are doing.

Also, although we do not show the data here, few places outside Weno offered much occupational opportunity. Ettal in the Mortlocks is typical of the distribution of jobs on island:

> Ettal atoll (Chuuk), a relatively large atoll in FSM, had in 1978 nine school teachers, a medical aide and three policemen who were paid $1 per month; the Peace Corps volunteer, with a wage income of $42 per week, was the 'richest man on the atoll' (Hillinger, 1978). There were also eight small stores on the atoll (Connell 1983:13).

6.4.1.2 Industries in Wage and Salary Employment

The distribution of the population in wage employment according to the industry for 1980 and 1989 is shown in Table 6.17. In both 1980 and 1989 almost 4 out of every 10 workers were in service industries. About 2 in every 10 persons worked in public administration in 1980 compared to 3 in 10 in 1989. The percent in wholesale and retail trade increased considerably, while the percent in construction decreased. The data are difficult to interpret because of the 11 percent of the employed population listed as "primarily subsistence activity" in 1980. This category did not exist in 1989, so skews the data. Therefore, for comparative purposes, it would be useful to increase the 1980 percents by about 10 percent in each case (e.g., services would be about 41 or 42 percent.)

Table 6.17. Industry for Chuuk by Sex: 1980 and 1989

	Number		Percent	
Industry	1989	1980	1989	1980
Employed persons 16 + years.	4,579	3,581	100.0	100.0
Agr., forest., min., & fish.....	38	60	0.8	1.7
Manufacturing.....	22	28	0.5	0.8
Electricity.....	13	52	0.3	1.5
Construction.....	188	356	4.1	9.9
Wholesale and retail trade.....	806	385	17.6	10.8
Transport.....	153	156	3.3	4.4
Financing.....	160	62	3.5	1.7
Services.....	1,801	1,387	39.3	38.7
Public administration.....	1,311	701	28.6	19.6
Primarily subsistence activity...	...	394	...	11.0
Not stated.....	87	...	1.9	...

Note: 15 years and over for 1989.
Source: U.S. Bureau of the Census, 1989 Census of Chuuk State table 35, 1980, PC80-1-B57B, table 23.

About 8 percent of the males in 1980 did "primarily subsistence activities" so the same cautions must be kept in mind (Table 6.18). However, the increases and decreases seen for the total population are also seen, for the most part, among the males. The highest ranking industry categories -- services, public administration and wholesale and retail trade were the same for males as for the total in 1989. The percentage in construction decreased from 13 percent of the total in 1980 to 5.5 percent in 1989.

Table 6.18. Industry for Chuuk for Males: 1980 and 1989

Industry	Number		Percent	
	1989	1980	1989	1980
Employed males 16 + years...	3,283	2,562	100.0	100.0
Agr., forest., min., & fish.....	36	56	1.1	2.2
Manufacturing.....	18	18	0.5	0.7
Electricity.....	12	49	0.4	1.9
Construction.....	182	332	5.5	13.0
Wholesale and retail trade.....	430	208	13.1	8.1
Transport.....	143	147	4.4	5.7
Financing.....	120	30	3.7	1.2
Services.....	1,231	934	37.5	36.5
Public administration.....	1,044	584	31.8	22.8
Primarily subsistence activity...	...	204	...	8.0
Not stated.....	67	...	2.0	...

Note: 15 years and over for 1989.
Source: U.S. Bureau of the Census, 1989 Census of Chuuk State table 35, 1980, PC80-1-B57B, table 23.

About 19 percent of the "employed" females in 1980 were doing "primarily subsistence activities" so the percentages for females in that column needs to be increased by about 20 percent to obtain comparability. In 1989, the three largest industries for females were the same as for the males but the order shifted -- services was still first, but this was followed by wholesale and retail trade, and then public administration. Few women were in construction.

Table 6.19. Industry for Chuuk for Females: 1980 and 1989

Industry	Number		Percent	
	1989	1980	1989	1980
Employed females 16 + years.	1,296	1,019	100.0	100.0
Agr., forest., min., & fish.....	2	4	0.2	0.4
Manufacturing.....	4	10	0.3	1.0
Electricity.....	1	3	0.1	0.3
Construction.....	6	24	0.5	2.4
Wholesale and retail trade.....	376	177	29.0	17.4
Transport.....	10	9	0.8	0.9
Financing.....	40	32	3.1	3.1
Services.....	570	453	44.0	44.5
Public administration.....	267	117	20.6	11.5
Primarily subsistence activity...	...	190	...	18.6
Not stated.....	20	...	1.5	...

Note: 15 years and over for 1989.
Source: U.S. Bureau of the Census, 1989 Census of Chuuk State table 35, 1980, PC80-1-B57B, table 23.

As with the table on occupation, we include only those employed in wage and salary jobs and so exclude those in traditional and subsistence agriculture. Table 6.20 shows the distribution for 1989 by sex, and the male-female ratio within industries (in this table, service and public administration are combined). On average, about 2.5 males were in the employed labor force for each female. Construction, of course, was the most skewed, with 12 males for every female. Wholesale and retail trade was the most skewed in the other direction -- only 45 males for every 100 females.

Table 6.20. Industry for Chuukese by Sex, Chuuk: 1989

Industry	Total	Males	Females	Males per 100 Females
Total.....	4,579	3,283	1,296	253
Percent.....	100.0	100.0	100.0	...
Agriculture.....	0.8	1.0	0.2	671
Mining and manufacturing....	0.5	0.6	0.3	197
Electricity.....	0.3	0.4	0.1	474
Construction.....	4.1	5.5	0.5	1,197
Wholesale and retail trade..	17.6	13.1	29.0	45
Transport.....	3.3	4.4	0.8	565
Finance.....	3.5	3.7	3.1	118
Service.....	68.0	69.3	64.6	107
Not Stated.....	1.9	2.0	1.5	132

Source: 1989 Census, Table 35
Note: Table does not include persons, who had wage employment and who did not state the industry where they were employed.

Basic Table 36 shows industry cross-tabulated by occupation for Chuuk in 1989. Because the table is so large, we cannot do justice to a discussion of the cross in this report. However, planners will want to look at the distributions of the occupations within industries and industries within occupations to develop the future work force.

6.5 Number of hours worked.5 Number of hours worked.5 Number of hours worked

In the census, a question was asked about the number of hours worked in the week before the enumeration. Table 6.21 shows number of hours worked by age group. Only about 3 in every 10 persons worked 40 or more hours per week. The large majority worked 8 to 39 hours per week. (Why the designers thought that Chuukese could only answer this question with category data is a mystery!)

Table 6.21. Number of Hours Chuukese Worked at Wage Labor by Age: 1989

	Numbers				Percent			
Age Group	Total	1-3 hours	4-7 hours	8-39 hours	40+ hours	Total	1-3 hours	4-7 hours	8-39 hours	40+ hours
Total	4,579	56	499	2,586	1,358	100.0	1.2	10.9	56.5	29.7
15-24	544	5	60	306	159	100.0	0.9	11.0	56.3	29.2
25-34	1,402	11	150	798	419	100.0	0.8	10.7	56.9	29.9
35-44	1,534	21	156	886	451	100.0	1.4	10.2	57.8	29.4
45-54	675	10	78	367	207	100.0	1.5	11.6	54.4	30.7
55 +	414	9	53	222	121	100.0	2.2	12.8	53.6	29.2
NS	10	0	2	7	1	100.0	0.0	20.0	70.0	10.0

Source: 1989 Census, Table 40

The majority of Chuukese worked 8 to 39 hours in the reference period. Any persons working 35 hours, for example, would be considered working full-time in most societies, but here, because of the very broad category, many of the 56 percent working 8 to 39 hours could be working 8 hours or 15 hours or 25 hours or 39 hours, and we cannot know. Few persons worked between 4 and 7 hours, and even fewer worked less than 4 hours. The significance of these categories is not clear since they correspond neither to the 1973 census data nor to the 1980 data (nor to the other FSM state censuses, but then those censuses didn't even try to obtain employment data.) Chuuk state, then, should not be unhappy with these data, but it is unlikely to be able to use them for planning, either.

6.6 The Unemployed.6 The Unemployed.6 The Unemployed

Defining the unemployed as those who actively sought work during the reference week, the census yielded a figure of about 43 per cent, 4,562 persons, of the economically active population. The percentages of unemployed by sex were quite different -- about 41 per cent for males and 47 per cent females. By Western standards, these figures are unacceptably high. However, since many

Chuukese live at subsistence, the raw figures themselves are somewhat deceiving.

The percentage of unemployment would be even higher if underemployed are also added. Table 6.21 shows 403 persons aged 15-44 years in wage or salary jobs worked less than 8 hours during the reference period. These persons can be regarded as unemployed. If these persons are included in the unemployed, the percentage unemployed becomes about 46 per cent of the economically active population.

Further, if persons working less than 4 hours at traditional and subsistence activities are also considered as unemployed, then the percentage of unemployed goes up to about 53 per cent.
The age distribution of the unemployed population clearly shows that the problem as it emerges, is clearly focused on youth as found in the case of other developing countries.

6.7 Measures of Unemployment.7 Measures of Unemployment.7 Measures of Unemployment

In the following section, the unemployment rate was determined in two different ways -- first using the U.S. Bureau of the Census method of determining the unemployment rate on the basis of persons unemployed in the civilian labor force (in the Federated States of Micronesia, since no military exists, all labor force is civilian labor force). The second method of determining the unemployment rates was based on the concept of economically active as used previously. Using this concept, economically active included persons in wage and salary employment, doing traditional work, and doing subsistence work. Those doing subsistence would be excluded from the labor force in the United States Census Bureau concept because they are not working, potentially, for wages. Also, those persons in the traditional sector who were not engaged in activities leading to financial gain would be excluded as well; of course, one of the major issues in the Chuuk census was specially to identify these persons, in the aggregate, so we need to analyze the data both ways.

Table 6.22 shows labor force participation and unemployment rates for Chuuk based on the U.S. Census Bureau concepts. By this concept, about 3 in every 8 adults were considered to be in the labor force in 1989. Less than 3 in 10 of those 15 to 19 were in the labor force, but the proportion increased with age until the 35 to 39 year age group, where more than half of the adult population was considered in the labor force.

Table 6.22. Labor Force Participation and Unemployment by Age, Chuuk: 1989

Age Group	Total Persons	In Labor Force			Unemployed				Not in Labor Force
		Total	Percent	Employed	Total	Percent	Prior Employ	No Prior Employ	
Total	24,798	9,293	37.5	4,731	4,562	49.1	2,534	2,028	15,505
15-19	5,074	1,450	28.6	138	1,312	90.5	571	741	3,624
20-24	3,403	1,528	44.9	427	1,101	72.1	604	497	1,875
25-29	3,157	1,419	44.9	626	793	55.9	471	322	1,738
30-34	2,833	1,331	47.0	830	501	37.6	281	220	1,502
35-39	2,510	1,284	51.2	908	376	29.3	225	151	1,226
40-44	1,787	897	50.2	669	228	25.4	137	91	890
45-49	1,081	429	39.7	363	66	15.4	66	0	652
50-54	1,131	389	34.4	329	60	15.4	60	0	742
55-59	1,022	317	31.0	258	59	18.6	59	0	705
60+	2,545	217	8.5	169	48	22.1	48	0	2,328
Not State	255	32	12.5	14	18	56.3	12	6	223

Source: 1989 Census, Tables 27, 30 and 33

Of those in the labor force, almost exactly half were unemployed! About 9 out of every 10 persons 15 to 19 were unemployed, about 7 out of 10 of those 20 to 24, and more than half of those 30 to 34 years old. In the older ages, the percentage unemployed decreased quite a bit, but was never less than 15 percent of the labor force. One of the reasons that the unemployment rate is as high as it is is because persons doing traditional activities and subsistence are included in the labor force but unemployed, rather than "not in the labor force." Many of these persons would be considered to be "not in the labor force" if subsistence and traditional activities were not considered "economically active."

More than half of the adult males were in the labor force, with only 35 percent of males 15 to 19 in the labor force, but rising to as much as 3 in every 4 of those 40 to 44 years old (Table 6.23). On the other hand, the male unemployment rates measured by this method were also very high -- over 90 percent for those 15 to 19, and decreasing to less than 50 percent only for those 30 and older.

Table 6.23. Labor Force Participation and Unemployment by Age, Chuuk: 1989 *** Males ***

Age Group	Total Persons	In Labor Force			Unemployed				Not in Labor Force
		Total	Percent	Employed	Total	Percent	Prior Employ	No Prior Employ	
Total	12,141	6,417	52.9	3,382	3,035	47.3	1,724	1,311	5,724
15-19	2,583	903	35.0	88	815	90.3	360	455	1,680
20-24	1,658	964	58.1	236	728	75.5	409	319	694
25-29	1,491	937	62.8	404	533	56.9	319	214	554
30-34	1,337	904	67.6	553	351	38.8	202	149	433
35-39	1,247	933	74.8	664	269	28.8	162	107	314
40-44	898	682	75.9	523	159	23.3	98	61	216
45-49	517	333	64.4	286	47	14.1	47	0	184
50-54	529	293	55.4	255	38	13.0	38	0	236
55-59	501	264	52.7	218	46	17.4	46	0	237
60+	1,223	176	14.4	143	33	18.8	33	0	1,047
Not State	157	28	17.8	12	16	57.1	10	6	129

Source: 1989 Census, Tables 27, 30 and 33

While the unemployment rates for females using this method don't look that different from those of the males, the labor force participation rates were quite different. Only about 23 percent of the females were in the labor force. The peak, in fact, was with the 20 to 24 year old females, at less than 1 in 3 females. From this age group upward, an inverse correlation existed between age group and percentage in the labor force. And the values were very low compared to males, showing very low labor force participation for females. Presumably the government is actively looking for ways to tap this enormous labor pool in both the public and private sectors.

Table 6.24. Labor Force Participation and Unemployment by Age, Chuuk: 1989 *** Females ***

Age Group	Total Persons	In Labor Force			Unemployed				Not in Labor Force
		Total	Percent	Employed	Total	Percent	Prior Employ	No Prior Employ	
Total	12,657	2,876	22.7	1,349	1,527	53.1	810	717	9,781
15-19	2,491	547	22.0	50	497	90.9	211	286	1,944
20-24	1,745	564	32.3	191	373	66.1	195	178	1,181
25-29	1,666	482	28.9	222	260	53.9	152	108	1,184
30-34	1,496	427	28.5	277	150	35.1	79	71	1,069
35-39	1,263	351	27.8	244	107	30.5	63	44	912
40-44	889	215	24.2	146	69	32.1	39	30	674
45-49	564	96	17.0	77	19	19.8	19	0	468
50-54	602	96	15.9	74	22	22.9	22	0	506
55-59	521	53	10.2	40	13	24.5	13	0	468
60+	1,322	41	3.1	26	15	36.6	15	0	1,281
Not State	98	4	4.1	2	2	50.0	2	0	94

Source: 1989 Census, Tables 27, 30 and 33

The other method of determining labor force participation and unemployment rates gives noticeably better results. Instead of 37.5 percent of the adults in the labor force using the U.S.Bureau of the Census method, we get 43 percent in the labor force. The rate still peaks in the 35 to 39 year old age group, but at 57.5 percent.

Table 6.25. Labor Force Participation and Unemployment by Age, Chuuk: 1989

Age Group	Total Persons	In Labor Force						Not in Labor Force
		Total	Percent	Economically Active	Unemployed Total	Unemployed Percent	Unemployed Prior Employ	Unemployed No Prior Employ	
Total	24,798	10,665	43.0	6,103	4,562	42.8	2,534	2,028	14,133
15-19	5,074	1,624	32.0	312	1,312	80.8	571	741	3,450
20-24	3,403	1,717	50.5	616	1,101	64.1	604	497	1,686
25-29	3,157	1,643	52.0	850	793	48.3	471	322	1,514
30-34	2,833	1,514	53.4	1,013	501	33.1	281	220	1,319
35-39	2,510	1,442	57.5	1,066	376	26.1	225	151	1,068
40-44	1,787	1,008	56.4	780	228	22.6	137	91	779
45-49	1,081	491	45.4	425	66	13.4	66	0	590
50-54	1,131	471	41.6	411	60	12.7	60	0	660
55-59	1,022	397	38.8	338	59	14.9	59	0	625
60+	2,545	323	12.7	275	48	14.9	48	0	2,222
Not State	255	35	13.7	17	18	51.4	12	6	220

Source: 1989 Census, Tables 27, 30 and 33

Similarly, the unemployment rates look better as well because more people are considered "employed" since they worked in the traditional or subsistence sectors. Using this method, about 43 percent were considered unemployed compared to 49 percent using the other method. Generally, as before, the percentage unemployed decreased with age.

The data for males show similar results, increased labor force participation, and decreased unemployment rates. As many as 84 percent of the 35 to 44 years old males were in the labor force by this measure, and unemployment rates were lower.

Table 6.26. Labor Force Participation and Unemployment by Age, Chuuk: 1989 *** Males ***

Age Group	Total Persons	In Labor Force: Total	Percent	Economically Active	Unemployed: Total	Percent	Prior Employ	No Prior Employ	Not in Labor Force
Total	12,141	7,434	61.2	4,399	3,035	40.8	1,724	1,311	4,707
15-19	2,583	1,048	40.6	233	815	77.8	360	455	1,535
20-24	1,658	1,111	67.0	383	728	65.5	409	319	547
25-29	1,491	1,106	74.2	573	533	48.2	319	214	385
30-34	1,337	1,031	77.1	680	351	34.0	202	149	306
35-39	1,247	1,045	83.8	776	269	25.7	162	107	202
40-44	898	754	84.0	595	159	21.1	98	61	144
45-49	517	375	72.5	328	47	12.5	47	0	142
50-54	529	353	66.7	315	38	10.8	38	0	176
55-59	501	320	63.9	274	46	14.4	46	0	181
60+	1,223	260	21.3	227	33	12.7	33	0	963
Not State	157	31	19.7	15	16	51.6	10	6	126

Source: 1989 Census, Tables 27, 30 and 33

The labor force participation rate for females increased from 22.7 percent to 25.5 percent by changing the method used. Once again, females showed an inverse correlation between age and labor force participation rates, but the rates were higher because of the change in definition. Female unemployment rates decreased using this method, as well.

Table 6.27. Labor Force Participation and Unemployment by Age, Chuuk: 1989 *** Females ***

Age Group	Total Persons	In Labor Force							Not in Labor Force
		Total	Percent	Economically Active	Unemployed Total	Unemployed Percent	Unemployed Prior Employ	Unemployed No Prior Employ	
Total..	12,657	3,231	25.5	1,704	1,527	47.3	810	717	9,426
15-19....	2,491	576	23.1	79	497	86.3	211	286	1,915
20-24....	1,745	606	34.7	233	373	61.6	195	178	1,139
25-29....	1,666	537	32.2	277	260	48.4	152	108	1,129
30-34....	1,496	483	32.3	333	150	31.1	79	71	1,013
35-39....	1,263	397	31.4	290	107	27.0	63	44	866
40-44....	889	254	28.6	185	69	27.2	39	30	635
45-49....	564	116	20.6	97	19	16.4	19	0	448
50-54....	602	118	19.6	96	22	18.6	22	0	484
55-59....	521	77	14.8	64	13	16.9	13	0	444
60+.....	1,322	63	4.8	48	15	23.8	15	0	1,259
Not State	98	4	4.1	2	2	50.0	2	0	94

Source: 1989 Census, Tables 27, 30 and 33

Figure 5.8 clearly shows the magnitude of the unemployment under years 25 years. But the fact that, out of the total population aged 15 years and over, who were considered as economically active, 72 per cent of the population under age 25 years considered themselves as unemployed. The picture is not bright for the age group 25-34 which shows an unemployment rate of 41 per cent. The total unemployment rate of 42 per cent itself presents a very grim picture of the unemployment in Chuuk and should be considered as alarming due to the fact that there seems to be significant out-migration of Chuukese to Guam and other places.

6.8 Conclusions.8 Conclusions.8 Conclusions

We looked at economic activities in Chuuk in this chapter. As we discuss here, it is often difficult to define economic activities in traditional Chuukese society because what is economic, particularly on the atolls, is also social and political, and we often cannot divide activities up into component parts. Nonetheless, by looking at wage and salary employment and traditional activities and subsistence activities, we differentiate the different kinds of economic activities people in Chuuk did in 1989.

Chuuk has a money economy, and economy imposed by the Germans and the Japanese and the Americans, but adopted completely by Chuukese in our independence. We want what the world has to offer us -- motorcycles and VCRs and boom boxes -- and these are obtainable only by pursuing work in the money economy. In this chapter we looked at how people have moved into the wage economy, and the characteristics of these people -- the kinds of activities they did, their

occupations, and their industries, to get a better idea of the current and future make up of Chuuk's economic base.

CHAPTER 7. MIGRATIONCHAPTER 7. MIGRATIONCHAPTER 7. MIGRATION

7.1 Introduction.1 Introduction.1 Introduction

We have looked at population change from natural growth -- the effects of births adding to the population and deaths subtracting from it. Populations also change as a result of migration -- the movement of people from island to island, and from Chuuk to Guam, the Commonwealth of the Northern Marianas, and onward. Chuukese have always moved within and between islands. The volume of this internal migration accelerated after the independence of the FSM.

The Census established where people lived at fixed points in the past to measure internal migration. The Census asked four questions to each respondent: (1) place of birth, (2) place of usual residence at the time of enumeration, (3) place of usual residence last year (one year preceding the enumeration), and, (4) place of residence at independence (10 years before the census). Each of these questions provides a time reference for measuring short-term or long-term migration. To avoid the difficulties of treatment of temporary or short-term circular movement, migration in this report is concerned only with persons who changed place of usual residence. Thus, the population considered in any table must have been usually resident in Chuuk at the time of the Census and at the earlier reference date.

7.2 Chuuk Migration in Historical Context.2 Chuuk Migration in Historical Context.2 Chuuk Migration in Historical Context

Chuukese, like most island and atoll peoples, have always migrated. They arrived in the Chuuk islands by canoes from other places, most likely from the south and east, and some of their descendants probably continued the migration on to the west to the outer islands of Yap (where this particular migration stream stopped. More recently, various researchers have looked at migration to, from and around Chuuk.[14]

This documentation of migration started during the German times when several anthropologists came through the islands as part of the South Seas Expeditions (see, for example, Kramer 1932). Germans clearly made both forced and voluntary migrations, for example, the continued movement of Mortlockese from Ettal, Satowan, and other Mortlock Islands to Sokehs.

