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**Income Distribution and Poverty
Alleviation for the Native Hawaiian
Community**

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Abstract¹

Since 2000, Hawaii's economy has done relatively well over time and the state's per capita personal income is higher than the U.S. level both. Hawaii's poverty rate is also lower than the mainland's. But in the midst of this prosperity, Native Hawaiians have substantially higher poverty rates. This study examines income distribution and its relation to poverty by using the Lorenz Curve, Gini Coefficient and Kuznets Ratio.

First, our research reveals that poverty rates are higher and per capita income lower among Native Hawaiians although income distribution among Hawaiians has been about the same as it is for non-Hawaiian groups. An interesting finding is that income distribution at the household and family level is substantially better than at the individual level for Native Hawaiians. This may reflect the sense of family and community that Hawaiian's call the Ohana spirit.

An examination of the income component reveals that income and savings are very low among Native Hawaiians, making it difficult for them to borrow capital from private banks and start business. Possible factors for low income could be the ratio of Native Hawaiians graduating from business, science and technology majors are lower than other groups and Native Hawaiian run business' income as well as number of businesses is much lower than the State average.

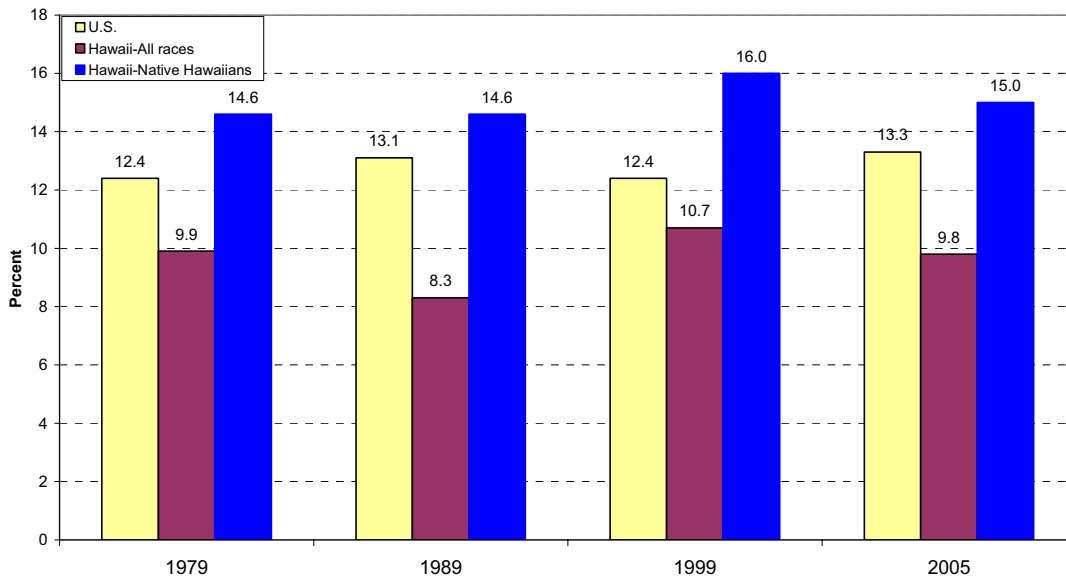
Finally, this study concludes by considering micro-finance concepts created by the Grameen Bank as one possible solution to allowing Native Hawaiians to participate more in business and increase income levels.

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I. Introduction: Poverty and Economic Growth

When I was doing research to prepare this presentation, two articles appeared in the local newspapers in April of this year which caught my attention. First, the State of Hawaii has the largest percentage of millionaires in terms of households in the United States. Of a total 433,434 households units in Hawaii, 29,423, or 6.8% of households are millionaires (the US average is only 4.8%). They are defined as people with more than \$ 1 million in cash, stock, bonds, mutual funds and annuities. This statistic does not include the value of houses they own.

Figure 1. Percent of Population Under Poverty



Source: U.S. Census Bureau, Decennial Census; 2005 American Community Survey.

The second article that caught my attention is that Hawaii ranks low in the percentage of people living in poverty. As shown in Figure 1, the poverty rate in Hawaii

is 9.8%, which is lower than the national average of 13.3%.² These statistics point to the fact that Hawaii has done well and we can be proud of this accomplishment. But this seemingly good average figure conceals the pattern of a wide intercommunity difference in the State of Hawaii. The average statistic is no comfort when we examine the case of Native Hawaiians³.

In the midst of prosperity in Hawaii, poverty remains the major obstacle and challenge to the Native Hawaiians and the State of Hawaii. As shown in Figure 1, the poverty rate for the Native Hawaiians was 15% in 2005, which was substantially higher than the State average of 9.8%. If looking at the group of people under poverty for the State, 27% of them are Native Hawaiians, a staggering number.

Table 1 presents Household, Family and per capita income levels for the Non-Native Hawaiians and Native Hawaiians for 1979, 1989, 1999 and 2005(also, poverty rates of families and individuals). Hawaii's economy has done relatively well, including Native Hawaiians, about 4.5% average annual growth rate in per capita income between 1979 and 2005 for both. But during this 26-year period, the relative position has not. The per capita income for Native Hawaiians was only \$16,932 for 2005, which is much lower than the State average of \$25,326 or 66.9% of the State average, falling from 73.1% in 1979. However, the Household and Family income comparison is somewhat more favorable than per capita income comparison, but the gap is still widening.