The Japanese implemented programs of forced migration for various work projects. Nason (1970:217), for example, notes that almost all the men from Etal worked in mines on Angaur or copra plantations on Pohnpei during the 1930s, for periods of 6 months to 6 or 7 years. Although some volunteered, the Japanese established some quotas, and Purcell (1976:194) notes that much of the labor migration was not voluntary. Tolerton and Rauch (1949:163-4) write that all men worked

[14]John Connell, in a masterly series of booklets published by the South Pacific Commission (1983), documented much of the research in this area. His influence is reflected here.

away for at least a year, many for longer periods, returning with clothes and presents.

During the American Administration various factors influenced Chuukese migration. Among these were migration for employment and for education. Also, many Chuukese migrated for shorter periods of time for disease or other reasons.

7.2.1. Migration for Education.2.1. Migration for Education.2.1. Migration for Education.

The earliest migration during the American Administration was usually connected with education. Not only did increased education lead to better jobs, but educational funding for Micronesia's best students was readily available. Many young Micronesians took advantage of this opportunity. Marshall (1979a:10) noted that nearly 90 percent of the 15 to 29 year old de jure population had left Namoluk during the 1970s, and Nason (1975b:139) found similar migrations for Etal. More and more Micronesians went to Guam, Hawaii, and the U.S. mainland for schooling, creating what Hezel (1979) called an 'education explosion'. What Hezel showed for all of Chuuk, Marshall (1979:7) showed that while 4 Namolukese were on the mainland in 1971 for schooling, 23 were there in 1976, so that 'going to the U.S.A. for college and junior college education has become the latest status symbol of educational achievement for Namoluk young adults'. Table 7.1 shows that these persons increased from 3.5 percent of the migrants to 9.7 percent, even though the total migrants more than doubled.

Table 7.1. Migrant Locations, Namoluk Atoll: 1971 and 1976

	Numbers		Percents	
Location	1976	1971	1976	1971
Total.....	237	114	100.0	100.0
Chuuk lagoon.....	145	73	61.2	64.0
Other Chuuk.....	50	24	21.1	21.1
Other Micronesia.	17	9	7.2	7.9
Guam.....	1	4	0.4	3.5
USA.....	23	4	9.7	3.5
Thailand.....	1	0	0.4	0.0

Source: Marshall, 1975:180; 1979a:6-7

Table 7.2 shows de jure populations for Namoluk in 1971 and Etal in 1968, and where the emigrants were located. Schooling was the largest category in each case.

Table 7.1. Reasons for Absence, Namoluk and Etal Migrants: 1968 and 1971

Reasons for Absence	Namoluk, 1971 Total	Namoluk, 1971 Male	Namoluk, 1971 Female	Etal, 1968 Total	Etal, 1968 Male	Etal, 1968 Female
Total	114	77	37	81	44	37
At school	46	34	12	26	14	12
Employed for wages off-island.	25	21	4	7	5	2
Married, unemployed, or living off island	17	6	11	26	12	14
Accompanying parents	13	7	6	14	7	7
Visiting off-island	8	7	1	7	5	2
Adopted off-island	4	1	3	0	0	0
At hospital	1	1	0	1	1	0

Sources: Marshall, 1975:181; Nason, 1975b:140

It is important to note that where people go and what they study does not always translate into useful occupations for economic development planning and policy use. For example, while most of the earliest college students attended special training courses (nursing, surveying, etc.), the students in the late 1970s and 1980s took more general academic college courses (Hezel, 1979a:174-75). Consequently exception of lawyers, Micronesia continues to suffer from a conspicuous lack of professionals in public administration, economics, physical and natural sciences and engineering for the country's needs (Workman et al, 1981, Connell 1983:41)

7.2.2. Migration for Employment.2.2. Migration for Employment.2.2. Migration for Employment.

During the early parts of the American Administration, and up through the 1960s, almost all Chuuk high school graduates obtained jobs, often as teachers on their home islands. In more recent years, though, many have had to leave the Outer Islands and the more distant parts of the lagoon to go to Weno for jobs, that is, to "leave their home islands and follow the job harvest" (Hezel, 1979:177).

However, in his 1979 report, Hezel found that if they could not find jobs, many did return to their home islands, not always without some hesitation (while 70 percent of the class of 1966 returned to their home island compared to only 45 percent of the class of 1972). Hezel notes:

> They may dally in the district center for a year or two to "catch a piece of the action" while they half-heartedly hunt for a job but they soon tire of this footloose life and return home to live with their families ... Most simply marry, have children and settle into the quiet village life that they had known before their high school days ... Admittedly this description runs contrary to the prevailing myth that high school students, once seduced by the bright lights of Weno, will not willingly "return to the farm". Whether willingly or not they do return (Hezel, 1979a: 178).

Hezel found that over 60 percent of all high school graduates not currently in college returned to live on their home islands. Robert et al, 1981:6) found that in both the 1960s and 1970s 69 percent of Chuuk graduates returned to their home islands, but in the 1970s only 29 percent were employed. Robert et al found that while many were returning, few could get good jobs, despite the fact that in 1976 and 1977 the number of jobs in Chuuk expanded at a greater rate that ever before (Robert et al, 1981:8). "Hence, return their home islands occurs increasingly, and the problem of generating outer island employment is intensified" Connell 1983:41.

Chuukese graduates were still finding jobs in Weno int he 1980s, with Hezel (1979:178-9) finding that the likelihood of remaining in Weno was correlated directly with length of post-primary education. Thus, in the 1970s and 1980s, no real 'brain-drain' probably existed. However, by the late 1980s and early 1990s, the Compacts of Free Association made a type of "brain drain" virtually inevitable. And many Chuukese are leaving Chuuk to work on Pohnpei, but more in Guam, CNMI, and the United States.

Some controversy exists about the effects of the "brain drain" on the various regions of Chuuk state (with respect to internal migration), and on Chuuk state as a whole (with respect to international migration. Some, such as Hezel (dates), claim that the brain drain is deleterious, depriving Chuuk state of leadership and development skills; others, such as Naich (Levin and Naich, date) dispute this, to a certain extent, claiming that a certain amount of outmigration may, in fact, be healthy for Chuuk's well-being and development, particularly when remittances are considered.

Also, it is not entirely clear, yet, how return migrants fit into the social and economic picture, particularly in the outer islands where jobs are so scarce, but also in the economic center. For example, " despite Hezel's assertions that Chuukese graduates return satisfactorily to their home atolls there is no indication of the contribution that such graduates make there, or the frustrations that they and the more permanent residents may experience" (Connell 1983:62).

The outer islanders, those from the Mortlocks and Oksoritod, in particular, may have additional problems in readjustment because of possible traditional anxieties between lagoon and atoll dwellers. For example, "Micronesians discriminate shamefully against outer islanders. Most district centers have ghettos to which outer islanders are consigned" (Nevin, 1977:54)

7.2.3. Migration for Disease.2.3. Migration for Disease.2.3. Migration for Disease. Various diseases caused large migrations over the years. One of the recent cases involved a cholera epidemic in the Chuuk lagoon islands, causing as many as 2,000 people to return to their homes in the outer islands (Connell 1983:30.) Most migration to avoid diseases is short term migration, and when the disease or epidemic passes, people return to the original area. However, some of this migration becomes long term migration if the receiving area has more or better jobs or other conditions conducive to staying.

7.2.4. Circular Mobility.2.4. Circular Mobility.2.4. Circular Mobility. A kind of migration we cannot show from the census results, but that Chuuk State must consider in its overall planning, is what demographers call "circular mobility," that is, movement back and forth between home areas (whether more distant parts of the Chuuk lagoon or the outer islands) and more urban areas. These

movements tend to be longer than for visits to the hospital or to take care of short-term government matters, but shorter than the quasi-permanent stays described in the previous sections.

This kind of migration, as well as the longer term migration, causes several demographic effects. Differential age and sex patterns are among these effects in Chuuk' regions. We have already discussed this phenomenon, to a certain extent, in Chapter 4 on the current age and sex distribution in Chuuk State. We have seen, for example, atolls are increasingly becoming places of 'vacation homes' (Marshall, 1979a:10) so that, for example, the atoll of Namoluk 'may be described quite accurately as a combination "old folks home" and "day care center"' (Marshall, 1979a:3).

Similarly, we noted in Chapter 4 that the immediate post-Compact migration to Guam and CNMI, and onward, was sex-selective, that is, that males were more likely than females to leave for these places. This type of migration is not new for Chuuk. The 1973 census data, for example, showed "the equivalence of males and females in migration streams, the increase in female migration is a relatively belated phenomenon, perhaps especially in Chuuk state where there is a slight male bias" (Connell 1983:32).

On Namoluk, for example, 3 times as many females were located off-island in 1976 as there were in 1971; while males outnumbered females off the atoll by more than two-to-one in 1971, by 1976 they were nearly equal. Marshall (1979a:3-5) notes that this change occurred because women increasingly obtained a post-elementary education hitherto denied them by cultural and social attitudes and few eligible young men remained on the island.

7.3 Lifetime Migration.3 Lifetime Migration.3 Lifetime Migration.

Lifetime migration is migration since birth. We get data for this type of migration from a question on place of birth, which appears on virtually all census forms. We look at this item, and where people are living now, to obtain their movements over their life time. That is, we know where they were born, and where they were living at the time of the census, but, of course, we do not know any of their movements in between. To get those short-term movements, we need other questions on residence one year ago, or 5 years ago, etc.

Connell (1983:25) discussed lifetime migration for Chuuk, based on the 1973 census of the Trust Territory:

> "The data on lifetime migration in Chuuk ... reveal a more complex migration situation than in the other states. As elsewhere there has been significant migration into the principal urban area on Weno Island and migrants from other districts in TTPI are highly concentrated on Weno; some 42 percent of the population of Weno were born elsewhere. This is a lower proportion than in other states of FSM, which may reflect both the partly rural character of Weno island and the limited job opportunities there. Out-migration from Weno is also significantly lower than for other urban areas of FSM; only 11 percent of the population born on Weno had moved elsewhere. In general, movement away from the islands of Chuuk lagoon was extremely small, except for the small island of Siis where 30 percent of

> those born there had moved away, and (with the exception of Weno) movement to those islands was also extremely small. For example, on Fala Beguets, over 98 percent of the population living there had been born there and only 13 percent of those born there lived elsewhere. Thus within Chuuk Lagoon, with the exception of Weno, the population has experienced very low mobility and migration has limited impact on population structure, a situation that reflects distinct social divisions between many of the lagoon islands.

Connell also discusses movements among the outer islands, movements we show int he historical tables in Chapters 1 and 2.

The 35,283 persons living in their municipality of residence in 1989 since birth were 74 percent of Chuuk's total population (Table 7.3). About 72 percent of the males and 76 percent of the females lived in their municipality of enumeration since birth.

Table 7.3. Percent Living in Municipality Since Birth, Chuuk: 1989

Municipality of Enumeration	Numbers			Percent		
	Total	Males	Females	Total	Males	Females
Total.....	35,283	17,368	17,915	73.7	71.8	75.7
Lagoon.....	28,748	14,186	14,562	75.0	73.0	77.0
Weno.....	9,308	4,715	4,593	61.0	61.7	60.3
Fono.....	304	159	145	82.4	81.5	83.3
Tonoas.....	2,364	792	1,572	61.1	39.4	84.4
Fefen.....	3,603	1,827	1,776	92.3	91.5	93.2
Siis.....	396	200	196	90.4	90.9	89.9
Uman.....	2,607	1,293	1,314	90.1	89.5	90.6
Parem.....	293	157	136	83.7	88.2	79.1
Eot.....	202	102	100	72.4	73.4	71.4
Udot.....	1,126	591	535	74.4	75.2	73.6
Ramanum.....	503	248	255	74.1	70.9	77.5
Fanapanges.....	408	215	193	91.3	91.5	91.0
Tol.....	7,634	3,887	3,747	91.5	91.4	91.5
Wonei.....	779	410	369	89.1	89.3	88.9
Paata.....	1,129	559	570	86.9	85.5	88.4
Tol.....	4,532	2,318	2,214	93.5	93.6	93.5
Polle.....	1,194	600	594	90.0	90.6	89.3
Mortlocks.....	3,802	1,880	1,922	64.4	63.0	65.8
Nama.....	475	229	246	53.0	53.4	52.6
Losap.....	121	56	65	25.5	23.5	27.4
Piis-Emwar.....	308	149	159	96.3	96.8	95.8
Namoluk.....	192	86	106	61.9	57.7	65.8
Ettal.....	199	97	102	47.4	43.9	51.3
Lukunoch.....	418	223	195	56.1	56.6	55.6
Oneop.....	498	256	242	93.3	91.8	94.9
Satowan.....	366	193	173	41.4	41.2	41.6
Kuttu.....	404	193	211	95.5	95.5	95.5
Moch.....	563	275	288	93.2	90.8	95.7
Ta.....	258	123	135	88.7	84.8	92.5
Oksoritod.....	2,733	1,302	1,431	75.4	73.2	77.5
Houk.....	283	138	145	81.8	84.1	79.7
Polowat.....	415	173	242	87.0	80.8	92.0
Pollap.....	225	92	133	71.4	67.2	74.7
Tamatam.....	200	91	109	88.5	85.0	91.6
Makur.....	97	51	46	80.2	78.5	82.1
Onoun.....	379	183	196	73.9	68.5	79.7
Onou.....	71	28	43	78.0	71.8	82.7
Onanu.....	65	31	34	81.3	75.6	87.2
Piherarh.....	96	44	52	69.1	65.7	72.2
Nomwin.....	168	79	89	43.5	44.1	43.0
Fananu.....	145	78	67	60.9	62.9	58.8
Ruo.....	386	213	173	97.0	97.3	96.6
Murilo.....	203	101	102	68.6	64.7	72.9

Source: 1989 Census, Table 18

As will be noted in the section of duration of residence, the highest percentages of persons resident in their municipalities since birth were in Ruo and Piis-Emwar. The males and females showed similar results.

Table 7.3A shows the distribution of Chuukese by place of enumeration side by side with birthplace by municipality, and the numbers of persons who were born and were also living in the same municipality at the time of the census. For example, while 14,857 persons were living in Weno in 1989, 11,670 persons were born in Weno and living some place in Chuuk at the time of the Census (those who were born on Weno, but were living outside Chuuk are excluded.) With these two figures, we also show the 9,474 persons who were born on Weno and were also living on Weno in 1989. These 9,474 persons were 66 percent of all those persons enumerated on Weno in 1989 (so 34 percent of Weno's population was born elsewhere), and they were 84 percent of all the persons born on Weno (so about 16 percent of the persons born on Weno were living on other islands in Chuuk in 1989.)

Table 7.3A. Birthplace by Residence of Enumeration for Chuukese: 1989

Municipality of Enumeration	Numbers			Percents			Percent Both	
	Total	Birth-place	Brthpl = Now	Total	Birth-place	Brthpl = Now	Of Enum.	Of Brthpl
Total	47,376	46,808	37,936	100.0	100.0	100.0	80.1	81.0
Weno	14,857	11,670	9,747	31.4	24.9	25.7	65.6	83.5
Fono	368	309	242	0.8	0.7	0.6	65.8	78.3
Tonoas	3,859	3,876	3,342	8.1	8.3	8.8	86.6	86.2
Fefen	3,892	3,994	3,565	8.2	8.5	9.4	91.6	89.3
Siis	436	471	379	0.9	1.0	1.0	86.9	80.5
Uman	2,893	3,114	2,682	6.1	6.7	7.1	92.7	86.1
Parem	350	325	266	0.7	0.7	0.7	76.0	81.8
Eot	278	315	213	0.6	0.7	0.6	76.6	67.6
Udot	1,504	1,433	1,115	3.2	3.1	2.9	74.1	77.8
Romalum	679	728	610	1.4	1.6	1.6	89.8	83.8
Fanapanges	447	490	422	0.9	1.0	1.1	94.4	86.1
Wonei	873	949	783	1.8	2.0	2.1	89.7	82.5
Paata	1,294	1,322	1,200	2.7	2.8	3.2	92.7	90.8
Tol	4,825	5,387	4,554	10.2	11.5	12.0	94.4	84.5
Polle	1,324	1,385	1,210	2.8	3.0	3.2	91.4	87.4
Nama	896	1,165	675	1.9	2.5	1.8	75.3	57.9
Losap	473	670	321	1.0	1.4	0.8	67.9	47.9
Piis-Emwar	319	377	241	0.7	0.8	0.6	75.5	63.9
Namoluk	310	391	261	0.7	0.8	0.7	84.2	66.8
Ettal	416	349	241	0.9	0.7	0.6	57.9	69.1
Lukunoch	743	991	688	1.6	2.1	1.8	92.6	69.4
Oneop	534	615	371	1.1	1.3	1.0	69.5	60.3
Satowan	884	815	619	1.9	1.7	1.6	70.0	76.0
Kuutu	421	759	402	0.9	1.6	1.1	95.5	53.0
Moch	602	752	596	1.3	1.6	1.6	99.0	79.3
Ta	290	310	247	0.6	0.7	0.7	85.2	79.7
Houk	343	379	270	0.7	0.8	0.7	78.7	71.2
Polowat	474	482	430	1.0	1.0	1.1	90.7	89.2
Pollap	312	357	277	0.7	0.8	0.7	88.8	77.6
Tamatam	226	239	187	0.5	0.5	0.5	82.7	78.2
Makur	121	105	76	0.3	0.2	0.2	62.8	72.4
Onoun	513	366	304	1.1	0.8	0.8	59.3	83.1
Onou	89	138	50	0.2	0.3	0.1	56.2	36.2
Ononu	80	102	55	0.2	0.2	0.1	68.8	53.9
Piherarh	138	177	112	0.3	0.4	0.3	81.2	63.3
Nomwin	384	421	330	0.8	0.9	0.9	85.9	78.4
Fananu	237	252	192	0.5	0.5	0.5	81.0	76.2
Ruo	397	441	387	0.8	0.9	1.0	97.5	87.8
Murilo	295	387	274	0.6	0.8	0.7	92.9	70.8

Source: 1989 Census, Table 16

Because the concept is important in understanding Chuukese migration from the home island to the

urban areas, particularly to Weno, and onward, we present another case for illustration. Oneop, in the Mortlocks, for example, had 70 percent of its enumerated population born on Oneop (so 30 percent of its resident population in 1989 was born elsewhere and migrated to Oneop), while only 60 percent of the Oneop born were on Oneop (so 40 percent of the persons born on Oneop were elsewhere in Chuuk in 1989.)

Table 7.3A also shows the percentage distribution of the population in Chuuk by municipality of enumeration and birthplace. So, while 31 percent of Chuuk's population was living on Weno in 1989, only 25 percent of the population born in Chuuk and living in Chuuk was on Weno at the time of the census. A slightly higher percentage of the population both born and living in the same municipality was living in Weno.

7.4 Citizenship and Legal Residence.4 Citizenship and Legal Residence.4 Citizenship and Legal Residence

The 1989 Census asked a question on citizenship of all persons, and the results are presented in Basic Table 9. Almost everyone in Chuuk in 1989 was an FSM citizenship -- only 129 persons were U.S. citizens, 58 were citizenships of other Pacific Islands countries, and 65 persons were of various Asian citizenships. Almost all of these were expatriots, although a few were Chuukese born in Guam or the United States. As usual, the 107 not stated cases could be either Chuukese or persons having other citizenships, but we cannot tell.

The legal residence of a person is the place where they vote and pay taxes. Almost all Chuukese had legal residence in Chuuk (see Basic Table 10). Sometimes, in Chuuk, at least, persons keep their legal residence on their home island, or their island of birth, for many years after they have moved to another island, often, for the rest of their lives. Especially when people move to Weno to live and work, they often keep their legal residence in the area they left.

Table 7.4 shows municipality of enumeration, municipality of legal residence, numbers of persons having the same municipality of enumeration as legal residence, and percents for these. More than 86 percent of the population had the same municipality of enumeration as municipality of legal residence. For three municipalities -- Piis-Emwar, Namoluk, and Houk -- everyone who was enumerated on the island also claimed that island as his or her legal residence. However, the reverse was not true. For example, while 310 persons lived on Namoluk in 1989, and all of them claimed Namoluk as their legal residence, 89 (22 percent of the total 399 persons) lived off Namoluk, but claimed Namoluk as legal residence.

Table 7.4. Chuukese population by Place of Enumeration and Legal Residence, Chuuk: 1989

Municipality	Numbers			Percent same of:		Percent		
	Enumeration	Legal Resid.	Enum= Legal	Enumeration	Legal Resid.	Enumeration	Legal Resid.	Enum= Legal
Total	47,306	47,306	40,857	86.4	86.4	100.0	100.0	100.0
Weno	14,803	9,458	9,353	63.2	98.9	31.3	20.0	22.9
Fono	368	410	365	99.2	89.0	0.8	0.9	0.9
Tonoas	3,858	4,068	3,723	96.5	91.5	8.2	8.6	9.1
Fefen	3,891	4,125	3,795	97.5	92.0	8.2	8.7	9.3
Siis	436	516	425	97.5	82.4	0.9	1.1	1.0
Uman	2,891	3,210	2,852	98.7	88.8	6.1	6.8	7.0
Parem	350	354	308	88.0	87.0	0.7	0.7	0.8
Eot	278	320	225	80.9	70.3	0.6	0.7	0.6
Udot	1,502	1,682	1,444	96.1	85.9	3.2	3.6	3.5
Ramanum	677	719	673	99.4	93.6	1.4	1.5	1.6
Fanapanges	447	468	443	99.1	94.7	0.9	1.0	1.1
Wonei	873	1,013	862	98.7	85.1	1.8	2.1	2.1
Paata	1,294	1,371	1,259	97.3	91.8	2.7	2.9	3.1
Tol	4,822	5,409	4,739	98.3	87.6	10.2	11.4	11.6
Polle	1,323	1,421	1,271	96.1	89.4	2.8	3.0	3.1
Nama	895	1,483	891	99.6	60.1	1.9	3.1	2.2
Losap	473	887	469	99.2	52.9	1.0	1.9	1.1
Piis-Emwar	319	456	319	100.0	70.0	0.7	1.0	0.8
Namoluk	310	399	310	100.0	77.7	0.7	0.8	0.8
Ettal	415	476	388	93.5	81.5	0.9	1.0	0.9
Lukunoch	742	1,140	731	98.5	64.1	1.6	2.4	1.8
Oneop	534	881	530	99.3	60.2	1.1	1.9	1.3
Satowan	883	1,016	801	90.7	78.8	1.9	2.1	2.0
Kuttu	421	781	416	98.8	53.3	0.9	1.7	1.0
Moch	602	809	597	99.2	73.8	1.3	1.7	1.5
Ta	290	375	288	99.3	76.8	0.6	0.8	0.7
Houk	343	463	343	100.0	74.1	0.7	1.0	0.8
Polowat	474	516	473	99.8	91.7	1.0	1.1	1.2
Pollap	312	387	310	99.4	80.1	0.7	0.8	0.8
Tamatam	226	229	213	94.2	93.0	0.5	0.5	0.5
Makur	121	105	83	68.6	79.0	0.3	0.2	0.2
Onoun	513	438	398	77.6	90.9	1.1	0.9	1.0
Onou	89	89	70	78.7	78.7	0.2	0.2	0.2
Onanu	80	98	64	80.0	65.3	0.2	0.2	0.2
Piharerh	138	187	134	97.1	71.7	0.3	0.4	0.3
Nomwin	384	453	381	99.2	84.1	0.8	1.0	0.9
Fananu	237	296	233	98.3	78.7	0.5	0.6	0.6
Ruo	397	432	394	99.2	91.2	0.8	0.9	1.0
Murillo	295	366	284	96.3	77.6	0.6	0.8	0.7

Source: 1989 Census
Note: Does not include legal residence not stated

Obviously, Weno is at the opposite end of the spectrum. Only 63 percent of the persons enumerated on Weno claimed that municipality as their legal residence -- the other 37 percent of Weno's population claimed legal residence some place else. Very few persons who claimed Weno as their legal residence lived elsewhere in Chuuk -- only 105 persons (1 percent of the total) lived in municipalities other than Weno.

The percentage for Weno was the highest of any municipality. The smallest percentage was for Losap, where only 53 percent of the population claiming Losap as legal residence actually lived there in 1989. That is, of the 887 persons claiming Losap as legal residence, only 469 actually lived there (only 4 persons living in Losap in 1989 claimed other municipalities as their legal residence.)

The tables also shows the percentage distribution for the municipalities by enumeration, legal residence, and the same. For the population by enumeration area, 31 percent were living on Weno in 1989, almost 1 out of every 3 people living in Chuuk State in 1989. However, the distribution by legal residence shows that only 1 in 5 persons claimed Weno.

These differences in distribution are important because when Chuuk redistributes its legislature, it is going to need some formula based on population, and the question will become whether it will be by place of enumeration, by legal residence, or some combination of the two. Legal residence determines the distribution.

And, other reasons exist for why these distinctions are important. When planning for schools or medical facilities or electrical or sewer systems, the government needs to know not only who is currently using these facilities, but who is likely to use these facilities in the future. If persons are only resident in municipalities on a temporary basis, rather than continuously over the longer term, planning would be done differently.

Since Weno is the usually destination for these internal migrants, it is appropriate to focus for a few minutes just on that municipality. Table 7.5 shows the distribution of persons by their legal residence, and the distribution of persons enumerated on Weno. Again, about 31 percent of Chuuk's enumerated population by legal residence was living in Weno in 1989. As noted before, also, 99 percent of Weno's legal residence population was on the island; on the other hand, these 9,353 persons were only 63 percent of the population of Weno.

Table 7.5. Chuukese population by Legal Residence and Percentage Living in Weno, Chuuk: 1989

Legal Residence	Numbers		Percent on Weno	Percent	
	Total	Weno		Total	Weno
Total.....	47,306	14,803	31.3	100.0	100.0
Weno.....	9,458	9,353	98.9	20.0	63.2
Fono.....	410	37	9.0	0.9	0.2
Tonoas.....	4,068	292	7.2	8.6	2.0
Fefen.....	4,125	242	5.9	8.7	1.6
Siis.....	516	73	14.1	1.1	0.5
Uman.....	3,210	320	10.0	6.8	2.2
Parem.....	354	11	3.1	0.7	0.1
Eot.....	320	76	23.8	0.7	0.5
Udot.....	1,682	197	11.7	3.6	1.3
Ramanum.....	719	39	5.4	1.5	0.3
Fanapanges.....	468	20	4.3	1.0	0.1
Wonei.....	1,013	117	11.5	2.1	0.8
Paata.....	1,371	90	6.6	2.9	0.6
Tol.....	5,409	566	10.5	11.4	3.8
Polle.....	1,421	92	6.5	3.0	0.6
Nama.....	1,483	560	37.8	3.1	3.8
Losap.....	887	395	44.5	1.9	2.7
Piis-Emwar.....	456	132	28.9	1.0	0.9
Namoluk.....	399	74	18.5	0.8	0.5
Ettal.....	476	70	14.7	1.0	0.5
Lukunoch.....	1,140	386	33.9	2.4	2.6
Oneop.....	881	341	38.7	1.9	2.3
Satowan.....	1,016	211	20.8	2.1	1.4
Kuttu.....	781	350	44.8	1.7	2.4
Moch.....	809	210	26.0	1.7	1.4
Ta.....	375	76	20.3	0.8	0.5
Houk.....	463	114	24.6	1.0	0.8
Polowat.....	516	37	7.2	1.1	0.2
Pollap.....	387	74	19.1	0.8	0.5
Tamatam.....	229	7	3.1	0.5	0.0
Makur.....	105	13	12.4	0.2	0.1
Onoun.....	438	14	3.2	0.9	0.1
Onou.....	89	0	0.0	0.2	0.0
Onanu.....	98	8	8.2	0.2	0.1
Piharerh.....	187	25	13.4	0.4	0.2
Nomwin.....	453	34	7.5	1.0	0.2
Fananu.....	296	46	15.5	0.6	0.3
Ruo.....	432	36	8.3	0.9	0.2
Murillo.....	366	65	17.8	0.8	0.4

Source: 1989 Census
Note: Does not include legal residence not stated

Almost 45 percent of the legal residence populations of Kuttu and Losap were living in Weno in

1989. That is, while 492 persons claiming Losap legal residence were living on Losap in 1989, another 395 were living on Weno. These are the persons who have to be considered in planning. Will these 395 persons remain on Weno indefinitely, with the government determining what electricity and water will be needed to serve them? What schools and medical clinics they will need? What recreational facilities? Or, will some or all of them eventually return to Losap, and, if so, Losap's municipal government will have to decide what services these people will need there.

A few areas showed almost no migration to Weno. No one claiming Onou legal residence lived in Weno, and only 7 persons from Tamatam were there. On the other hand, 560 persons from Nama were in Weno, and 566 from Tol. In fact, it is clear that much of the recent growth in Weno's population is attributable to these persons moving from the other municipalities to Weno.

Table 7.6 continues this discussion with a smaller, compact table. Again, 31 percent of the population claimed Weno legal residence. About 32 percent of the Mortlocks legal residence population was living in Weno, 12 percent of the Oksoritod population, and 9 percent of the "other lagoon" population.

Table 7.6. Chuukese by Legal Residence and Percentage Living in Weno, Chuuk: 1989

Legal Residence	Numbers		Percent on Weno	Percent	
	Total	Weno		Total	Weno
Total.....	47,306	14,803	31.3	100.0	100.0
Weno.....	9,458	9,353	98.9	20.0	63.2
Other lagoon.....	25,086	2,172	8.7	53.0	14.7
Mortlocks.....	8,703	2,805	32.2	18.4	18.9
Oksoritod.....	4,059	473	11.7	8.6	3.2

Source: 1989 Census
Note: Does not include legal residence not stated

While 63 percent of the Weno enumerated population was legally resident there, the rest of Weno's enumerated population was made up of "other lagoon" (15 percent), Mortlockese (19 percent), and Oksoritod residents (3 percent). The legal residence column shows the differences -- only 20 percent of Chuuk's population claimed Weno legal residence, 53 percent claimed residence in the rest of the lagoon, 18 percent claimed residence in the Mortlocks (about the same as their percentage resident on Weno), and 9 percent had legal residence in Oksoritod.

Table 7.7 compares legal residence with place of enumeration. As seen in the other tables, most of the shifts in numbers concern movement between the outlying areas (both lagoon and the outer islands), and Weno.

Table 7.7. Region of Enumeration by Region of Legal Residence, Chuuk: 1989

Region of Enumeration	Total	Legal Residence: Northern Namoneas	Southern Namoneas	Faichuk	Mortlocks	Oksoritod
Chuukese..	47,306	9,868	12,273	12,403	8,703	4,059
N. Namoneas.	15,171	9,755	939	1,197	2,806	474
S. Namoneas.	11,426	63	11,215	119	23	6
Faichuk.....	11,216	29	89	11,069	20	9
Mortlocks...	5,884	10	8	14	5,850	2
Oksoritod...	3,609	11	22	4	4	3,568

Source: 1989 Census, Table 22

Almost everyone -- 99 percent -- of those persons having Northern Namoneas as their legal residence, also had it as their place of enumeration (Table 7.8). That is, almost no one claiming Northern Namoneas as their legal residence, presumably for voting and tax purposes, lived in one of Chuuk's other regions at the time of the 1989 census.

Table 7.8. Region of Enumeration by Region of Legal Residence, Chuuk: 1989

Region of Enumeration	Total	Legal Residence: Northern Namoneas	Southern Namoneas	Faichuk	Mortlocks	Oksoritod
Chuukese..	47,306	9,868	12,273	12,403	8,703	4,059
Percent.	100.0	100.0	100.0	100.0	100.0	100.0
N. Namoneas.	32.1	98.9	7.7	9.7	32.2	11.7
S. Namoneas.	24.2	0.6	91.4	1.0	0.3	0.1
Faichuk.....	23.7	0.3	0.7	89.2	0.2	0.2
Mortlocks...	12.4	0.1	0.1	0.1	67.2	0.0
Oksoritod...	7.6	0.1	0.2	0.0	0.0	87.9

Source: 1989 Census, Table 22

At the other extreme, only 67 percent -- about 2 out of every 3 persons -- having their legal residence as the Mortlocks were actually living there. Almost all of the rest, that is about 1 in every 3 Mortlockese living in Chuuk state, were living in Northern Namoneas, most of them presumably on Weno. The other regions were in between these extremes -- about 7 in every 8 persons who legally resided in Oksoritod lived were actually residing there in 1989, most the remainder were in Northern Namoneas. And, about 9 in every 10 of those persons legally residing in Southern Namoneas or Faichuk, were actually there.

Table 7.9 shows the information in the other direction. That is, while more than 98 percent of the populations enumerated in Southern Namoneas, Faichuk, the Mortlocks, and Oksoritod had those

specific areas as legal residence, only 64 percent of those enumerated in Northern Namoneas had that region as legal residence. More than 18 percent of those enumerated in Northern Namoneas were legally resident there, as were 8 percent for Faichuk, and 6 percent for Southern Namoneas.

Table 7.9. Region of Enumeration by Region of Legal Residence, Chuuk: 1989

Region of Enumeration	Total	Percent	Legal Residence: Northern Namoneas	Southern Namoneas	Faichuk	Mortlocks	Oksoritod
Chuukese..	47,306	...	9,868	12,273	12,403	8,703	4,059
Percent.	...	100.0	20.9	25.9	26.2	18.4	8.6
N. Namoneas.	15,171	100.0	64.3	6.2	7.9	18.5	3.1
S. Namoneas.	11,426	100.0	0.6	98.2	1.0	0.2	0.1
Faichuk.....	11,216	100.0	0.3	0.8	98.7	0.2	0.1
Mortlocks...	5,884	100.0	0.2	0.1	0.2	99.4	0.0
Oksoritod...	3,609	100.0	0.3	0.6	0.1	0.1	98.9

Source: 1989 Census, Table 22

Finally, Table 7.10 shows the percentage distribution that each cell is of the total. For example, Northern Namoneas made up 20.9 percent of the legal residence population, but 32.1 percent of its population by enumeration. However, 20.6 percent of the population was <u>both</u> legally resident and had Northern Namoneas as place of enumeration. The diagonals also show 23.7 percent of the population having both for Southern Namoneas, 23.4 percent for Faichuk, 12.4 percent for the Mortlocks, and 7.5 percent for Oksoritod.

Table 7.10. Region of Enumeration by Region of Legal Residence, Chuuk: 1989

Region of Enumeration	Total	Legal Residence: Northern Namoneas	Southern Namoneas	Faichuk	Mortlocks	Oksoritod
Chuukese..	47,306	9,868	12,273	12,403	8,703	4,059
Percent..	100.0	20.9	25.9	26.2	18.4	8.6
N. Namoneas.	32.1	20.6	2.0	2.5	5.9	1.0
S. Namoneas.	24.2	0.1	23.7	0.3	0.0	0.0
Faichuk.....	23.7	0.1	0.2	23.4	0.0	0.0
Mortlocks...	12.4	0.0	0.0	0.0	12.4	0.0
Oksoritod...	7.6	0.0	0.0	0.0	0.0	7.6

Source: 1989 Census, Table 22

7.5 Duration of Residence.5 Duration of Residence.5 Duration of Residence

Data on duration of residence gives information on both short-term and long-term migration,

although it is not always possible to completely disaggregate the two, since the age of the respondent must be taken into account. That is, a child less than a year old could only show up in either the "since birth" category, or in the "less than 1 year" category; if a person indicated migrating before that, he or she should have been edited out. In any case, care must be taken in interpreting the results, especially for persons less than 10 year sold.

About 77 percent of the population of Chuuk had lived on Chuuk since birth (Table 7.11). More than 5 percent of the population lived in the place of enumeration after migrating for more than 20 years. Another 5 percent lived in the place of enumeration for less than one year.

Table 7.11. Place of Enumeration by Duration of Residence, Chuuk: 1989

Place of Enumeration	Total Number	Total Prcnt	Since Birth	Less than 1 Year	1-2 Yrs	3-4 Yrs	5-9 Yrs	10-19 Yrs	20+ Yrs
Total...	47,871	100.0	76.9	5.2	3.3	2.2	3.1	3.9	5.4
Chuuk lagoon...	38,341	100.0	78.7	5.1	3.5	2.2	2.9	3.6	4.0
N. Namoneas..	15,622	100.0	63.3	10.0	6.7	4.0	5.2	5.7	5.0
Weno.....	15,253	100.0	62.8	10.2	6.9	4.1	5.3	5.7	4.9
Fono.....	369	100.0	82.6	1.9	1.4	0.0	1.1	4.9	8.2
S. Namoneas..	11,455	100.0	89.4	1.6	1.3	0.8	1.5	2.0	3.4
Tonoas.....	3,870	100.0	85.0	2.8	1.9	1.5	2.3	2.9	3.5
Fefen.....	3,902	100.0	92.8	1.1	0.9	0.3	1.1	1.2	2.6
Siis.....	438	100.0	91.9	1.6	0.2	1.2	0.7	2.3	2.1
Uman.....	2,895	100.0	90.5	0.6	0.9	0.4	1.0	1.8	4.9
Parem.....	350	100.0	86.2	3.5	2.1	1.8	2.1	2.4	2.1
Faichuk.....	11,264	100.0	89.0	1.8	1.2	1.1	1.4	2.3	3.1
Eot.....	279	100.0	72.7	7.6	2.5	2.9	4.0	4.0	6.5
Udot.....	1,513	100.0	75.3	2.1	3.3	2.6	3.4	5.8	7.6
Ramanum....	679	100.0	74.4	5.6	2.7	3.8	3.8	5.5	4.1
Fanapanges.	447	100.0	91.3	0.0	0.7	1.8	0.7	2.0	3.6
Onei.....	874	100.0	97.7	0.4	0.3	0.3	0.4	0.5	0.5
Paata.....	1,299	100.0	88.9	2.3	0.7	0.8	2.0	2.0	3.4
Tol.....	4,846	100.0	94.3	1.4	0.7	0.4	0.4	1.1	1.7
Polle.....	1,327	100.0	90.2	1.2	1.4	0.8	1.3	2.1	3.0
Mortlocks.....	5,904	100.0	65.4	5.9	3.1	2.2	4.6	5.3	13.4
Upper.....	1,692	100.0	54.1	10.9	6.3	4.0	7.1	6.1	11.4
Nama.....	897	100.0	53.6	5.5	3.8	4.0	7.7	8.0	17.4
Losap.....	475	100.0	25.9	28.5	15.2	6.9	10.5	6.6	6.4
Piis-Emwar.	320	100.0	97.2	0.0	0.0	0.0	0.6	0.0	2.2
Mid.....	1,757	100.0	77.9	3.0	1.6	1.5	2.7	2.9	10.3
Namoluk....	310	100.0	62.1	2.6	0.3	1.9	5.2	5.2	22.7
Ettal.....	420	100.0	48.1	9.4	6.3	4.8	6.0	6.0	19.3
Kuttu.....	423	100.0	96.7	1.0	0.2	0.0	0.5	0.7	1.0
Moch.....	604	100.0	93.5	0.3	0.0	0.2	0.7	1.0	4.3
Lower.....	2,455	100.0	64.1	4.6	2.0	1.4	4.3	6.6	17.0
Lukunoch...	745	100.0	57.1	8.5	2.6	1.5	4.9	7.2	18.2
Oneop.....	534	100.0	93.8	0.8	0.9	0.4	1.1	0.8	2.3
Satowan....	885	100.0	43.0	5.1	2.8	2.4	6.7	11.3	28.8
Ta.....	291	100.0	89.9	0.3	0.3	0.3	1.4	1.7	5.9
Oksoritod.....	3,626	100.0	76.1	5.7	1.7	2.1	2.6	4.9	7.0
Western Is...	1,364	100.0	83.1	1.4	1.0	1.6	2.4	3.5	6.9
Houk.....	346	100.0	84.2	2.1	1.8	0.9	2.7	4.5	3.9
Polowat....	477	100.0	87.6	1.5	0.6	1.1	2.1	3.6	3.6
Pullop.....	315	100.0	71.4	0.6	1.6	4.4	2.5	3.2	16.2
Tamatam....	226	100.0	88.5	1.3	0.0	0.0	2.7	2.2	5.3
Namonouito...	944	100.0	75.3	14.1	1.0	1.7	2.3	2.2	3.3
Makur.....	121	100.0	80.2	0.8	0.8	1.7	7.4	3.3	5.8
Onoun.....	513	100.0	73.9	22.8	0.0	0.0	0.6	0.8	1.9
Onou.....	91	100.0	79.8	9.0	3.4	3.4	3.4	1.1	0.0
Onanu.....	80	100.0	82.3	1.3	0.0	6.3	5.1	1.3	3.8

Piherarh...	139	100.0	69.6	4.3	3.6	4.3	2.2	8.0	8.0
Hall Islands.	1,318	100.0	69.4	3.9	2.8	2.8	3.1	8.2	9.7
Nomwin.....	386	100.0	43.5	8.5	9.1	7.5	8.0	15.8	7.5
Fananu.....	238	100.0	61.2	3.8	0.0	1.3	2.1	13.1	18.6
Ruo.....	398	100.0	97.7	1.0	0.3	0.0	0.0	0.3	0.8
Murillo....	296	100.0	72.2	1.8	0.4	1.4	1.4	5.0	17.8

Source: 1989 Census, Table 24
Note: Unknown duration of residence excluded.

The table shows each region and municipality, and for the Mortlocks and Oksoritod, an intermediate level. Table 7.12 shows the data by region, for easier analysis. Persons in South Namoneas and Faichuk were most likely to remain in the place of enumeration since birth -- almost 9 out of every 10 residents of these regions were in this category. Only 63 percent of the persons living in North Namoneas were living had lived there since birth. Persons in the Mortlocks were only slightly less likely to have remained in their place of enumeration since birth -- only 65 percent of the persons living there were in the category.

Fully 10 percent -- 1 out of every 10 persons -- living in Northern Namoneas had not lived there one year before the census. Of course, it is likely that persons had come to Weno for medical or other short term reasons, and were therefore enumerated there, and would sooner or later return to other places, but the percentage is still very large. About 6 percent of those in the Mortlocks were in this category, and nearly as large percentage of those in Oksoritod.

Table 7.12. Place of Enumeration by Duration of Residence, Chuuk: 1989

Place of Enumeration	Total Number	Total Prcnt	Less Since Birth	than 1 Year	1-2 Yrs	3-4 Yrs	5-9 Yrs	10-19 Yrs	20+ Yrs
Total...	47,871	100.0	76.9	5.2	3.3	2.2	3.1	3.9	5.4
Chuuk lagoon...	38,341	100.0	78.7	5.1	3.5	2.2	2.9	3.6	4.0
N. Namoneas..	15,622	100.0	63.3	10.0	6.7	4.0	5.2	5.7	5.0
S. Namoneas..	11,455	100.0	89.4	1.6	1.3	0.8	1.5	2.0	3.4
Faichuk.....	11,264	100.0	89.0	1.8	1.2	1.1	1.4	2.3	3.1
Mortlocks.....	5,904	100.0	65.4	5.9	3.1	2.2	4.6	5.3	13.4
Oksoritod.....	3,626	100.0	76.1	5.7	1.7	2.1	2.6	4.9	7.0

Source: 1989 Census, Table 24
Note: Unknown duration of residence excluded.

Some individual islands showed patterns even more striking than those seen for the regions. Almost 98 percent of the populations of populations of Onei and Ruo, and 97 percent of the populations of Piis-Emwar and Kuttu had lived on their islands since birth. At the other extreme, only 1 in every 4 persons living on Losap had been there since birth, remarkable for its own sake, but also because the other islands in the Upper Mortlocks, Nama with 54 percent remaining on island since birth, and the aforementioned Piis-Emwar (with 97 percent) showed very different

patterns.

More than 28 percent of Losap's population had lived on the island for less than one year, the highest percentage in Chuuk in 1989. The next highest percentage was for Onoun (23 percent), which was not as surprising since Onoun has the Junior High school for Namonouito and the Western Islands. Two islands -- Fanapanges and Piis-Emwar -- had no persons living on island less than one year.

Table 7.13. Place of Enumeration by Duration of Residence, Chuuk: 1989

Place of Enumeration	Total Number	Total Prcnt	Less Since Birth	Less than 1 Year	1-2 Yrs	3-4 Yrs	5-9 Yrs	10-19 Yrs	20+ Yrs
Total...	47,871	100.0	...	22.7	14.2	9.5	13.6	16.8	23.2
Chuuk lagoon...	38,341	100.0	...	23.9	16.3	10.3	13.9	16.8	18.7
N. Namoneas..	15,622	100.0	...	27.4	18.4	11.0	14.1	15.5	13.7
Weno.....	15,253	100.0	...	27.6	18.5	11.1	14.2	15.3	13.3
Fono.....	369	100.0	...	10.9	7.8	0.0	6.3	28.1	46.9
S. Namoneas..	11,455	100.0	...	15.3	11.9	7.7	13.9	19.0	32.3
Tonoas.....	3,870	100.0	...	18.9	12.8	10.1	15.3	19.6	23.3
Fefen.....	3,902	100.0	...	14.7	12.9	4.7	15.1	16.8	35.8
Siis.....	438	100.0	...	20.0	2.9	14.3	8.6	28.6	25.7
Uman.....	2,895	100.0	...	5.8	9.5	4.0	10.2	19.0	51.5
Parem.....	350	100.0	...	25.5	14.9	12.8	14.9	17.0	14.9
Faichuk.....	11,264	100.0	...	16.8	11.3	9.9	12.8	20.8	28.3
Eot.....	279	100.0	...	27.6	9.2	10.5	14.5	14.5	23.7
Udot.....	1,513	100.0	...	8.4	13.3	10.6	13.8	23.3	30.6
Ramanum....	679	100.0	...	22.0	10.4	15.0	15.0	21.4	16.2
Fanapanges.	447	100.0	...	0.0	7.7	20.5	7.7	23.1	41.0
Onei.....	874	100.0	...	16.7	11.1	11.1	16.7	22.2	22.2
Paata.....	1,299	100.0	...	20.6	6.4	7.1	17.7	17.7	30.5
Tol.....	4,846	100.0	...	24.5	11.7	6.2	7.3	19.8	30.4
Polle.....	1,327	100.0	...	12.3	13.8	8.5	13.1	21.5	30.8
Mortlocks.....	5,904	100.0	...	17.1	9.0	6.4	13.4	15.4	38.7
Upper.....	1,692	100.0	...	23.8	13.7	8.7	15.5	13.3	24.9
Nama.....	897	100.0	...	11.9	8.3	8.5	16.5	17.3	37.5
Losap.....	475	100.0	...	38.4	20.5	9.2	14.2	9.0	8.7
Piis-Emwar.	320	100.0	...	0.0	0.0	0.0	22.2	0.0	77.8
Mid.....	1,757	100.0	...	13.8	7.3	7.0	12.2	13.0	46.8
Namoluk....	310	100.0	...	6.8	0.9	5.1	13.7	13.7	59.8
Ettal.....	420	100.0	...	18.1	12.1	9.3	11.6	11.6	37.2
Kuttu.....	423	100.0	...	28.6	7.1	0.0	14.3	21.4	28.6
Moch.....	604	100.0	...	5.1	0.0	2.6	10.3	15.4	66.7
Lower.....	2,455	100.0	...	12.8	5.7	3.9	12.0	18.4	47.3
Lukunoch...	745	100.0	...	19.7	6.1	3.5	11.5	16.9	42.4
Oneop.....	534	100.0	...	12.1	15.2	6.1	18.2	12.1	36.4
Satowan....	885	100.0	...	8.9	4.9	4.1	11.8	19.8	50.5
Ta.....	291	100.0	...	3.4	3.4	3.4	13.8	17.2	58.6
Oksoritod.....	3,626	100.0	...	23.7	7.0	8.6	11.1	20.4	29.2
Western Is...	1,364	100.0	...	8.3	6.1	9.6	14.5	20.6	40.8
Houk.....	346	100.0	...	13.2	11.3	5.7	17.0	28.3	24.5
Polowat....	477	100.0	...	11.9	5.1	8.5	16.9	28.8	28.8
Pullop.....	315	100.0	...	2.2	5.6	15.6	8.9	11.1	56.7
Tamatam....	226	100.0	...	11.5	0.0	0.0	23.1	19.2	46.2
Namonouito...	944	100.0	...	57.3	3.9	6.9	9.5	9.1	13.4
Makur.....	121	100.0	...	4.2	4.2	8.3	37.5	16.7	29.2
Onoun.....	513	100.0	...	87.3	0.0	0.0	2.2	3.0	7.5
Onou.....	91	100.0	...	44.4	16.7	16.7	16.7	5.6	0.0
Onanu.....	80	100.0	...	7.1	0.0	35.7	28.6	7.1	21.4

Piherarh...	139	100.0	...	14.3	11.9	14.3	7.1	26.2	26.2
Hall Islands.	1,318	100.0	...	12.8	9.3	9.1	10.1	27.0	31.7
Nomwin.....	386	100.0	...	15.1	16.1	13.3	14.2	28.0	13.3
Fananu.....	238	100.0	...	9.8	0.0	3.3	5.4	33.7	47.8
Ruo.....	398	100.0	...	44.4	11.1	0.0	0.0	11.1	33.3
Murillo....	296	100.0	...	6.4	1.3	5.1	5.1	17.9	64.1

Source: 1989 Census, Table 24
Note: Unknown duration of residence excluded.

Table 7.14 shows a similar table with the persons living "since birth" removed from the percentages. That is, we see only the persons who have not lived on the island since birth. Here, for example, we find that 87 percent of Onoun's population not living on the island since birth had lived on the island for less than one year. This figure also influenced the 57 percent rate for "less than one year" for all of Namonuito.

Table 7.14. Place of Enumeration by Duration of Residence, Chuuk: 1989

Place of Enumeration	Total Number	Total Prcnt	Less Since Birth	Less than 1 Year	1-2 Yrs	3-4 Yrs	5-9 Yrs	10-19 Yrs	20+ Yrs
Total...	47,871	100.0	...	22.7	14.2	9.5	13.6	16.8	23.2
Chuuk lagoon...	38,341	100.0	...	23.9	16.3	10.3	13.9	16.8	18.7
N. Namoneas..	15,622	100.0	...	27.4	18.4	11.0	14.1	15.5	13.7
S. Namoneas..	11,455	100.0	...	15.3	11.9	7.7	13.9	19.0	32.3
Faichuk.....	11,264	100.0	...	16.8	11.3	9.9	12.8	20.8	28.3
Mortlocks.....	5,904	100.0	...	17.1	9.0	6.4	13.4	15.4	38.7
Oksoritod.....	3,626	100.0	...	23.7	7.0	8.6	11.1	20.4	29.2

Source: 1989 Census, Table 24
Note: Unknown duration of residence excluded.

Table 7.14 shows these figures for the regions only. Here we find that 23 percent had average of residence for less than one year for those not living in the same place of enumeration since birth. As before, Northern Namoneas had the largest percentage, at 27 percent, Faichuk had the lowest, at 15 percent.

7.6 Short Term Migration.6 Short Term Migration.6 Short Term Migration

Besides the question on duration of residence, the 1989 Census measured short term migration with two other questions -- residence at the time of independence (10 years before the census), and residence 1 year before the census. Short term migration differs from life time migration and duration of residence because everyone is measured at exactly the same point in the past, as long as their memories are accurate. That is, when the census asks residence 10 years before the census, it only asks people 10 years or older (since they are the only ones who were alive 10 years before the

census, and, of course, still alive), but asks everyone where they were.

Table 7.15 shows data for residence 10 years before the census. The large number of "not stated" cases makes the data virtually unanalyzable. More than 4 percent of the persons 10 years and over did supply information about their place of residence at independence. So, while 94 percent of the Chuukese were reported on Chuuk 10 years before the census, it is likely that that percentage would actually be higher given the large number of unknowns.

Chuuk is not experiencing very much immigration, especially not compared to the outmigration. While only 78 persons (17 percent) of the 461 persons over 10 and not Chuukese lived on Chuuk 10 years before the census, the 461 persons were still only 1.5 percent of Chuuk's population.

Table 7.15. Chuukese 10 Years and Over by Place of Residence at Independence: 1989

Place of Residence at Independence	Numbers			Percent			Percent
	Total	Chuukese	Other	Total	Chuukese	Other	Other
Total.....	31,379	30,918	461	100.0	100.0	100.0	1.5
Chuuk.....	29,160	29,082	78	92.9	94.1	16.9	0.3
Kosrae.....	14	5	9	0.0	0.0	2.0	64.3
Pohnpei.....	259	194	65	0.8	0.6	14.1	25.1
Yap.....	52	18	34	0.2	0.1	7.4	65.4
Guam, U.S.....	362	262	100	1.2	0.8	21.7	27.6
Other Pacific Is.	153	105	48	0.5	0.3	10.4	31.4
Asia.....	41	12	29	0.1	0.0	6.3	70.7
Others.....	9	6	3	0.0	0.0	0.7	33.3
Not stated.....	1,329	1,234	95	4.2	4.0	20.6	7.1

Source: 1989 Census, Table 13

Many of the Chuukese who lived on Pohnpei and in Guam and the United States were students who returned after completing their educations. Again, the not stateds make analysis difficult.

Table 7.16 shows similar data for residence one year before the census, although here we show Chuukese only, and Weno and the rest of Chuuk separately. The not stateds, while still large, do not have as much effect on the counts as for residence 10 years before the census. Fully 98 percent of the Weno enumerated population 1 year old and over lived in Chuuk at both times, and 99 percent of the "others" lived in Chuuk. Since only 1 percent of the Chuukese moved from other places to Chuuk (again, including the not stateds), little immigration was occurring. (On the other hand, tremendous outmigration, as seen in Chapter 9, was going on at this time.)

Table 7.16. Chuukese 1 Year and Over by Place of Residence One Year Before the Census: 1989

Place of Residence 1 Year Before the Census	Numbers			Percent			Percent
	Total	Weno	Other	Total	Weno	Other	Other
Total.....	44,994	14,056	30,938	100.0	100.0	100.0	68.8
Chuuk.....	44,426	13,774	30,652	98.7	98.0	99.1	69.0
Elsewhere.....	568	282	286	1.3	2.0	0.9	50.4
Kosrae.....	1	1	0	0.0	0.0	0.0	0.0
Pohnpei.....	61	32	29	0.1	0.2	0.1	47.5
Yap.....	4	2	2	0.0	0.0	0.0	50.0
Guam, U.S.....	18	11	7	0.0	0.1	0.0	38.9
Other Pac Is...	14	9	5	0.0	0.1	0.0	35.7
Asia.....	5	0	5	0.0	0.0	0.0	100.0
Others.....	3	3	0	0.0	0.0	0.0	0.0
Not stated.....	462	224	238	1.0	1.6	0.8	51.5

Source: 1989 Census, Table 17

However, Table 7.16 does not show internal migration within Chuuk at this time. Hence, Table 7.17 was put together to show the numbers and percentages of persons who moved during the year before the census. Almost 45,000 persons 1 year old and over were in Chuuk at the census, and one year before the census. Of these, 41,109 (92 percent) were living in the same municipality in 1988 and 1989. The other 8 percent moved at least once during the interim, and were not in the same place in 1988 as 1989. Some of these people moved more than once, for example, going to Weno from an outer island, returning to their home island, and then returning to Weno again before the census. Others simply moved once. We cannot know the moves in between, only the places of residences when the two "snapshots" were taken.

Table 7.17. Residence 1 Year Ago by Residence of Enumeration: 1989

Municipality of Enumeration	Numbers			Percents			Percent Res 1yr Not=Now
	Total	Res 1yr = Now	Res 1yr Not=Now	Total	Res 1yr = Now	Res 1yr Not=Now	
Total....	44,994	41,409	3,585	100.0	100.0	100.0	8.0
Weno.....	14,056	12,574	1,482	31.2	30.4	41.3	10.5
Fono.....	348	318	30	0.8	0.8	0.8	8.6
Tonoas.....	3,680	3,498	182	8.2	8.4	5.1	4.9
Fefen.....	3,730	3,607	123	8.3	8.7	3.4	3.3
Siis.....	416	402	14	0.9	1.0	0.4	3.4
Uman.....	2,744	2,665	79	6.1	6.4	2.2	2.9
Parem.....	323	291	32	0.7	0.7	0.9	9.9
Eot.....	262	235	27	0.6	0.6	0.8	10.3
Udot.....	1,417	1,279	138	3.1	3.1	3.8	9.7
Romalum.....	650	643	7	1.4	1.6	0.2	1.1
Fanapanges....	430	420	10	1.0	1.0	0.3	2.3
Wonei.....	823	600	223	1.8	1.4	6.2	27.1
Paata.....	1,201	1,120	81	2.7	2.7	2.3	6.7
Tol.....	4,585	4,491	94	10.2	10.8	2.6	2.1
Polle.....	1,242	1,189	53	2.8	2.9	1.5	4.3
Nama.....	837	706	131	1.9	1.7	3.7	15.7
Losap.....	446	365	81	1.0	0.9	2.3	18.2
Piis-Emwar....	306	274	32	0.7	0.7	0.9	10.5
Namoluk.....	289	275	14	0.6	0.7	0.4	4.8
Ettal.....	349	254	95	0.8	0.6	2.6	27.2
Lukunoch.....	703	618	85	1.6	1.5	2.4	12.1
Oneop.....	527	490	37	1.2	1.2	1.0	7.0
Satowan.....	887	733	154	2.0	1.8	4.3	17.4
Kuutu.....	409	363	46	0.9	0.9	1.3	11.2
Moch.....	578	564	14	1.3	1.4	0.4	2.4
Ta.....	292	270	22	0.6	0.7	0.6	7.5
Houk.....	328	300	28	0.7	0.7	0.8	8.5
Polowat.....	458	428	30	1.0	1.0	0.8	6.6
Pollap.....	302	285	17	0.7	0.7	0.5	5.6
Tamatam.....	210	199	11	0.5	0.5	0.3	5.2
Makur.....	117	109	8	0.3	0.3	0.2	6.8
Onoun.....	494	402	92	1.1	1.0	2.6	18.6
Onou.....	85	63	22	0.2	0.2	0.6	25.9
Onari.....	79	71	8	0.2	0.2	0.2	10.1
Piherarh.....	129	121	8	0.3	0.3	0.2	6.2
Nomwin.....	364	343	21	0.8	0.8	0.6	5.8
Fananu.....	234	211	23	0.5	0.5	0.6	9.8
Ruo.....	382	370	12	0.8	0.9	0.3	3.1
Murilo.....	282	263	19	0.6	0.6	0.5	6.7

Source: 1989 Census, Table 17

More than 10 percent of the population of Weno in 1989 had lived elsewhere in Chuuk in 1988.

This total included persons who migrated to Weno for schooling (at the public and private schools), for jobs, and for use of hospital and other facilities on Weno. Many will return to their home islands, but the census cannot determine when that will be.

Also, of all those who did more during the year, 41 percent moved to Weno. The next largest percentages for municipalities were the 6 percent for Wonei and 5 percent for Tonoas. Some of these values have to do with traditional movements for visiting, and to attend funerals and weddings, and education and health facilities, so we need to weary about making strong statements about long term migration patterns.

But some of the movements were relatively large, given the size of the populations involved. More than 27 percent of the resident population on Wonei and on Ettal moved to those islands in the year before the census. Again, we can't tell whether large numbers of persons had been away from Ettal, for example, in 1988, and then returned before the census in 1989, or a large number of people, in this case 95 persons, decided to migrate to Ettal.

All of the municipalities changed by more than 2 percent in population during the year, although some areas, like Tol and Moch, changed very little. In any case, the tables shows the large amount of internal migration existing in Chuuk at the time of the 1989 census.

Basic Table 14 shows one other measure of migration -- usual residence. Usual residence is the place where a persons stays most of the time, and determined the residence for processing in the 1973 and 1980 censuses. Place of enumeration was used for the 1989 census. However, for Chuuk, the two values are almost identical, with only 420 persons in Chuuk in 1989 not having usual residence in Chuuk, and 218 of those had residence not stated, meaning that many, if not most, of them were also usual resident in Chuuk. Of the others, 111 were usually residing in Guam or the United States.

7.7 The Future of Chuukese Migration.7 The Future of Chuukese Migration.7 The Future of Chuukese Migration.

In Chapter 9 we will be looking at Chuukese in Guam, the Commonwealth of the Northern Mariana Islands, and the United States. This migration was occurring to a certain extent before the impact of the Compact of Free Association, as some students graduated and took jobs (often illegally) in Guam, CNMI and the United States, and some did not graduate, but stayed on anyway. Some married Americans or persons from other FSM states or other islands or countries and stayed to live and raise families outside Chuuk. Within Chuuk, many moved for the same reasons.

However, the implementation of the Compact of Free Association is likely to be the single factor most influencing Chuuk's population structure in the immediate future. So many Chuukese are leaving Chuuk to establish themselves elsewhere, that, although fertility is still sufficiently high to offset the current outmigrants, many of these migrants are the most productive (and reproductive), and it is not clear what the future structure will look like, and who will be available for the jobs in the private and public sectors, jobs needed for development, and to continue to improve Chuuk's standard of living.

> The combination of a rapidly growing population (since there is virtually no interest in family planning), extremely limited opportunities for formal sector employment (and no indication that these are likely to increase significantly or, indeed, at all) and the possibility of free out-migration from FSM is likely to become increasingly important in the future at the same time as skilled positions are filled by aliens. Although there are important constraints to out-migration (including language skills, distance and the necessity to work in unskilled, manual occupations) these are likely to be overcome in time, and this prospect is one that is not feared in the FSM. For example, as elsewhere in Micronesia, the potential 'brain-drain' of students from FSM is not a cause for deep concern. Connell (1983:58)

Thus in Chuuk there is a recognition,

> that Chuukese may not remain in or return to Chuuk. But that decision is up to the individual. If the kids want to work in Honolulu and be able to compete in the employment market, fine with me, so long as we get some benefits out of that individual. The benefits may be in terms of pride or in terms of in kind...even if they become U.S. citizens we can always get them back by offering an employment contract (Governor E. Aten, New Pacific, March-April 1981, p. 59).

CHAPTER 8. HOUSING CONDITIONSCHAPTER 8. HOUSING CONDITIONSCHAPTER 8. HOUSING CONDITIONS

Until now we have been discussing the population part of the 1989 Census of Population and Housing. In this chapter we discuss current housing conditions in Chuuk. Of all the previous censuses in Chuuk, only the 1967 Peace Corps census, and the 1980 United States decennial census included information on housing characteristics. Unfortunately, because the 1989 data were collected slightly differently, so comparisons with previous censuses are not possible; on the other hand, comparisons between areas in 1989 are presented below.

In 1989, unlike in previous years, more than one response per category was collected, coded, and processed. Hence, frequently the individual categories sum to more than 100 percent. However, if that fact is kept in mind, comparisons are still easily made.

8.1 Type of building.1 Type of building.1 Type of building

The item for Type of Building included the following categories (with directions "Main unit if more than one building for household":

- Traditional - thatch roof/thatch walls/traditional floor
- Modified traditional -thatch roof/wooden or concrete floor
- Iron roof/wooden walls and floor
- Iron roof/ wooden walls with concrete floor
- Iron roof/ concrete walls and concrete floor
- Concrete roof/ walls and floor
- Other. Describe briefly _____

Only about 6 percent of the houses in Chuuk State in 1989 were constructed in the traditional manner -- thatch walls and a thatch roof (Table 8.1). Both Faichuk and the Mortlocks had about the same percentage of houses constructed in this style. More than 3 in every 10 houses in Oksoritod were constructed traditionally, but only 3 percent of those in Southern Namoneas, and less than 1 percent of those in Northern Namoneas.

Table 8.1. Type of Building by Region, Chuuk: 1989

Region	Total	Total	Traditional	Modified	Iron/ Wood	Wood/ Conc.	Iron/ Conc.	Concrete	Other	N.S.
			Type of Building							
Total....	5,982	100.0	6.2	2.1	32.0	21.9	15.0	4.9	7.6	10.3
N. Namoneas.	1,792	100.0	0.8	0.6	35.7	23.6	16.7	7.2	4.3	11.2
S. Namoneas.	1,363	100.0	2.8	3.0	30.7	26.5	12.5	2.9	8.5	13.0
Faichuk.....	1,478	100.0	6.8	2.5	29.6	20.9	13.1	2.1	15.2	9.8
Mortlocks...	809	100.0	6.1	2.5	34.1	20.6	21.4	6.4	3.0	5.9
Oksoritod...	540	100.0	31.9	2.8	26.7	9.1	11.7	7.2	2.2	8.5

Source: 1989 Census, Table 62

Almost 1 in every 3 houses in Chuuk was constructed with wood walls and iron roofs. The percentages were slightly higher in Weno and the Mortlocks, and lower in Southern Namoneas, Faichuk, and Oksoritod. More than 1 in every 5 houses was constructed of wood and concrete, and 15 percent constructed of iron and concrete. By 1989, almost 5 percent of the houses were constructed of concrete alone -- more than 7 percent of the houses on Weno and Oksoritod, but only 2 to 3 percent in Southern Namoneas and Faichuk.

More than 44 percent of the concrete structures were in Northern Namoneas (Table 8.2). The percentage overrepresented Weno compared to all households in Chuuk. Oksoritod and the Mortlocks were also overrepresented by concrete structures, perhaps as a result of typhoons over time causing sturdier construction; frequently FEMA funding permits concrete structures.

Table 8.2. Type of Building by Region, Chuuk: 1989

Region	Total	Traditional	Modified	Iron/ Wood	Wood/ Conc.	Iron/ Conc.	Concrete	Other	N.S.
				Type of Building					
Total....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N. Namoneas.	30.0	3.8	8.1	33.4	32.3	33.2	44.3	17.0	32.5
S. Namoneas.	22.8	10.2	33.3	21.9	27.6	19.0	13.7	25.6	28.7
Faichuk.....	24.7	26.8	30.1	22.8	23.6	21.6	10.7	49.4	23.5
Mortlocks...	13.5	13.1	16.3	14.4	12.8	19.2	17.9	5.3	7.8
Oksoritod...	9.0	46.1	12.2	7.5	3.7	7.0	13.4	2.6	7.5

Source: 1989 Census, Table 62

Slightly less than half of all traditional housing in 1989 was in Oksoritod, more than 5 times its total housing representation. Only 4 percent of all traditional houses were in Northern Namoneas

compared to that region's 30 percent of all housing; also, Southern Namoneas was greatly under-represented in traditional housing.

8.2 Type of lighting in the house.2 Type of lighting in the house.2 Type of lighting in the house

The case of lighting shows clearly both the usefulness and the problems with collecting more than one response for an item. More than 87 percent of all houses in Chuuk in 1989 had lighting by kerosene light (Table 8.3). As expected, those areas with little electricity -- everywhere except Weno -- were more likely to use kerosene lighting. More than 9 out of every 10 houses outside Weno used kerosene lighting. From these data we cannot tell whether lighting was primarily by kerosene or whether kerosene was used only as a backup.

Table 8.3. Type of Lighting by Region, Chuuk: 1989

		Type of Lighting						
Region	Total	Total	Elect. Light	Gener-ator	Kero. Lamp	Solar	Other Light	Not Stated
Total.....	5,982	100.0	20.2	6.5	87.2	2.0	1.8	4.8
N. Namoneas.....	1,792	100.0	65.8	2.8	73.9	1.2	3.3	4.6
S. Namoneas.....	1,363	100.0	1.0	11.2	90.9	1.4	0.7	5.8
Faichuk.....	1,478	100.0	0.2	8.7	93.0	1.4	2.2	5.0
Mortlocks.....	809	100.0	1.1	5.4	95.9	5.2	0.4	2.8
Oksoritod.....	540	100.0	0.6	2.6	93.7	3.0	0.6	5.7

Source: 1989 Census, Table 63

We do know that many houses used more than one form of lighting because just the sum of those using electricity and kerosene was more than 100 percent. About 1 in every 5 houses in Chuuk used electricity for lighting, but the large majority of this use was in Northern Namoneas, essentially on Weno. Almost 2 or every 3 houses on Weno used electricity to light their houses, but 3 in 4 used kerosene, so there was a good deal of overlap. As expected, in all other regions, 1 percent or less lighted their houses with electricity.

The other sources of lighting were less frequently used. More than 1 in every 10 houses in Southern Namoneas used a generator for lighting, compared to only about 1 in every 16 of all houses on Chuuk. Only 2 percent of the houses used solar energy for lighting, but this was true for 5 percent of the houses in the Mortlocks (although some responses may have been for light provided by the sun directly.) About 2 percent used other sources for lighting, and about 5 percent provided no response or an uncodable response.

Almost 98 percent of houses using electricity were in Northern Namoneas (Table 8.4). Use of kerosene for lighting was more evenly divided, with Northern and Southern Namoneas, and

Faichuk each having about 1/4 of the houses using kerosene, the other 1/4 being the Mortlocks and Oksoritod, combined.

Table 8.4. Type of Lighting by Region, Chuuk: 1989

Region	Total	Type of Lighting: Electric Light	Generator	Kerosene Lamp	Solar	Other Light	Not Stated
Total.....	5,982	1,209	390	5,219	119	107	289
Percent....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N. Namoneas.....	30.0	97.6	13.1	25.4	17.6	55.1	28.4
S. Namoneas.....	22.8	1.2	39.0	23.7	16.0	8.4	27.3
Faichuk.....	24.7	0.2	33.1	26.3	17.6	30.8	25.6
Mortlocks.....	13.5	0.7	11.3	14.9	35.3	2.8	8.0
Oksoritod.....	9.0	0.2	3.6	9.7	13.4	2.8	10.7

Source: 1989 Census, Table 63

The item on lighting in the 1989 Census is both useful in itself, but also as a substitute for the usual item on electricity. Since electricity is needed to run televisions, VCRs, refrigerators, deep freezers, and air conditioners, the government of Chuuk can use these data to get ideas about current and future energy use on the islands.

8.3 Source of Water Supply.3 Source of Water Supply.3 Source of Water Supply

How houses get their water for cooking and bathing is an economic indicator. The more fresh water is available through a piped system, the more economic development possible, and the "better" the quality of life in houses.

About 1 in every 4 houses in Chuuk, and the regions of Southern Namoneas and Faichuk, gets water from a piped supply, but this is true for more than 2 of every 5 houses on Weno (Table 8.5). On the other hand, less than 1 percent of the houses in the Mortlocks (and, probably, actually none) are connected to a public water supply system. It is likely that some respondents in Oksoritod didn't understand the question since about 4 percent reported as being connected to a piped water supply.

Table 8.5. Source of Water Supply by Region, Chuuk: 1989

Region	Total	Total	Piped Supply	Own Tank	Own Well	Other Source	Not Stated
			Source of Water Supply				
Total....	5,982	100.0	24.9	45.5	31.8	15.9	7.2
N. Namoneas.	1,792	100.0	43.1	37.2	20.8	20.9	5.8
S. Namoneas.	1,363	100.0	25.2	39.0	25.5	13.6	10.5
Faichuk.....	1,478	100.0	23.7	33.1	34.9	23.5	6.8
Mortlocks...	809	100.0	0.6	85.2	46.8	2.8	4.3
Oksoritod...	540	100.0	3.5	64.1	53.1	4.3	9.3

Source: 1989 Census, Table 61

Almost half of all houses had their own tanks for water collection (and, as noted before, since respondents could respond in more than one category, many persons connected to public systems also had tanks to be used in times when the public system wasn't running, or in emergency situations.) More than 85 percent of the houses in the Mortlocks and 85 percent of those in Oksoritod used tanks to collect water, some of them because piped supplies would be impossible financially and practically to build and maintain, and others because the fresh water lens is too small to support an adequate supply of water through wells. About 3 in every 10 houses used a well (whether individual or communal), but slightly less than half of the houses in the Mortlocks and more than half of the houses in Oksoritod. Almost 1 in every 4 houses in Faichuk used some other means of getting water.

Weno was over-represented, as usual, compared to the other regions, since more than half of all houses obtaining piped supplies of water were in Northern Namoneas; the Mortlocks and Oksoritod were under-represented. On the other hand, the Mortlocks and Oksoritod were over-represented in use of tanks compared to the other areas.

Table 8.6. Source of Water Supply by Region, Chuuk: 1989

Region	Total	Source of Water Supply: Piped Supply	Own Tank	Own Well	Other Source	Not Stated
Total....	100.0	100.0	100.0	100.0	100.0	100.0
N. Namoneas.	30.0	51.8	24.5	19.6	39.2	24.1
S. Namoneas.	22.8	23.0	19.5	18.2	19.4	33.1
Faichuk.....	24.7	23.6	18.0	27.1	36.5	23.1
Mortlocks...	13.5	0.3	25.3	19.9	2.4	8.1
Oksoritod...	9.0	1.3	12.7	15.1	2.4	11.6

Source: 1989 Census, Table 61

8.4 Type of toilet facilities.4 Type of toilet facilities.4 Type of toilet facilities

The 1989 Census of Chuuk collected information on toilet facilities under the title "type of latrine." About 1 in every 10 houses on Chuuk had a flush toilet, with almost 2 in 10 on Weno, and smaller proportions in the other regions (Table 8.7). About 1 in every 3 houses had a "manual" method of disposing of waste, 1 in 5 used a "pit", and the rest either used some other method, or had no toilet facilities. About 2 in every 5 of Oksoritod houses had no toilet facilities.

Table 8.7. Type of Toilet Facilities by Region, Chuuk: 1989

Region	Total	Type of Toilet Facilities: Flush Total	Flush Toilet	Flush Manual	Other Pit	Other Latrine	No Latrine	N.S.
Total.....	5,982	100.0	9.9	33.0	20.6	14.8	15.4	8.7
N. Namoneas.....	1,792	100.0	18.6	42.5	18.9	7.4	8.6	7.7
S. Namoneas.....	1,363	100.0	7.2	26.2	22.5	14.2	20.2	11.2
Faichuk.....	1,478	100.0	8.3	24.8	23.3	22.7	15.2	7.3
Mortlocks.....	809	100.0	2.8	56.2	16.9	15.8	6.6	4.7
Oksoritod.....	540	100.0	2.6	6.5	19.6	17.8	39.3	15.2

Source: 1989 Census, Table 61

Lack of water supply and flush toilets has been connected with diseases and morbidity in the past:

> ...The social problems of urbanisation were well documented in July 1982 when sewage disposal in Chuuk lagoon contaminated seafood and resulted in a severe cholera outbreak, with a mortality rate similar to that in Kiribati...; subsequent studies revealed that only 6% of households in Weno had adequate sanitation (flush

toilets and a central water supply) (Connell 1983:7/8).

Table 8.8 shows distribution of toilet facilities by region. More than half of the flush toilets in 1989 were in Northern Namoneas, hence flush toilets were over-represented here, and under-represented in the other regions. While the Mortlocks had 13 percent of the houses in Chuuk, they had only 4 percent of the flush toilets, but 23 percent of the manual ones. Also, while Oksoritod were 9 percent of the houses, they were 23 percent of the houses in Chuuk with no toilet at all.

Table 8.8. Type of Toilet Facilities by Region, Chuuk: 1989

	Type of Toilet Facilities						
Region	Total	Flush Toilet	Manual	Other Pit Latrine		No Latrine	Not Stated
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N. Namoneas.....	30.0	56.4	38.6	27.4	14.9	16.9	26.6
S. Namoneas.....	22.8	16.6	18.1	24.9	21.9	29.9	29.5
Faichuk.....	24.7	20.7	18.5	28.0	37.9	24.4	20.8
Mortlocks.....	13.5	3.9	23.0	11.1	14.4	5.8	7.3
Oksoritod.....	9.0	2.4	1.8	8.6	10.8	23.1	15.8

Source: 1989 Census, Table 61

Flush toilets are indirect socio-economic indicators. There is usually a relationship between increased proportions of flush toilets use and other socio-economic indicators. The government of Chuuk will be looking at these data to see water use on the various islands. The data will be useful in predicting future fresh water and sewage use.

8.5 Bath or Shower at the house.5 Bath or Shower at the house.5 Bath or Shower at the house

The 1989 Census collected information on whether a house had a bath or shower, without regard to whether the bath or shower was inside or outside the house, shared with another family, or had hot and cold running water. Still, the data show that only 1 in every 5 houses had a shower or bath (Table 8.9). More than 1 in 4 houses in the Mortlocks and about 1 in 4 in Northern Namoneas had a bath or shower, but only about 1 in 6 in Faichuk and Oksoritod, and less than 1 in 8 in Southern Namoneas.

Table 8.9. Bath or Shower by Region, Chuuk: 1989

Region	Total	Bath or Shower		
		Number	Percent	Percent of Households
Total....	5,982	1,172	100.0	19.6
N. Namoneas.	1,792	450	38.4	25.1
S. Namoneas.	1,363	163	13.9	12.0
Faichuk.....	1,478	247	21.1	16.7
Mortlocks...	809	227	19.4	28.1
Oksoritod...	540	85	7.3	15.7

Source: 1989 Census, Table 64

Slightly less than 2 in every 5 houses with a bath or shower were in Weno, and about 1 in 5 each were in Faichuk and the Mortlocks.

The combination of a sink, a toilet, and a bath or shower completes the definition of complete plumbing as defined by the U.S. Bureau of the Census. But since data on sinks were not collected in the 1989 Census, comparisons with the 1980 census data cannot be made.

8.6 Appliances in the house.6 Appliances in the house.6 Appliances in the house

This section discusses common household appliances. Most common appliances require electricity to run (see the section on lights above). However, several of the appliances in Chuuk may use other sources of energy -- batteries, for example, in radios, or, much less frequently, in television, or kerosene for a refrigerator.

More than half of all houses in Chuuk in 1989 had some kind of radio, whether or electric or battery-run (Table 8.10). More than 7 in every 10 houses on Weno had a radio, about half in Southern Namoneas, slightly less than half in Faichuk, and 1/3 or less in the Mortlocks and Oksoritod. Still, the radio was by far the most common appliance in Chuukese houses.

Table 8.10. Appliances by Region, Chuuk: 1989

Region	Total	Type of Appliance: Total	Radio	Tele-vision	Video Tape Recorder	Refrig-erator	Deep Freezer
Total....	5,982	100.0	50.9	12.5	11.8	7.7	3.8
N. Namoneas.	1,792	100.0	70.5	28.9	27.6	24.3	12.1
S. Namoneas.	1,363	100.0	50.5	6.0	5.6	0.5	0.5
Faichuk.....	1,478	100.0	45.5	5.1	5.2	0.8	0.3
Mortlocks...	809	100.0	33.4	5.9	4.7	0.7	0.1
Oksoritod...	540	100.0	28.0	3.9	4.1	0.2	0.0

Source: 1989 Census, Table 64

About 1 in every 8 houses in Chuuk had a television, and slightly fewer had a video tape recorder (VCR). Here we get into the difficult area of data problems. It is highly unlikely that many houses in either the Mortlocks and Oksoritod were equipped with electricity or were close enough to obtain television, yet 48 houses in the Mortlocks and 21 houses in Oksoritod were recorded as having television. Many of these probably did not have a working television, but were recorded with one either at the enumeration or keying level, and were not edited out at computer edit. The problem is, that if an edit is created to delete spurious entries, many legitimate entries are also deleted; that is, it is possible that the Mortlocks and Oksoritod did have television, and, even if they did not, if we blanket edit out all these responses, we risk deleting valuable real information.

Similarly, while 21 houses in Oksoritod were recorded as having a television, 22 houses were recorded with a VCR; Faichuk had similar unlikely totals. These are outliers, and do not affect the results for Chuuk's planning and policy decisions with regard to likely electrical use and needs in the future.

The VCR revolution has hit the Pacific with a vengeance, and Chuuk is no exception. As Chuuk government officials are well aware, the number of houses with VCR undercounts considerably the number of persons with access to television and VCR use. The time of drinking and circles and storytelling has now passed into the new, modern era of Kung Fu and Terminator II. More than 1 in every 4 houses on Weno had a television, and only slightly fewer houses had a VCR. More houses had a VCR than had a refrigerator. More had a VCR than had a car. More had a VCR than had a motor boat.

As recorded in the 1989 census, about 6 percent of the houses in Southern Namoneas, Faichuk, and the Mortlocks had a television, about 4 percent in Oksoritod, again, some of this the result of census data problems. But, the direction of television use is clear -- more and more houses will have television in the future, and electricity will be needed for these houses to receive reception.

Only 8 percent of the houses in Chuuk in 1989 had a refrigerator. Less than 1 in every 100 houses outside Northern Namoneas had a refrigerator, but more than 1 in every 4 in Weno had one. Similarly, about 1 in every 8 houses in Weno had a deep freeze, more than double the proportion for Chuuk as a whole. As deep freezes become more common, once again the Chuuk government will have to consider how much electric power the community will need, and how it will be obtained and maintained.

Table 8.11 shows the distribution of appliances by region. About 4 in every 10 of the radios in Chuuk were on Weno, about 7 in 10 televisions (and VCRs), and more than 9 in every 10 refrigerators and deep freezes. In general, the farther away from Weno, the fewer houses with appliances, not surprising, since the farther away from Weno, the less likely a place is to have electricity, needed to run these appliances.

Table 8.11. Appliances by Region, Chuuk: 1989

	Type of Appliance					
Region	Total	Radio	Tele-vision	Video Tape Recorder	Refrig-erator	Deep Freezer
Total....	5,982	3,044	745	707	461	229
Percent.	100.0	100.0	100.0	100.0	100.0	100.0
N. Namoneas.	30.0	41.5	69.5	69.9	94.4	94.8
S. Namoneas.	22.8	22.6	11.0	10.7	1.5	3.1
Faichuk.....	24.7	22.1	10.2	10.9	2.6	1.7
Mortlocks...	13.5	8.9	6.4	5.4	1.3	0.4
Oksoritod...	9.0	5.0	2.8	3.1	0.2	0.0

Source: 1989 Census, Table 64

8.7 Means of Transportation.7 Means of Transportation.7 Means of Transportation

Of the 5,982 households in the 1989 census, 16 percent still had at least one canoe, compared to 1 percent with a sailboat (however defined), and 19 percent with a motor boat (Table 8.12). Presumably, sailboats could either be canoes or boats with sail attached, or purchased sailboats. It seems likely that the 4 percent of houses in Oksoritod with sailboats had canoes or boats with sails attached, rather than purchased sailboats.

Table 8.12. Means of Transportation by Region, Chuuk: 1989

Region	Total	Means of Transportation					
		Total	Canoe	Sailboat	Motor Boat	Truck	Car
Total	5,982	100.0	16.0	1.1	18.6	3.4	6.3
N. Namoneas	1,792	100.0	4.2	0.6	15.2	10.5	19.5
S. Namoneas	1,363	100.0	4.6	1.1	22.5	0.8	1.7
Faichuk	1,478	100.0	8.9	0.4	23.8	0.1	0.3
Mortlocks	809	100.0	59.8	1.7	15.3	0.1	0.1
Oksoritod	540	100.0	38.0	3.7	10.7	0.0	0.2

Source: 1989 Census, Table 64

The 16 percent of Chuuk houses with canoes works out to about 1 in every 6 houses. Most of the lagoon houses had much smaller proportions of housing with canoes - only about 1 in 20 to 25 for Namoneas, and 1 in 12 for Faichuk. On the other hand, almost 4 in every 10 houses in Oksoritod had canoes, and fully 6 in every 10 in the Mortlock Islands. Clearly, in these latter areas, canoes are still important for fishing, and perhaps, on occasion, for voyaging.

While 19 percent of the houses had motor boats, the percentages were larger in Southern Namoneas and Faichuk, probably for their use in fishing and getting to Weno to shop and for entertainment, but smaller in Weno, itself. Probably many of the newer, immigrant households could not afford motor boats, decreasing the percentage of houses with these boats. Also, both Oksoritod and the Mortlocks had smaller percentages with motor boats, because of the costs of initial purchase, gas and oil, and the costs of maintenance; also, as noted above, these areas are more likely to use traditional means of transportation for fishing and visiting.

Since Chuuk is made up of fairly small islands, few houses have land transportation vehicles, particularly on the smallest islands. About 3 percent of all houses in Chuuk had at least one truck and about 6 percent had at least one car. Of course, Northern Namoneas (Weno) had the largest number and percent of these vehicles. The 188 houses with a truck were 10.5 percent of the houses, and 349 (19.5 percent) had cars. In Southern Namoneas, less than 2 percent of the houses had cars, but none of the other areas had as much as 1 percent of houses with cars or trucks.

As before, Table 8.13 shows the percentages for each item by region. Although Northern Namoneas had 30 percent of the houses in Chuuk, it had more than 90 percent of the houses with trucks and cars. Conversely, while the Mortlocks had only 13 percent of the houses, they had more than 50 percent of all the houses in Chuuk with canoes; similarly, while Oksoritod constituted 9 percent of the houses, they had 21 percent of houses with canoes. Both Southern Namoneas and Faichuk were over-represented for motor boats, while the other areas were under-represented.

Table 8.13. Means of Transportation by Region, Chuuk: 1989

Region	Total	Means of Transportation				
		Canoe	Sailboat	Motor Boat	Truck	Car
Total....	5,982	958	66	1,113	202	379
Percent.	100.0	100.0	100.0	100.0	100.0	100.0
N. Namoneas.	30.0	7.8	16.7	24.5	93.1	92.1
S. Namoneas.	22.8	6.6	22.7	27.5	5.4	6.1
Faichuk.....	24.7	13.7	9.1	31.6	1.0	1.3
Mortlocks...	13.5	50.5	21.2	11.1	0.5	0.3
Oksoritod...	9.0	21.4	30.3	5.2	0.0	0.3

Source: 1989 Census, Table 64

The housing conditions shown here indirectly show socio-economic status. Houses with electricity and appliances require more electricity than those that don't have electricity; houses with motor boats use more energy in terms of gas and upkeep than those that only use canoes or sailboats; flush toilets must have a source of water, and often that water requires connection to and maintenance of a public system. As Chuuk State develops, its people must make decisions about how far and how fast to go in development -- both as a state, and at the individual housing level.

CHAPTER 9. CHUUKESE LIVING OUTSIDE CHUUKCHAPTER 9. CHUUKESE LIVING OUTSIDE CHUUKCHAPTER 9. CHUUKESE LIVING OUTSIDE CHUUK

9.1 Introduction.1 Introduction.1 Introduction

In November, 1986, the Federated States of Micronesia entered into a Compact of Free Association with the United States of America. From the beginning of the Trusteeship until that time, Chuukese had to have a valid Trust Territory of the Pacific Islands passport and an appropriate visa to enter the United States. As part of the Compact of Free Association, Chuukese and other Federated States of Micronesia citizens are entitled to enter and leave the United States without visas, can join the military, and can work as if they were United States citizens.

Also, because Guam and the Commonwealth of the Northern Mariana Islands (CNMI) were the closest United States areas, they were most likely to feel the impact of movement from the Federated States of Micronesia. The Compact directed the Department of Interior to obtain annual assessment studies. These studies would determine the financial impact on Guam, the CNMI, Hawaii, or other areas where Free Associated States persons might go. No one attempted to measure the situation before the compacts went into effect to obtain baseline. And neither the Pacific Basin Development Council who did the first annual study nor the Government of Guam which has done the subsequent study has gathered statistical data from Chuukese or other Micronesians on their social and economic conditions.

As we showed earlier, 47,376 Chuukese were living in Chuuk in 1989. The 1990 Censuses of Guam and the Commonwealth of the Northern Mariana Islands (CNMI) also collected information on Chuukese as well as numbers of persons born on Chuuk, parental birthplace, and language, all of which are indicators of "Chuukese"-ness. For the purposes of this chapter we look at persons born on Chuuk, realizing that there could be minimal numbers of Pohnpeians, Yapese, and other persons born on Chuuk but not being Chuukese, and then migrating to Guam or CNMI to be included in the 1990 censuses there.

9.2 Age and Sex.2 Age and Sex.2 Age and Sex

Table 9.1 clearly shows the difference in the distributions. Since only 1,843 persons born in Chuuk were living on Guam and another 969 were living in the CNMI, the percentage distributions are more useful for comparison. As noted earlier, the percentage distribution on Chuuk shows almost a perfect distribution for a growing population -- each successive age groups was smaller than the previous age group. More than 18 percent of the population was less than 5 years old, almost 35 percent was less than 10 years old, and almost half were less than 15. Very few of the Chuuk born living in Guam and CNMI were less than 15 -- less than 5 percent were younger than 5 years old, about 13 percent were less than 10, and only about 20 percent were less than 15. On the other hand,

about 60 percent of the emigrants were between 15 and 34 years old, with almost half being between 15 and 29 years old (or 20 and 34 years old. The distributions for Guam and the CNMI were about the same.

Table 9.1. Chuukese on Chuuk and Chuuk Born in Guam and CNMI by Age: 1989 and 1990

			Guam and CNMI					Guam and CNMI		
Age Group	Total	Chuuk	Total	Guam	CNMI	Total	Chuuk	Total	Guam	CNMI
Total...	50,188	47,376	2,812	1,843	969	100.0	100.0	100.0	100.0	100.0
0-4 yrs...	8,670	8,534	136	101	35	17.3	18.0	4.8	5.5	3.6
5-9 yrs...	8,146	7,924	222	156	66	16.2	16.7	7.9	8.5	6.8
10-14 yrs.	6,753	6,542	211	125	86	13.5	13.8	7.5	6.8	8.9
15-19 yrs.	5,336	4,978	358	222	136	10.6	10.5	12.7	12.0	14.0
20-24 yrs.	3,950	3,364	586	400	186	7.9	7.1	20.8	21.7	19.2
25-29 yrs.	3,609	3,119	490	338	152	7.2	6.6	17.4	18.3	15.7
30-34 yrs.	3,104	2,787	317	225	92	6.2	5.9	11.3	12.2	9.5
35-39 yrs.	2,646	2,469	177	102	75	5.3	5.2	6.3	5.5	7.7
40-44 yrs.	1,873	1,765	108	61	47	3.7	3.7	3.8	3.3	4.9
45-49 yrs.	1,127	1,062	65	38	27	2.2	2.2	2.3	2.1	2.8
50-54 yrs.	1,168	1,119	49	32	17	2.3	2.4	1.7	1.7	1.8
55-59 yrs.	1,041	1,014	27	17	10	2.1	2.1	1.0	0.9	1.0
60-64 yrs.	901	869	32	16	16	1.8	1.8	1.1	0.9	1.7
65-69 yrs.	758	736	22	3	19	1.5	1.6	0.8	0.2	2.0
70-74 yrs.	463	453	10	5	5	0.9	1.0	0.4	0.3	0.5
75-79 yrs.	325	324	1	1	-	0.6	0.7	0.0	0.1	0.0
80 + yrs..	141	140	1	1	-	0.3	0.3	0.0	0.1	0.0
Not stated	177	177	...	...	...	0.4	0.4	0.0	0.0	0.0
Median.....	16.3	15.6	24.1	24.0	24.3	...	...	...	...	...

Source: 1989 Census, Table 5, and 1990 Censuses, Table 46.

The median age shows these differences as well. That is, while the median age for Chuukese in Chuuk was 15.6 years in 1989, the median for the emigrants was 24.1 years, more than 8 years older. The median age for those on Guam and those in CNMI was about the same.

Table 9.2 shows a similar distribution for female Chuukese in Chuuk and female Chuuk born emigrants. The distributions are similar to the distribution for the whole population. The median age for females was somewhat less than the median for the total population, showing the earlier migration of males.

Table 9.2. Chuukese on Chuuk and Chuuk Born in Guam and CNMI by Age: 1989 and 1990

Age Group	Total	Chuuk	Guam and CNMI Total	Guam	CNMI	Chuuk	Guam and CNMI Total	Guam	CNMI
Females.	24,791	23,471	1,320	795	525	100.0	100.0	100.0	100.0
0-4 yrs...	4,103	4,045	58	44	14	16.6	17.2	4.4	5.5
5-9 yrs...	3,949	3,853	96	68	28	15.9	16.4	7.3	8.6
10-14 yrs.	3,177	3,078	99	55	44	12.8	13.1	7.5	6.9
15-19 yrs.	2,650	2,449	201	116	85	10.7	10.4	15.2	14.6
20-24 yrs.	2,016	1,730	286	171	115	8.1	7.4	21.7	21.5
25-29 yrs.	1,856	1,645	211	128	83	7.5	7.0	16.0	16.1
30-34 yrs.	1,610	1,473	137	89	48	6.5	6.3	10.4	11.2
35-39 yrs.	1,335	1,250	85	41	44	5.4	5.3	6.4	5.2
40-44 yrs.	934	881	53	29	24	3.8	3.8	4.0	3.6
45-49 yrs.	585	560	25	16	9	2.4	2.4	1.9	2.0
50-54 yrs.	621	599	22	15	7	2.5	2.6	1.7	1.9
55-59 yrs.	532	518	14	9	5	2.1	2.2	1.1	1.1
60-64 yrs.	461	444	17	8	9	1.9	1.9	1.3	1.0
65-69 yrs.	384	375	9	2	7	1.5	1.6	0.7	0.3
70-74 yrs.	254	247	7	4	3	1.0	1.1	0.5	0.5
75-79 yrs.	176	176	0	-	-	0.7	0.7	0.0	0.0
80 + yrs..	72	72	0	-	-	0.3	0.3	0.0	0.0
Not stated	76	76	0	-	-	0.3	0.3	0.0	0.0
Median....	17.1	16.5	23.6	23.3	24.0	...	...	...	...

Source: 1989 Census, Table 5, and 1990 Censuses, Table 46.

Table 9.3 shows the distribution for Chuukese males in Chuuk in 1989, and male Chuuk born emigrants in 1990. The distribution, once again, is similar to the distribution for the whole, but male emigrants were slightly older than the females, for the reasons mentioned previously. The complete distribution is presented to assist planners and policy makers needing information for the various age groups and each sex. The median age of males for Chuukese in Chuuk and Chuuk born in Guam and the CNMI was 15.6 and 1 and 1/2 years younger than the median for females. Most of the difference is attributed to males in Chuuk being that much younger than females. Males in Guam and the CNMI, in fact, were about one year older, on average than the females.

Table 9.3. Chuukese on Chuuk and Chuuk Born in Guam and CNMI by Age: 1989 and 1990

	Guam and CNMI				Guam and CNMI			
Age Group	Total	Chuuk	Total	Guam	CNMI	Total	Chuuk	Total	Guam	CNMI
Males...	25,397	23,905	1,492	1,048	444	100.0	100.0	100.0	100.0	100.0
0-4 yrs...	4,567	4,489	78	57	21	18.0	18.8	5.2	5.4	4.7
5-9 yrs...	4,197	4,071	126	88	38	16.5	17.0	8.4	8.4	8.6
10-14 yrs.	3,576	3,464	112	70	42	14.1	14.5	7.5	6.7	9.5
15-19 yrs.	2,686	2,529	157	106	51	10.6	10.6	10.5	10.1	11.5
20-24 yrs.	1,934	1,634	300	229	71	7.6	6.8	20.1	21.9	16.0
25-29 yrs.	1,753	1,474	279	210	69	6.9	6.2	18.7	20.0	15.5
30-34 yrs.	1,494	1,314	180	136	44	5.9	5.5	12.1	13.0	9.9
35-39 yrs.	1,311	1,219	92	61	31	5.2	5.1	6.2	5.8	7.0
40-44 yrs.	939	884	55	32	23	3.7	3.7	3.7	3.1	5.2
45-49 yrs.	542	502	40	22	18	2.1	2.1	2.7	2.1	4.1
50-54 yrs.	547	520	27	17	10	2.2	2.2	1.8	1.6	2.3
55-59 yrs.	509	496	13	8	5	2.0	2.1	0.9	0.8	1.1
60-64 yrs.	440	425	15	8	7	1.7	1.8	1.0	0.8	1.6
65-69 yrs.	374	361	13	1	12	1.5	1.5	0.9	0.1	2.7
70-74 yrs.	209	206	3	1	2	0.8	0.9	0.2	0.1	0.5
75-79 yrs.	149	148	1	1	0	0.6	0.6	0.1	0.1	0.0
80 + yrs..	69	68	1	1	0	0.3	0.3	0.1	0.1	0.0
Not stated	101	101	0	0	0	0.4	0.4	0.0	0.0	0.0
Median....	15.6.	14.8	24.6	24.4	24.9	...	...	...	...	...

Source: 1989 Census, Table 5, and 1990 Censuses, Table 46.

While about the same number of males as females (about 102 males for every 100 females) lived on Chuuk in 1989, the migrants were male dominated (Table 9.4). About 113 males migrated for every 100 females. It is not surprising that more males than females migrate. Traditionally, migration streams have started with single males leaving their families in one place to go to another place, establish themselves, and then bring their wives, children, then parents, and other relatives. What is surprising is the difference between the sex distribution in Guam compared to the Northern Marianas. While there were 132 males for every 100 females born on Chuuk in Guam, there were only 85 males for every 100 females born on Chuuk in the Northern Mariana Islands.

Table 9.4. Males per 100 Females for Chuukese on Chuuk and Chuuk Born in Guam and CNMI: 1989 and 1990

Age Group	Total	Chuuk	Guam and CNMI Total	Guam	CNMI
Males...	102	102	113	132	85
0-4 yrs...	111	111	134	130	150
5-9 yrs...	106	106	131	129	136
10-14 yrs.	113	113	113	127	95
15-19 yrs.	101	103	78	91	60
20-24 yrs.	96	94	105	134	62
25-29 yrs.	94	90	132	164	83
30-34 yrs.	93	89	131	153	92
35-39 yrs.	98	98	108	149	70
40-44 yrs.	101	100	104	110	96
45-49 yrs.	93	90	160	138	200
50-54 yrs.	88	87	123	113	143
55-59 yrs.	96	96	93	89	100
60-64 yrs.	95	96	88	100	78
65-69 yrs.	97	96	144	50	171
70-74 yrs.	82	83	43	25	67
75-79 yrs.	85	84	...	...	...
80 + yrs..	96	94	...	...	...
Not stated	133	133	...	...	...

Source: 1989 Census, Table 5, and 1990 Censuses, Table 46.

In the very youngest ages, Chuuk born males in the Northern Marianas predominated. Males also predominated in the older working ages -- 45 to 59 years old. However, in the "middle" years, more females than males were in the CNMI, perhaps resident as garment workers. For Guam, males predominated in these "middle" years, in fact, for most age groups, not surprising since there were 4 males for every 3 females born on Chuuk in Guam.

9.3 Marital status.3 Marital status.3 Marital status

Just as young people are more likely to migrate than older people, so are single people more likely to migrate than married people. About 55 percent of the adult males in Chuuk were married in 1989, compared to only 44 percent of the migrant adult males (Table 9.5). Only about 4 in every 10 males on Guam were married, but about half of the adult males in the CNMI were married (more were married than not married.)

Table 9.5. Chuukese in Chuuk and Chuuk Born in Guam and CNMI by Marital Status and Sex: 1989 and 1990

Sex and Marital Status	Total	Chuuk	Guam and CNMI		
			Total	Guam	CNMI
Males 15 years and over....	13,057	11,881	1,176	833	343
Percent.....	100.0	100.0	100.0	100.0	100.0
Never married.....	41.0	39.8	53.3	55.5	48.1
Now married except separated....	54.1	55.2	43.6	40.9	50.1
Separated.....	2.2	2.4	0.4	0.2	0.9
Widowed.....	2.2	2.4	0.5	0.5	0.6
Divorced.....	0.2	0.0	2.1	2.9	0.3
Not Stated.....	0.3	0.3	...	...	...

Source: 1989 Census, table 20 and 1990 Censuses, table 46.

While about the same percentage of females as males in Chuuk were married, the migrants were different. Only 43 percent of the adult female migrants were married (Table 9.6). While females on Guam were slightly less likely to be married than "never married", the females in CNMI were much less likely to be married. Considerably more than half of the adult females in CNMI were "never married."

Table 9.6. Chuukese in Chuuk and Chuuk Born in Guam and CNMI by Marital Status and Sex: 1989 and 1990

Sex and Marital Status	Total	Chuuk	Guam and CNMI		
			Total	Guam	CNMI
Females 15 years and over..	13,553	12,495	1058	628	430
Percent.....	100.0	100.0	100.0	100.0	100.0
Never married.....	32.4	30.8	51.0	47.8	55.8
Now married except separated....	54.2	55.2	42.8	46.7	37.2
Separated.....	4.8	5.1	1.6	1.3	2.1
Widowed.....	8.2	8.7	2.4	1.6	3.5
Divorced.....	0.2	0.0	2.2	2.7	1.4
Not Stated.....	0.3	0.3	...	...	...

Source: 1989 Census, Table 20 and 1990 Censuses, Table 46.

9.4 Fertility.4 Fertility.4 Fertility

The average female between 15 and 49 years old in the 1989 Chuuk census had had an average of 2.6 children (Table 9.7). As noted in the section of fertility, fertility has not decreased noticeably in

recent years. Women 40 years and older had 6 or more children. The average female emigrant in the same age groups had only 1.6 children, exactly one child less, on average. For each age, except the youngest, the average number of children per woman was less for the emigrants than for the Chuukese on Chuuk. The 7.2 children per woman for those 45 to 49 years old on Guam can be attributed to small numbers.

Table 9.7. Adult Female Chuukese in Chuuk and Chuuk Born in Guam and CNMI by Children Ever Born and Age: 1989 and 1990

			Guam and CNMI		
Age Group	Total	Chuuk	Total	Guam	CNMI
Total	2.5	2.6	1.6	1.6	1.7
15 to 19 years	0.1	0.1	0.1	0.1	0.1
20 to 24 years	0.8	0.9	0.4	0.5	0.4
25 to 29 years	2.1	2.2	1.4	1.3	1.6
30 to 34 years	3.1	3.8	3.3	3.3	3.1
35 to 39 years	5.2	5.2	4.0	4.2	3.9
40 to 44 years	6.0	6.0	5.2	4.6	6.1
45 to 49 years	6.3	6.3	6.2	7.2	4.4

Source: 1989 Census, Table 44 and 1990 Censuses, Table 46.

As would be expected, migrant women had lower fertility than those who remained on Chuuk. Females with fewer children are more mobile, even given that frequently "built-in" baby sitters are often available in Chuuk. We showed earlier in this chapter that emigrants are younger than those remaining on Chuuk, and, of course, the younger women migrants would have lower fertility.

9.5 Citizenship and Year of Entry.5 Citizenship and Year of Entry.5 Citizenship and Year of Entry

Since the migration to Guam and CNMI is so recent, most emigrants remain FSM citizens. However, by the time of the 1990 census, about 9 percent (165 persons) on Guam and 5 percent (48 persons) of those in CNMI already claimed to be United States citizens (Table 9.8). Some of these persons may be the very young offspring of Micronesian-American marriages. Of the remaining 92 percent who were not US citizens, more than half were temporarily resident in Guam or CNMI (that is, they intended to go back eventually), and less than half were intended permanent residents (they intended to stay.)

Table 9.8. Citizenship for Chuuk Born in Guam and CNMI: 1990

Citizenship	Numbers			Percent		
	Total	Guam	CNMI	Total	Guam	CNMI
Total.....	2812	1843	969	100.0	100.0	100.0
Citizen or national.....	213	165	48	7.6	9.0	5.0
Born abroad, U.S. parent(s).	99	86	13	3.5	4.7	1.3
Naturalized citizen.....	115	79	36	4.1	4.3	3.7
Not a citizen or national.....	2599	1678	921	92.4	91.0	95.0
Permanent residence.....	1110	738	372	39.5	40.0	38.4
Temporary residence.....	1489	940	549	53.0	51.0	56.7

Source: 1990 Censuses, Table 47

Table 9.9 shows that most of the migration to Guam and CNMI was recent, although the stream to CNMI was considerably longer than the stream to Guam. People have been migrating to CNMI from Chuuk throughout the century to visit relatives, and sometimes staying. More than 10 percent of the Chuuk migrants to CNMI arrived before 1980, compared to less than 5 percent for Guam.

Table 9.9. Year of Entry for Chuuk Born in Guam and CNMI: 1990

Year of Entry	Numbers			Percent		
	Total	Guam	CNMI	Total	Guam	CNMI
Total	2812	1843	969	100.0	100.0	100.0
Born in Guam or CNMI		-	-	0.0	0.0	0.0
Born outside Guam or CNMI	2812	1843	969	100.0	100.0	100.0
1990	460	340	120	16.4	18.4	12.4
1989	741	529	212	26.4	28.7	21.9
1988	505	347	158	18.0	18.8	16.3
1987	360	251	109	12.8	13.6	11.2
1986	155	102	53	5.5	5.5	5.5
1985	102	62	40	3.6	3.4	4.1
1984	80	41	39	2.8	2.2	4.0
1983	53	35	18	1.9	1.9	1.9
1982	57	30	27	2.0	1.6	2.8
1981	35	14	21	1.2	0.8	2.2
1980	75	25	50	2.7	1.4	5.2
1975 to 1979	90	39	51	3.2	2.1	5.3
1970 to 1974	49	11	38	1.7	0.6	3.9
1962 to 1969	25	9	16	0.9	0.5	1.7
1960 or 1961	4	2	2	0.1	0.1	0.2
Before 1960	21	6	15	0.7	0.3	1.5

Source: 1990 Censuses, Table 47

On the other hand, 18 percent of Guam's migrants, and 12 percent of CNMI's migrants arrived in 1990. And, more than half of the migrants from Chuuk arrived in Guam and the CNMI in the two and a half years before the census. The post-compact migration stream for Guam was both larger and stronger. Guam had a larger percentage of the total migration stream for each population in each year in the four years before the census (including the census year.) Also, the raw numbers show that the rate was picking up by the time of the census, that at the rate shown for 1990, more than 1,000 Chuuk born per year were leaving Chuuk for Guam and the CNMI. We do not yet have similar data for the United States yet, but clearly, Chuuk born are migrating there, too.

The data for females show similar trends (Table 9.10). The migration from Chuuk to Guam and CNMI is increasing in strength for females as well as the total. Many females are migrating to work in the garment factories, so the future of that particular migration stream could well depend on economic activity in the CNMI.

Table 9.10. Year of Entry for Chuuk Born in Guam and CNMI: 1990

Year of Entry	Numbers			Percent		
	Total	Guam	CNMI	Total	Guam	CNMI
Female	1320	795	525	100.0	100.0	100.0
Born in Guam or CNMI		-	-	0.0	0.0	0.0
Born outside Guam or CNMI	1320	795	525	100.0	100.0	100.0
1990	223	142	81	16.9	17.9	15.4
1989	350	231	119	26.5	29.1	22.7
1988	224	141	83	17.0	17.7	15.8
1987	174	112	62	13.2	14.1	11.8
1986	73	49	24	5.5	6.2	4.6
1985	45	23	22	3.4	2.9	4.2
1984	27	16	11	2.0	2.0	2.1
1983	26	17	9	2.0	2.1	1.7
1982	28	14	14	2.1	1.8	2.7
1981	16	4	12	1.2	0.5	2.3
1980	36	10	26	2.7	1.3	5.0
1975 to 1979	52	21	31	3.9	2.6	5.9
1970 to 1974	27	5	22	2.0	0.6	4.2
1962 to 1969	9	5	4	0.7	0.6	0.8
1960 or 1961	3	2	1	0.2	0.3	0.2
Before 1960	7	3	4	0.5	0.4	0.8

Source: 1990 Censuses, Table 47

9.6 Parental birthplace.6 Parental birthplace.6 Parental birthplace

The 1990 census asked questions on father's and mother's birthplace to obtain generational migration. So, for example, we find that 9 persons were the offspring of persons born on Guam and went to Chuuk, had these children there, and the children returned to Guam (Table 9.11). Not much of a generational return migration, but all of the numbers are small, and few people have traditionally migrated from Guam to Chuuk, in any case.

Table 9.11. Father's Place of Birth for Chuuk Born in Guam and CNMI: 1990

Father's Place of Birth	Numbers			Percents		
	Total	Guam	CNMI	Total	Guam	CNMI
Total	2,803	1,843	960	100.0	100.0	100.0
Guam	44	9	35	1.6	0.5	3.6
Palau	11	9	2	0.4	0.5	0.2
Northern Mariana Islands	7	1	6	0.2	0.1	0.6
Federated States of Micronesia	2,703	1,790	913	96.4	97.1	95.1
Chuuk	2,667	1,763	904	95.1	95.7	94.2
Kosrae	6	5	1	0.2	0.3	0.1
Pohnpei	27	20	7	1.0	1.1	0.7
Yap	2	1	1	0.1	0.1	0.1
Marshall Islands	3	3	-	0.1	0.2	0.0
Asia	33	24	9	1.2	1.3	0.9
United States	11	7	4	0.4	0.4	0.4

Source: 1990 Censuses, Table 48.

We find that 96 percent of the emigrants' fathers were born in the FSM, 95 percent having been born in Chuuk (some of those born in Pohnpei were undoubtedly Mortlockese.) All the other birthplaces contributed few persons. What is important here is to note the effect of first generation migration, that is, almost no Chuuk born had parents born elsewhere who then moved to Chuuk and then onward to Guam or CNMI. It will be interesting to look at the Chuukese by race on Guam for the 1990 census, and then on to the 2000 and later censuses to see numbers and characteristics of the immigrants and their children.

The results for mothers were even stronger. Almost 98 percent of the mothers of the Chuuk born emigrants were born in FSM, 97 percent in Chuuk. Almost none of the Chuuk emigrants had mothers born elsewhere.

Table 9.12. Mother's Place of Birth for Chuuk Born in Guam and CNMI: 1990

Mother's Place of Birth	Numbers			Percents		
	Total	Guam	CNMI	Total	Guam	CNMI
Total	2,803	1,843	960	100.0	100.0	100.0
Guam	30	7	23	1.1	0.4	2.4
Palau	9	7	2	0.3	0.4	0.2
Northern Mariana Islands	14	2	12	0.5	0.1	1.3
Federated States of Micronesia	2,736	1,807	929	97.6	98.0	96.8
Chuuk	2,717	1,793	924	96.9	97.3	96.3
Kosrae	2	1	1	0.1	0.1	0.1
Pohnpei	16	13	3	0.6	0.7	0.3
Yap	1	-	1	0.0	0.0	0.1
Marshall Islands	4	2	2	0.1	0.1	0.2
Asia	15	14	1	0.5	0.8	0.1
United States	4	4	-	0.1	0.2	0.0

Source: 1990 Censuses, Table 48.

9.7 Language Spoken at Home.7 Language Spoken at Home.7 Language Spoken at Home

Less than 100 of the migrants from Chuuk captured in the 1990 censuses of Guam and CNMI spoke English at home (Table 9.13). These 93 persons were only 3.5 percent of the Chuuk born 5 years and over. Almost 5 percent of the Chuuk born on Guam spoke English at home compared to only about one percent of those in the CNMI.

Table 9.13. Language Spoken at Home for Chuuk Born in Guam and CNMI: 1990

Language Spoken at Home	Numbers			Percent		
	Total	Guam	CNMI	Total	Guam	CNMI
Person 5 years and over.	2,676	1,742	934	100.0	100.0	100.0
Speak only English at home...	93	82	11	3.5	4.7	1.2
Speak other language at home.	2,583	1,660	923	100.0	100.0	100.0
Chamorro.....	75	52	23	2.9	3.1	2.5
Carolinian.....	92	-	92	3.6	0.0	10.0
Palauan.....	9	5	4	0.3	0.3	0.4
Chuukese.....	2,348	1,553	795	90.9	93.6	86.1
Kosraean.....	1	1	-	0.0	0.1	0.0
Marshallese.....	1	1	-	0.0	0.1	0.0
Pohnpeian.....	13	9	4	0.5	0.5	0.4
Yapese.....	1	1	-	0.0	0.1	0.0
Other Pacific languages....	8	6	2	0.3	0.4	0.2
Asian languages.....	16	13	3	0.6	0.8	0.3
Other languages.....	19	19	-	0.7	1.1	0.0

Source: 1990 Censuses, Table 49.

As would be expected, most of those who spoke a language other than English at home spoke Chuukese. Almost 94 percent of the Chuuk born in Guam who did not speak English spoke Chuukese compared to about 86 percent of those in CNMI. However, since an additional 10 percent of the Chuuk born in CNMI spoke Carolinian, essentially the same language, the percentage of Chuukese-Carolinian speakers in CNMI was actually higher than in Guam. Few Chuuk born spoke other languages at home.

Also, large majorities of Chuukese who spoke a language other than English at home spoke that language more frequently than English (Table 9.14). Here we cannot tell whether the non-English language was Chuukese, but in most cases it was. More than 85 percent of the non-English speakers in the CNMI spoke the non-English language more than English. This was true for almost 3 out of every 4 of the non-English speakers.

Table 9.14. Frequency of Language Use for Chuuk Born in Guam and CNMI: 1990

Frequency of Use	Numbers			Percent		
	Total	Guam	CNMI	Total	Guam	CNMI
Persons 5 years and over.	2676	1742	934	100.0	100.0	100.0
Speak only English at home....	93	82	11	3.5	4.7	1.2
Speak other language at home..	2583	1660	923	100.0	100.0	100.0
More frequently than English	2007	1220	787	77.7	73.5	85.3
Both equally often.....	385	300	85	14.9	18.1	9.2
Less frequently than English	126	96	30	4.9	5.8	3.3
Does not speak English.....	65	44	21	2.5	2.7	2.3

Source: 1990 Censuses, Table 49.

Another 9 percent of the CNMI Chuuk born and 18 percent of the Chuuk born on Guam spoke English and the other language equally often at home, while less than 3 percent did not speak English at all. Since the 1989 Chuuk census did not ask similar questions, no comparative data are available.

Table 9.15 looks at the same information for persons 5 to 17 only, those most likely to be in school. The results for CNMI are about the same as for the whole population. The results for Guam, however, are somewhat different. Of the 381 Chuuk born 5 to 17 years old in Guam in 1990, 29 (8 percent) spoke English at home. Of the rest, about 2 out of 3 spoke the non-English language more than English, but more than 1 in every 4 spoke English and the other language equally often at home.

Table 9.15. Frequency of Language Use for Chuuk Born in Guam and CNMI: 1990

Frequency of Use	Numbers			Percent		
	Total	Guam	CNMI	Total	Guam	CNMI
Persons 5 to 17 years....	604	381	223	100.0	100.0	100.0
Speak only English at home....	32	29	3	5.3	7.6	1.3
Speak other language at home..	574	352	222	100.0	100.0	100.0
More frequently than English	424	236	188	73.9	67.0	84.7
Both equally often.....	100	78	22	17.4	22.2	9.9
Less frequently than English	28	25	3	4.9	7.1	1.4
Does not speak English.....	22	13	9	3.8	3.7	4.1

Source: 1990 Censuses, Table 49.

9.8 Education characteristics.8 Education characteristics.8 Education characteristics

Only 698 of the Chuuk born in Guam and CNMI were enrolled in school in 1990 (Table 9.16). Of those, 43 percent were enrolled in elementary school (compared to 84 percent of school attendees in Chuuk itself), 29 percent were enrolled in high school (15 percent in Chuuk), and 25 percent were enrolled in college (less than one percent in Chuuk, but Chuuk has no tertiary schools.) About 30 percent of the Guam attendees were in college compared to only 14 percent of those in CNMI. More than half of the attendees in CNMI were in elementary school.

Table 9.16. School Enrollment for Chuukese in Chuuk and Chuuk Born in Guam and the CNMI: 1989 and 1990

			Guam and CNMI		
School Enrollment	Total	Chuuk	Total	Guam	CNMI
Persons 3 + yrs enrolled	16,282	15,584	698	476	222
Percent	100.0	100.0	100.0	100.0	100.0
Primary school	0.1	NA	2.7	2.7	2.7
Elementary school, 1st to 8th grade	82.5	84.2	43.4	40.1	50.5
High school 9th to 12th grade	15.4	14.8	28.7	26.9	32.4
College	1.6	0.5	25.2	30.3	14.4
Not stated	0.4	0.4	...	...	...

Source: 1989 Census, Table 26 and 1990 Censuses, Table 51

About 1 in every 3 adult Chuuk born in Guam and CNMI had exactly graduated from high school (Table 9.17). Chuuk born emigrants were more likely to have higher education than those living in Chuuk, partly because many left Chuuk in the first place to obtain an education. While almost 31 percent of the adults in Chuuk had no education, only 3 percent of the Chuuk born emigrants were in this category. About 3 percent of the emigrants had exactly a Bachelor's degree compared to less than 2 percent of those in Chuuk.

Table 9.17. Educational Attainment for Chuuk and Chuuk Born in Guam and the CNMI: 1989 and 1990

Educational Attainment	Total	Chuuk	Guam and CNMI		
			Total	Guam	CNMI
Persons 25 years and over	17,225	15,926	1,299	839	460
Percent	100.0	100.0	100.0	100.0	100.0
None	28.6	30.7	3.1	3.5	2.4
Elementary: 1 to 7 years	19.3	19.8	12.2	8.2	19.3
Elementary: 8 years	14.0	14.2	11.0	10.0	12.8
High School: 1 year	7.0	7.0	6.2	5.4	7.8
2 years	4.4	4.2	6.0	6.0	6.1
3 years	4.0	4.0	4.1	2.9	6.3
High school grads, incl. equivalency	12.3	10.5	33.8	34.2	33.0
Some college, no degree	1.3	NA	16.9	21.9	7.6
Associate degree, occup. program	0.7	0.6	1.3	1.7	0.7
Associate degree, academic program	4.4	4.6	1.8	2.3	1.1
Bachelors degree	1.9	1.8	3.1	3.6	2.2
Graduates or professional degree	0.3	0.3	0.5	0.5	0.7
Other and Not Stated	2.0	2.2	...	...	...

Source: 1989 Census, Table 27 and 1990 censuses, Table 51

The data shown by cumulative percent are even more revealing (Table 9.18). More than 57 percent of the adult emigrants were high school graduates (some had even more education), compared to only 18 percent of adults on Chuuk. Emigrants to Guam were better educated than those going to CNMI -- 64 percent of the emigrants to Guam were high school graduates compared to 45 percent of those in the CNMI. Similarly, about 4 percent of the emigrants had 4 year college degrees or more compared to only 2 percent in Chuuk (although the percentage with higher level degrees was about the same.)

Table 9.18. Educational Attainment for Chuuk and Chuuk Born in Guam and the CNMI: 1989 and 1990

Educational Attainment	Total	Chuuk	Guam and CNMI		
			Total	Guam	CNMI
Persons 25 years and over	17,225	15,926	1,299	839	460
None	100.0	100.0	100.0	100.0	100.0
Elementary: 1 to 7 years	70.8	68.6	96.9	96.5	97.6
Elementary: 8 years	51.1	48.3	84.8	88.3	78.3
High School: 1 year	36.9	33.8	73.7	78.3	65.4
2 years	29.8	26.6	67.5	72.9	57.6
3 years	25.3	22.3	61.5	67.0	51.5
High school grads, incl. equivalency	21.2	18.2	57.4	64.1	45.2
Some college, no degree	8.7	7.4	23.6	29.9	12.2
Associate degree, occup. program	7.4	7.4	6.8	8.0	4.6
Associate degree, academic program	6.7	6.8	5.5	6.3	3.9
Bachelors degree	2.2	2.1	3.6	4.1	2.8
Graduates or professional degree	0.3	0.3	0.5	0.5	0.7

Source: 1989 Census, Table 27 and 1990 censuses, Table 51

The 1990 Censuses of Guam and CNMI also asked questions about vocational training, and where it was received. Table 9.19 shows that about 12 percent of the Chuuk born emigrants 16 to 64 years had completed a vocational training program, 5 percent (of the total) within the area, the other 7 percent outside the area (Guam for Guam, CNMI for CNMI). Persons in CNMI were more likely to have vocational training than those in Guam, with 10 percent of the 16 to 64 year old emigrants having completed these programs outside of the CNMI (and then moved to the CNMI, perhaps the training leading to jobs in the garment industry.)

Table 9.19. Vocational Training for Chuuk Born in Guam and CNMI: 1990

Vocational Training	Numbers			Percents		
	Total	Guam	CNMI	Total	Guam	CNMI
Persons 16 to 64 years...	2166	1429	737	100.0	100.0	100.0
Completed a program.....	256	149	107	11.8	10.4	14.5
In the area.....	106	71	35	4.9	5.0	4.7
Not in the area.....	150	78	72	6.9	5.5	9.8
Did not complete a program....	1910	1280	630	88.2	89.6	85.5
Females 16 to 64 years...	1025	609	416	100.0	100.0	100.0
Completed a program.....	92	43	49	9.0	7.1	11.8
In the area.....	44	24	20	4.3	3.9	4.8
Not in the area.....	48	19	29	4.7	3.1	7.0
Did not complete a program....	933	566	367	91.0	92.9	88.2

Source: 1990 Censuses, Table 51

Females were somewhat less likely than males to have completed vocational training. Still, about 9 percent of the female emigrants in the age group did complete a vocational training program.

9.9 Labor force participation.9 Labor force participation.9 Labor force participation

About 2 of every 3 Chuuk born persons 16 years and over were in the labor force in 1990 in Guam and the CNMI. The labor force includes both civilian and armed forces employees. Since only 2 Chuuk-born persons were in the military in 1990, both in Guam, and both male, they did not affect the rates very much; unemployment rates are based on civilian labor force participation only.

Table 9.20. Labor Force Participation for Chuuk Born in Guam and CNMI: 1990

Labor Force Participation	Total			Females		
	Total	Guam	CNMI	Total	Guam	CNMI
Person 16 years and over.....	2,200	1,439	761	1,041	615	426
In labor force.....	1,485	997	488	553	314	239
Percent of persons 16 + yrs....	67.5	69.3	64.1	53.1	51.1	56.1
Civilian labor force.....	1,483	995	488	553	314	239
Employed.....	1,331	886	445	485	267	218
Also did subsistence activity	35	31	4	12	12	-
At work.....	1,306	868	438	470	257	213
35 or more hours.....	1,167	755	412	399	195	204
Percent.....	89.4	87.0	94.1	84.9	75.9	95.8
Unemployed.....	152	109	43	68	47	21
Percent of civilian labor force	10.2	11.0	8.8	12.3	15.0	8.8
Not in labor force.....	715	442	273	488	301	187
Subsistence activity only.....	7	5	2	2	1	1

Source: 1990 Censuses, Table 53.

Labor force participation on Guam was somewhat higher than the average for the two areas, in CNMI was somewhat lower. Also, female labor force participation in both areas was less than male labor force participation, although female labor force participation in CNMI was higher than in Guam, partly because of females working in the garment factories, and partly because of recency of migration making other employment difficult to obtain so soon after arriving.

Most employed persons worked 35 hours or more (full-time) in the reference week (basically, the week before the census.) More than 89 percent of the employed Chuuk born in 1990 in Guam and CNMI were working full-time, with CNMI workers even more likely to work full-time. Fully 96 percent of the Chuuk born employed females in CNMI worked full time during the reference week. Females in Guam were less likely to work full-time, with only about 3 of every 4 of them working full-time.

Both Guam and CNMI had low unemployment in 1980. Unemployment among Chuuk born was higher than the average unemployment for these islands. About 10 percent of the Chuuk born in the civilian labor force were unemployed during the reference week, with 11 percent of Guam's Chuuk born, and 9 percent in CNMI. Although the unemployment rate for females in the CNMI was the same as for the males, the unemployment rate for females in Guam was much higher than the male unemployment rate, with 15 percent of the females being unemployed.

Almost no Chuuk born did subsistence in Guam or the CNMI in 1990. Since many of migrants would have neither land to farm nor a boat for fishing, this lack of subsistence activities is not too

surprising.

Table 9.21 shows work status for all of 1989. The previous table showed labor force participation rates based on information for the week before the census enumeration. The next table shows information about activities in all of 1989. Of the 2,200 Chuuk born persons 16 years and over in the two censuses, 1,284 (58 percent) worked at some time in 1989.

Table 9.21. Work Status in 1989 for Chuuk Born in Guam and CNMI: 1990

	Total			Females		
Work Status in 1989	Total	Guam	CNMI	Total	Guam	CNMI
Persons 16 years and over.....	2,200	1,439	761	1,043	615	428
Worked in 1989.....	1,284	833	451	487	271	216
Percent.....	58.4	57.9	59.3	46.7	44.1	50.5
50 to 52 weeks.....	715	467	248	261	141	120
Percent.....	55.7	56.1	55.0	53.6	52.0	55.6
40 to 49 weeks.....	76	34	42	34	11	23
27 to 39 weeks.....	95	63	32	43	26	17
14 to 26 weeks.....	199	135	64	80	52	28
1 to 13 weeks.....	199	134	65	71	41	30
Usually worked 35 + hours per wk.	1,177	744	433	425	215	210
Percent.....	91.7	89.3	96.0	87.3	79.3	97.2
50 to 52 weeks.....	685	445	240	243	127	116
Percent.....	58.2	59.8	55.4	57.2	59.1	55.2
40 to 49 weeks.....	72	32	40	33	10	23
27 to 39 weeks.....	77	47	30	27	12	15
14 to 26 weeks.....	168	106	62	62	34	28
1 to 13 weeks.....	175	114	61	62	32	30
Usually worked 15-34 hrs per wk..	95	79	16	58	53	5
Did not work in 1989.....	916	606	310	556	344	212

Source: 1990 Censuses, Table 53.

Of these 1,284 workers, 715 (56 percent) worked 50 to 52 weeks, considered year-round work. About 200 persons worked only 14 to 26 weeks in 1989, and another 200 worked only 1 to 13 weeks, so about 1 in every 3 workers worked less than half the year in 1989. Some of these workers worked only part of the year because they were in the process of migrating. Others were students for part of the year, and worked other parts of the year. Some were just unemployed.

Of the 1,284 workers, 1,177 (92 percent) worked 35 hours per week or more, on average, when they did work, so these were the full time workers. Obviously, most Chuuk born emigrants worked full time when they worked in 1989. Of all those who worked full time (1,177 persons), 685 (58 percent) worked the whole year full time.

Chuuk born in CNMI were more likely to work in 1989 than were the Chuuk born in Guam, but the percent of those who did work and worked the whole year was about the same (56 percent for Guam compared to 55 percent for CNMI). Workers in CNMI were much more likely to work full time (35 hours or more per week) than those on Guam, but were somewhat less likely to work the whole year than the Chuuk born in Guam.

Chuuk born females were less likely to have worked in 1989 than males, although more than half of the CNMI females did work at some time in 1989. Females in CNMI were more likely than those on Guam to work the whole year, and were also more likely to work full-time. Again, some of this difference may be attributed to the garment factories, and their regular, full-time employment.

9.10 Occupation and Industry.10 Occupation and Industry.10 Occupation and Industry

Since a larger proportion of the emigrant populations were employable, larger percentages were employed. While 4,731 (19 percent) of persons 15 years and over on Chuuk were employed, 1,331 (61 percent) of the Chuuk born 16 years and over in Guam and the CNMI were employed (Table 9.22). About twice as many were employed in Guam as in CNMI, reflecting the resident Chuuk born populations in the two areas.

Table 9.22. Employed on Chuuk and Chuuk Born in Guam and CNMI by Occupation and Sex: 1989 and 1990

Occupation	Total	Chuuk	Guam and CNMI Total	Guam	CNMI
Employed persons 16 years and over.	6,062	4,731	1,331	886	445
Percent	100.0	100.0	100.0	100.0	100.0
Managerial and professional specialty...	11.4	13.4	4.5	4.1	5.4
Technical, sales, and admin. support....	29.0	32.7	15.6	13.9	19.1
Service	22.1	20.9	26.3	31.9	15.1
Farming, forestry, and fishing	2.4	1.8	4.4	6.3	0.4
Precision production, craft, and repair.	8.2	7.6	10.1	11.5	7.4
Operators, fabricators, and laborers....	25.7	22.0	39.1	32.3	52.6
Not stated	1.2	1.5	...	...	...

Source: 1989 Census, table 33, and 1990 Censuses, table 54

The data in table 9.22 were reconfigured to show comparable data from the 1989 Chuuk census and the 1990 censuses which displayed the occupation and industry data slightly differently, but which did allow for complete comparability between the two with a little redefinition. As discussed previously, almost 1 in every 3 employed persons in Chuuk were in technical, sales, and administrative support positions. More than 1 in 5 were operators, fabricators, and laborers, and

another 1 in 5 were in service occupations.

The data for Chuuk born in Guam and the CNMI were very different. Almost 2 out of every 5 migrants were operators, fabricators, and laborers, almost twice the rate for employed on Chuuk. About 1 in every 3 employed in Guam were in this category, but more than half of all employed emigrants in the CNMI were operators, fabricators, and laborers. Most of these, obviously, were garment workers, or working in other factories emerging after economic incentives from the implementation of the Commonwealth. More than 1 in 4 employed emigrants were in service industries, slightly less than 1 in 3 in Guam, and a smaller percentage even than on Chuuk for these Chuuk born emigrants in CNMI. In fact, because of the very large percentage of Chuuk born emigrants in CNMI who were operators, fabricators and laborers, most of the other major occupations had smaller percentages than for Chuuk.

Because of the recency of migration, smaller percentages of Chuuk born were in managerial and professional specialty occupations than for Chuuk. More than 13 percent of the employed in Chuuk were managers or professionals compared to less than 5 percent of the emigrants. Also, much smaller percentages of the emigrants were in technical, sales, and administrative support occupations.

Table 9.23 shows the same display for females only (males by occupation can be obtained by multiplying the percentages out, and then subtracting females from the totals.) Of the 485 employed emigrant females, about 36 percent were operators, fabricators, and laborers compared to 10 percent for employed on Chuuk. The more than 55 percent being laborers in CNMI reflects, once again, the large percentage working in garment industries. On the other hand, almost 45 percent of the females in Guam were in service industries compared to 30 percent in Chuuk and only 11 percent in CNMI and 26 percent for both sexes combined. As before, smaller percentages of female emigrants were in managerial and professional specialty occupations and technical, sales, and administrative support positions than in Chuuk.

Table 9.23. Employed on Chuuk and Chuuk Born in Guam and CNMI by Occupation and Sex: 1989 and 1990

Occupation	Total	Chuuk	Guam and CNMI Total	Guam	CNMI
Employed females 16 years and over.	1,834	1,349	485	267	218
Percent	100.0	100.0	100.0	100.0	100.0
Managerial and professional specialty...	8.8	10.5	4.3	5.2	3.2
Technical, sales, and admin. support....	39.1	44.0	25.6	27.0	23.9
Service	29.6	29.6	29.5	44.9	10.6
Farming, forestry, and fishing	0.7	0.9	0.2	0.0	0.5
Precision production, craft, and repair.	3.9	3.8	4.1	2.2	6.4
Operators, fabricators, and laborers....	17.1	10.2	36.3	20.6	55.5
Not stated	0.9	1.2	...	...	...

Source: 1989 Census, table 33, and 1990 Censuses, table 54

Table 9.24 shows data by major industry category. Once again, we reconfigured the data for Chuuk to make them compatible with the 1990 Census data. The largest percentage of employed in Chuuk were working in professional and related services -- mostly in health and education fields. For industry, janitors and cooks as well as teachers and teacher's aides appear in the education "industry." More than 36 percent of the employed in Chuuk were in professional industries compared to 7 percent of the Chuuk born emigrants. While almost 29 percent of the employed in Chuuk were in public administration -- the "paper shuffling" government workers -- only 2 percent of the employed emigrants were in public administration, partly because of lack of access. On the other hand, while less than one percent of the employed in Chuuk worked in manufacturing, more than 21 percent of the emigrants worked in this industry, including more than half of those in the CNMI (but only 6 percent of those in Guam.) Another 12 percent of the CNMI Chuuk born worked in transportation, communication, and other utilities, and 11 percent worked in personal services (such as hotel maids and bellboys.)

Table 9.24. Chuukese in Chuuk and Chuuk Born in Guam and CNMI by Industry: 1989 and 1990

Industry	Total	Chuuk	Guam and CNMI		
			Total	Guam	CNMI
Employed persons 16 years and over...	5,910	4,579	1,331	886	445
Percent.....	100.0	100.0	100.0	100.0	100.0
Agriculture.....	0.8	0.0	3.5	5.3	0.0
Forestry and fisheries.....	0.6	0.7	0.2	0.2	0.0
Mining.....	0.1	0.0	0.2	0.2	0.0
Construction.....	6.3	4.1	13.9	20.5	0.7
Manufacturing.....	5.1	0.5	21.2	6.5	50.3
Transport, communic. & other utilities.	4.5	3.6	7.7	5.6	11.7
Wholesale trade.....	1.0	0.7	2.0	2.4	1.3
Retail trade.....	17.8	16.9	20.9	26.5	9.7
Finance, insurance, and real estate....	3.1	3.5	1.9	1.7	2.2
Business services.....	1.8	1.1	4.3	5.9	1.1
Repair services.....	0.3	0.0	1.4	1.7	0.9
Personal services.....	3.8	1.3	12.3	12.9	11.2
Entertainment and recreation services..	0.8	0.5	1.7	2.4	0.4
Professional and related services.....	29.7	36.4	6.8	6.1	8.1
Public Administration.....	22.7	28.6	2.1	2.0	2.2
Not stated.....	1.5	1.9	...	...	...

Source: 1989 Census, Table 35 and 1990 Censuses, Table 55.

The largest percentage of employed Chuuk born in Guam were working in retail trade -- more than 26 percent compared to only 17 percent in Chuuk and 10 percent in CNMI. Another 1 in 5 in Guam were working in construction compared to about 1 in 25 in Chuuk.

The females showed a different pattern. While 4 in every 10 employed female workers in Chuuk were in professional or related specialties, only 1 in 10 of the emigrants were in these fields (Table 9.25). Also, like the total population less than 1 in 50 of the employed female emigrants were in public administration compared to more than 1 in 5 of those in Chuuk.

Table 9.25. Chuukese in Chuuk and Chuuk Born in Guam and CNMI by Industry: 1989 and 1990

Industry	Total Chuuk	Guam and CNMI Total	Guam	CNMI
Employed females 16 years and over	1,781 1,296	485	267	218
Percent	100.0 100.0	100.0	100.0	100.0
Agriculture	0.1 0.0	0.4	0.7	0.0
Forestry and fisheries	0.1 0.2	0.0	0.0	0.0
Mining	0.0 0.0	0.0	0.0	0.0
Construction	0.8 0.5	1.6	3.0	0.0
Manufacturing	9.3 0.3	33.4	11.6	60.1
Transport, communic. & other utilities	1.5 0.8	3.1	3.4	2.8
Wholesale trade	1.1 1.2	0.8	1.1	0.5
Retail trade	27.5 27.9	26.4	36.3	14.2
Finance, insurance, and real estate	2.9 3.1	2.3	2.6	1.8
Business services	1.7 1.8	1.6	2.6	0.5
Repair services	0.2 0.0	0.6	0.7	0.5
Personal services	6.3 2.1	17.5	24.0	9.6
Entertainment and recreation services	0.3 0.1	0.8	1.1	0.5
Professional and related services	31.8 40.0	9.9	10.5	9.2
Public Administration	15.4 20.6	1.4	2.2	0.5
Not stated	1.1 1.5	...	...	...

Source: 1989 Census, Table 35 and 1990 Censuses, Table 55.

On the other hand, almost no females in Chuuk were working in manufacturing compared to 6 in every 10 of the employed females in CNMI, and about 1 in 3 of all female emigrant workers. More than one-third of the employed females emigrants in Guam were working in retail trade compared to about 1 in 7 for CNMI, but the percentages for all emigrants and those in Chuuk were about the same. About 1 in 4 female emigrant workers in Guam were working in personal services (again, hotel and restaurant workers.)

9.11 Poverty.11 Poverty.11 Poverty

Finally, Chuuk born emigrants are poor. More than 6 out of every 10 emigrants living in Guam and the CNMI in 1990 were in poverty, as defined by the U.S. government (Table 9.26). It is important to note that persons living in group quarters and certain other persons are not considered to be part of the "poverty universe", and so are excluded from the tabulations. A larger percentage of those persons living in CNMI were in poverty than those living in Guam, but part of that has to do with the higher standard of living in Guam, so that when Chuuk born do work in Guam they make more per hour than those in CNMI, so their standard of living is automatically higher. They may pay more for rent or other necessities, but poverty is defined by income, not expenditures.

Table 9.26. Poverty status in 1989 of Chuuk born in Guam and CNMI: 1990

Poverty	Numbers			Percents		
	Total	Guam	CNMI	Total	Guam	CNMI
INCOME IN 1989 BELOW POVERTY LEVEL						
Persons	1,693	1,047	646	60.2	57.2	65.8
Related children under 18 years	735	444	291	68.5	68.2	69.0
Related children 5 to 17 years	458	276	182	65.2	65.6	64.8
Persons 65 years and over	23	6	17	67.6	60.0	70.8
RATIO OF INCOME TO POVERTY LEVEL						
Persons below 50 % of poverty level	957	617	340	34.0	33.7	34.6
Persons below poverty level	1,693	1,047	646	60.2	57.2	65.8
Persons below 125 % of poverty level	1,971	1,234	737	70.0	67.4	75.1
Persons below 185 % of poverty level	2,326	1,460	866	82.7	79.7	88.2
Related children under 18 years	971	564	407	90.5	86.6	96.4
Related children 5 to 17 years	627	360	267	89.3	85.5	95.0

Source: 1990 Censuses, Table 52.
Note: "Persons" is Persons for whom poverty status is determined.

Related children under 18 years were more even more likely to be in poverty, with those under 5 even more likely than those 5 to 17 to live in poverty. Also, more than 2 out of every 3 Chuuk born persons 65 years and over was living in poverty in 1990.

Table 9.26 also shows numbers of persons at different levels of poverty. While only about 1 in every 3 Chuuk born lived below 50 percent of poverty level, 6 in 10 lived below the poverty level, 7 in 10 below 125 percent of poverty, and more than 8 in 10 below 185 percent of poverty.

These data show that, so far, at least, Chuuk born in Guam and CNMI are far away from the American dream. Most are barely scraping by, although the statistics on poverty are somewhat misleading because poverty levels are partly determined by the number of persons in the family, which tends to skew the data for large families. And, many Chuuk born live in large families. Also, the role of subsistence and sharing is ill-defined, and cannot be measured by the census. Some good anthropological studies will offer insight in this area.

9.12 Conclusions.12 Conclusions.12 Conclusions

What do these data about the Chuuk born emigrants tell us? Well, Chuuk born in Guam and CNMI tend to be older than those in Chuuk, more male, less married, better educated, and have very

different jobs. The jobs, however, are different mainly because of the garment industry in CNMI and construction in Guam, industries not currently present in Chuuk to any large extent. The apparent success of Chuuk born workers in these industries in Guam and CNMI may help the government of Chuuk in its general thinking about economic development.

CHAPTER 10. POPULATION PROJECTIONS FOR THE YEAR 2002CHAPTER 10. POPULATION PROJECTIONS FOR THE YEAR 2002CHAPTER 10. POPULATION PROJECTIONS FOR THE YEAR 2002[15]

The projections were made using de facto population counts. No smoothing of age data was performed so that the current projection would be consistent with those of the other three states. For the same reason, the computer software ESCAPOP, though one of the simplest of programs now available, was used. The following assumptions were adopted for the various projections:

Table 10.1. Assumptions for Projections, Chuuk: 1989 to 2002

Projection	Mortality	Fertility	Migration
Projection A	Constant	Constant	Zero
Projection B	Declining	Constant	Zero
Projection C	Declining	Moderately declining	Zero
Projection D	Declining	Rapidly declining	Zero

Source: Muthiah, 1991:7

It is difficult to foresee changes in the migration levels and patterns let alone quantify the current migration levels. Hence the weakest assumption in this projection might be that of migration. However, this was the assumption on which projections for the other states also were made. In projections where mortality is assumed to decline, expectation of life is expected to increase by 3.5 years during the period of projection, namely 1989 to 2002. Moderate fertility decline is defined as a decline to TFR 4.0 in 2002 and in projections where fertility is assumed to decline rapidly, TFR declines to 3.00 in 2002 from the 1989 level of 5.87. The mean and spread of fertility were set as -.021 and 1.070 and was assumed not to change during the projection period. It is very difficult to predict how the shape of the fertility curve will change. It depends on changes in social factors as well as program factors that might evolve in the years to come.

It must be kept in view that the projected population does not refer to the mid-year population but to the population as in the middle of September that being the census date.[16]

Tables 10.2 to 10.5 provide the projected population by sex and age for the years 1989, 1990, 1995, 2000 and 2002 for each of the four scenarios. They also provide relevant demographic data for each of these years.

[15]This section written by A.C. Muthiah

[16]This is important if these population figures are used as denominators for calculating rates of any kind. In that case the figures have to be interpolated to the middle of the year.

Table 10.2. Projection A: Constant Fertility and Constant Mortality, Chuuk: 1989 to 2002

Age Group	1989	1990	1995	2000	2002
Total Population.....	47,871	49,437	58,276	69,164	74,218
Females.....	23,668	24,445	28,825	34,223	36,729
0 to 4 years.....	4,076	4,133	4,997	6,112	6,647
5 to 9 years.....	3,874	3,979	4,092	4,947	5,351
10 to 14 years.....	3,107	3,254	3,960	4,072	4,288
15 to 19 years.....	2,501	2,633	3,237	3,938	4,053
20 to 24 years.....	1,752	1,853	2,613	3,212	3,529
25 to 29 years.....	1,673	1,676	1,835	2,588	2,797
30 to 34 years.....	1,502	1,538	1,657	1,815	2,121
35 to 39 years.....	1,268	1,323	1,518	1,635	1,616
40 to 44 years.....	893	969	1,300	1,492	1,564
45 to 49 years.....	566	599	946	1,269	1,352
50 to 54 years.....	605	594	581	918	1,058
55 to 59 years.....	523	537	569	557	672
60 to 64 years.....	449	455	502	531	490
65 to 69 years.....	380	388	407	450	479
70 to 74 years.....	249	264	320	337	347
75 to 79 years.....	131	138	189	228	232
80 years or more.....	119	112	102	122	133
Males.....	24,203	24,992	29,451	34,941	37,489
0 to 4 years.....	4,528	4,566	5,181	6,338	6,892
5 to 9 years.....	4,103	4,188	4,480	5,081	5,496
10 to 14 years.....	3,510	3,648	4,151	4,440	4,581
15 to 19 years.....	2,600	2,795	3,617	4,115	4,260
20 to 24 years.....	1,669	1,796	2,761	3,573	3,797
25 to 29 years.....	1,501	1,512	1,769	2,719	3,075
30 to 34 years.....	1,346	1,365	1,486	1,737	2,094
35 to 39 years.....	1,255	1,284	1,336	1,454	1,464
40 to 44 years.....	904	982	1,251	1,302	1,362
45 to 49 years.....	520	565	955	1,216	1,232
50 to 54 years.....	532	519	545	921	1,054
55 to 59 years.....	504	508	493	518	655
60 to 64 years.....	434	440	471	456	423
65 to 69 years.....	366	376	390	418	423
70 to 74 years.....	211	231	309	321	332
75 to 79 years.....	115	113	168	223	225
80 years or more.....	105	104	88	109	124
Life expectancy, females...	67.50	67.50	67.50	67.50	67.50
Life expectancy, males.....	63.64	63.64	63.64	63.64	63.64
Sex ratio.....	102.3	102.5	102.2	102.1	102.1

TFR.....	5.87	5.87	5.87	5.87	5.87
Crude Birth Rate.....	...	39.3	40.4	41.9	42.5
Crude Death Rate.....	...	7.2	7.0	7.0	7.0
Rate of natural increase...	...	3.2	3.3	3.5	3.5

Source: Muthiah, 1991:9
Notes: Totals may not add up due to rounding of decimals in each age and sex category.

Table 10.3. Projection B: Constant Fertility and Declining Mortality, Chuuk: 1989 to 2002

Age Group	1989	1990	1995	2000	2002
Total Population.....	47,871	49,442	58,389	69,609	74,883
Females.....	23,668	24,447	28,878	34,430	37,038
0 to 4 years.....	4,076	4,134	5,022	6,189	6,752
5 to 9 years.....	3,874	3,979	4,097	4,986	5,414
10 to 14 years.....	3,107	3,255	3,962	4,082	4,309
15 to 19 years.....	2,501	2,633	3,239	3,945	4,063
20 to 24 years.....	1,752	1,853	2,615	3,219	3,540
25 to 29 years.....	1,673	1,676	1,837	2,596	2,809
30 to 34 years.....	1,502	1,539	1,659	1,821	2,132
35 to 39 years.....	1,268	1,323	1,520	1,642	1,625
40 to 44 years.....	893	969	1,302	1,498	1,574
45 to 49 years.....	566	599	947	1,275	1,360
50 to 54 years.....	605	594	582	924	1,067
55 to 59 years.....	523	537	570	562	680
60 to 64 years.....	449	455	504	537	498
65 to 69 years.....	380	388	409	457	488
70 to 74 years.....	249	264	322	343	356
75 to 79 years.....	131	137	189	231	237
80 years or more.....	119	112	102	123	134
Males.....	24,203	24,995	29,511	35,179	37,845
0 to 4 years.....	4,528	4,567	5,210	6,425	7,012
5 to 9 years.....	4,103	4,189	4,488	5,135	5,579
10 to 14 years.....	3,510	3,648	4,154	4,455	4,611
15 to 19 years.....	2,600	2,795	3,619	4,124	4,273
20 to 24 years.....	1,669	1,796	2,763	3,582	3,810
25 to 29 years.....	1,501	1,513	1,770	2,728	3,089
30 to 34 years.....	1,346	1,365	1,487	1,744	2,105
35 to 39 years.....	1,255	1,284	1,338	1,460	1,472
40 to 44 years.....	904	982	1,253	1,308	1,370
45 to 49 years.....	520	565	956	1,221	1,240
50 to 54 years.....	532	519	546	926	1,063
55 to 59 years.....	504	508	494	522	662
60 to 64 years.....	434	440	473	461	430
65 to 69 years.....	366	376	392	424	432
70 to 74 years.....	211	231	311	327	340
75 to 79 years.....	115	113	169	227	231
80 years or more.....	105	104	88	110	126
Life expectancy, females...	67.50	67.77	69.12	70.46	71.00
Life expectancy, males.....	63.64	63.91	65.25	66.60	67.14
Sex ratio.....	102.3	102.2	102.2	102.2	102.2

TFR.....	5.87	5.87	5.87	5.87	5.87
Crude Birth Rate.....	...	39.3	40.4	41.8	42.3
Crude Death Rate.....	...	7.1	6.4	5.8	5.6
Rate of natural increase...	...	3.2	3.4	3.6	3.7

Source: Muthiah, 1991:10
Notes: Totals may not add up due to rounding of decimals in each age and sex category.

Table 10.4. Projection C: Moderately Declining Fertility and Declining Mortality, Chuuk: 1989 to 2002

Age Group	1989	1990	1995	2000	2002
Total Population.....	47,871	49,420	57,467	66,043	69,597
Females.....	23,668	24,437	28,426	32,679	34,441
0 to 4 years.....	4,076	4,123	4,581	4,886	5,000
5 to 9 years.....	3,874	3,979	4,086	4,549	4,673
10 to 14 years.....	3,107	3,255	3,962	4,071	4,206
15 to 19 years.....	2,501	2,633	3,239	3,945	4,063
20 to 24 years.....	1,752	1,853	2,615	3,219	3,540
25 to 29 years.....	1,673	1,676	1,837	2,596	2,809
30 to 34 years.....	1,502	1,539	1,659	1,821	2,132
35 to 39 years.....	1,268	1,323	1,520	1,642	1,625
40 to 44 years.....	893	969	1,302	1,498	1,573
45 to 49 years.....	566	599	947	1,275	1,360
50 to 54 years.....	605	594	582	924	1,067
55 to 59 years.....	523	537	570	562	680
60 to 64 years.....	449	455	504	537	498
65 to 69 years.....	380	388	409	457	488
70 to 74 years.....	249	264	322	343	356
75 to 79 years.....	131	138	189	231	237
80 years or more.....	119	112	102	123	134
Males.....	24,203	24,983	29,041	33,364	35,156
0 to 4 years.....	4,528	4,555	4,751	5,072	5,191
5 to 9 years.....	4,103	4,189	4,477	4,684	4,816
10 to 14 years.....	3,510	3,648	4,154	4,444	4,506
15 to 19 years.....	2,600	2,795	3,619	4,124	4,273
20 to 24 years.....	1,669	1,796	2,763	3,582	3,810
25 to 29 years.....	1,501	1,513	1,770	2,728	3,089
30 to 34 years.....	1,346	1,365	1,487	1,744	2,105
35 to 39 years.....	1,255	1,284	1,338	1,460	1,472
40 to 44 years.....	904	982	1,253	1,308	1,370
45 to 49 years.....	520	565	956	1,221	1,240
50 to 54 years.....	532	519	546	926	1,063
55 to 59 years.....	504	508	494	522	662
60 to 64 years.....	434	440	473	461	430
65 to 69 years.....	366	376	392	424	432
70 to 74 years.....	211	231	311	327	340
75 to 79 years.....	115	113	169	227	231
80 years or more.....	105	104	88	110	126
Life expectancy, females...	67.50	67.77	69.12	70.46	71.00
Life expectancy, males.....	63.64	63.91	65.25	66.60	67.14
Sex ratio.....	102.3	102.2	102.2	102.1	102.1

TFR.....	5.87	5.73	5.01	4.29	4.00
Crude Birth Rate.....	...	38.8	35.4	32.6	31.4
Crude Death Rate.....	...	7.1	6.2	5.6	5.4
Rate of natural increase...	...	3.2	2.9	2.7	2.6

Source: Muthiah, 1991:11
Notes: Totals may not add up due to rounding of decimals in each age and sex category.

Table 10.5. Projection D: Rapidly Declining Fertility and Declining Mortality, Chuuk: 1989 to 2002

Age Group	1989	1990	1995	2000	2002
Total Population.....	47,871	49,408	56,973	64,082	66,770
Females.....	23,668	24,431	28,183	31,743	33,054
0 to 4 years.....	4,076	4,117	4,344	4,189	4,063
5 to 9 years.....	3,874	3,979	4,080	4,315	4,277
10 to 14 years.....	3,107	3,255	3,962	4,066	4,151
15 to 19 years.....	2,501	2,633	3,239	3,945	4,063
20 to 24 years.....	1,752	1,853	2,615	3,219	3,540
25 to 29 years.....	1,673	1,676	1,837	2,596	2,809
30 to 34 years.....	1,502	1,539	1,659	1,821	2,132
35 to 39 years.....	1,268	1,323	1,520	1,642	1,625
40 to 44 years.....	893	969	1,302	1,498	1,574
45 to 49 years.....	566	599	947	1,275	1,360
50 to 54 years.....	605	594	582	924	1,067
55 to 59 years.....	523	537	570	562	680
60 to 64 years.....	449	455	504	537	498
65 to 69 years.....	380	388	409	457	488
70 to 74 years.....	249	264	322	343	356
75 to 79 years.....	131	138	189	231	237
80 years or more.....	119	112	102	123	134
Males.....	24,203	24,977	28,790	32,339	33,716
0 to 4 years.....	4,528	4,549	4,506	4,348	4,217
5 to 9 years.....	4,103	4,189	4,471	4,443	4,407
10 to 14 years.....	3,510	3,648	4,154	4,438	4,449
15 to 19 years.....	2,600	2,795	3,619	4,124	4,273
20 to 24 years.....	1,669	1,796	2,763	3,528	3,810
25 to 29 years.....	1,501	1,513	1,770	2,728	3,089
30 to 34 years.....	1,346	1,365	1,487	1,744	2,105
35 to 39 years.....	1,255	1,284	1,338	1,460	1,472
40 to 44 years.....	904	982	1,253	1,308	1,370
45 to 49 years.....	520	565	956	1,221	1,240
50 to 54 years.....	532	519	546	926	1,063
55 to 59 years.....	504	508	494	522	662
60 to 64 years.....	434	440	473	461	430
65 to 69 years.....	366	376	392	424	432
70 to 74 years.....	211	231	311	327	340
75 to 79 years.....	115	113	169	227	231
80 years or more.....	105	104	88	110	126
Life expectancy, females...	67.50	67.77	69.12	70.46	71.00
Life expectancy, males.....	63.64	63.91	65.25	66.60	67.14
Sex ratio.....	102.3	102.2	102.1	102.1	102.0

TFR.....	5.87	5.65	4.55	3.44	3.00
Crude Birth Rate.....	...	38.6	32.7	27.2	24.9
Crude Death Rate.....	...	7.1	6.1	5.5	5.3
Rate of natural increase...	...	3.2	2.7	2.2	2.0

Source: Muthiah, 1991:12
Notes: Totals may not add up due to rounding of decimals in each age and sex category.

Chapter 11. ConclusionsChapter 11. ConclusionsChapter 11. Conclusions

This monograph has described historical and current census statistics for Chuuk State, based on the 1989 Census. We have tried to present the reader with information which can be used for economic planning and policy decisions. We have tried not to dictate how these data are to be used.

The report was divided roughly into sections following the order of items on the 1989 question: Chapter 1 on historical census information, Chapters 2 on the taking of the census, Chapter 3 on geographical distribution of the population, Chapters 4, 5, and 6 on demographic, social, and economic characteristics, Chapter 7 on migration, Chapter 8 on housing conditions, Chapter 9 on Chuukese outside Chuuk, and Chapter 10 on population projections.

Chuuk has seen many changes in the three years since the census. The pull of Guam and the CNMI for many of Chuuk's young people has been accelerating, rather than diminishing. In fact, not only are young people going to Guam and CNMI, but it is clear that many children and older people are also getting on the wagon trains as they leave the islands. The next census will probably find a very different snapshot of Chuuk's population.

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