² Poverty rate is the measure of people who are unable to command sufficient resources to satisfy basic needs or the number of people living below a specified minimum income level, defined as \$11,010 for a single person and \$22,260 for a family of four in 2005.

³ As defined by the U.S. Census Bureau. In 1980 and 1990 Census, people can chose only one race while since 2000, people can chose multiple races. Census Bureau also changed "Hawaiian" to "Native Hawaiian" in 2000 Census.

Despite high economic growth, high poverty lingers on. It is commonly cited in literature that economic growth is important in reducing poverty. But as in many cases in the world, high economic growth is no guarantee of lower levels of poverty. What is needed is to understand economic characteristics of poor groups. We must examine how economic growth is achieved, how it is shared by different groups and what policies are adopted to alleviate poverty. It is important to assess how income distribution is related to absolute poverty and then design and implement programs to combat poverty.

Table 1. Income and Poverty - Native Hawaiians 1979 – 2005

Native Hawaiians	1979	1989	1999	2005*
Median household income (\$)	19,603	36,135	45,381	52,310
Median family income (\$)	20,184	37,960	49,282	56,449
Per capita income (\$)	5,661	10,596	14,199	16,932
Poverty rate of families (%)	13.4	14.1	14.1	14.9
Poverty rate of individuals (%)	14.6	14.6	16.0	15.0
Statewide	1979	1989	1999	2005
Median household income (\$)	20,473	38,829	49,820	58,112
Median family income (\$)	22,750	43,176	56,961	66,472
Per capita income (\$)	7,740	15,770	21,525	25,326
Poverty rate of families (%)	7.8	6.0	7.6	7.7
Poverty rate of individuals (%)	9.9	8.3	10.7	9.8
Native Hawaiian As % of State	1979	1989	1999	2005
Median household income	95.8	93.1	91.1	90.0
Median family income	88.7	87.9	86.5	84.9
Per capita income	73.1	67.2	66.0	66.9
Poverty rate of families	171.8	234.7	183.9	193.5
Poverty rate of individuals	147.5	175.3	149.9	153.1

Source: U.S. Census Bureau, Decennial Census and 2005 American Community Survey.

Note: Native Hawaiian as defined by the Census Bureau. In 1980 and 1990 Census, people chose only one race while since 2000, people could choose multiple races. Census Bureau also changed "Hawaiian" to "Native Hawaiian" in 2000 Census.

Native Hawaiians include Native Hawaiian alone or in any combination.

* Numbers were derived from the 2005 American Community Survey which covers about 1% of Hawaii's total population and households. Numbers subject to sampling errors.

Income Distribution and Poverty

For this objective, I have examined two measures which are commonly used to test income distribution: First is the personal or size distribution of income, from which we derive the Lorenz Curve and Gini Coefficient and second is the Kuznets Ratio. For this I had to handle a massive amount of data for household, family and individual income data.

Table 2⁴ lists size of three types of demographic measures for the Native Hawaiians and the State total. Income computations are done for all three, though only summary results are presented. I apologize for the use of some technical terms in my analysis. I will simplify this technical aspect as it will be boring to many and focus more on findings.

Table 2. Selected Demographic Indicators for Native Hawaiians:2005

	State Total	Native Hawaiian	% of Native Hawaiian
Population*	1,238,158	246,515	19.9
Household	430,007	57,818	13.4
Families	305,735	45,965	15.0

*Based on household population which excludes those in group quarters comprising about 37,700 in State total and 4,200 Native Hawaiians in 2005

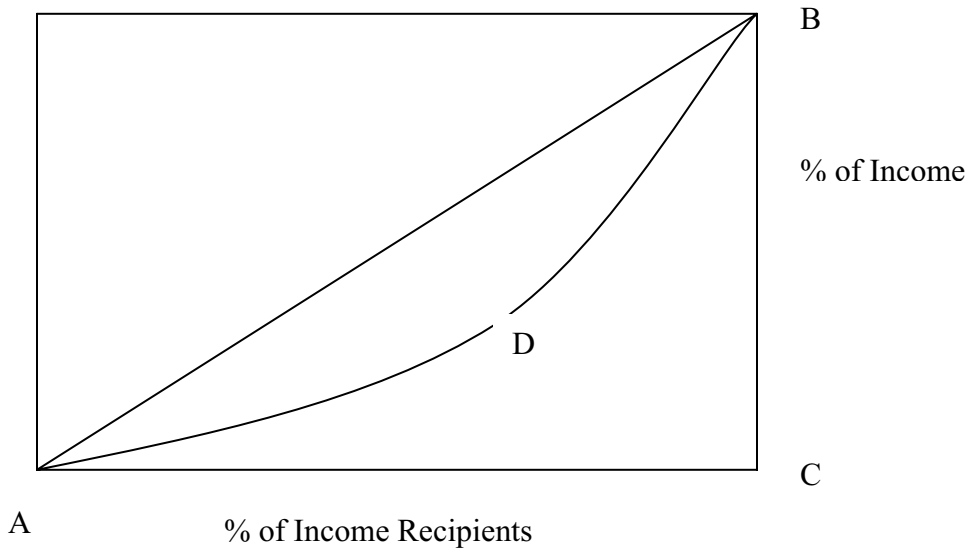
Source: Tabulated from U.S. Census Bureau, 2005 American Community Survey PUMS file.

The personal income distribution method is probably the most commonly used measure for this type of evaluation. It divides the income recipients into different income

⁴ A household consists of all the people who occupy a housing unit, A household includes the related family members and all the unrelated people, if any, such as lodgers, foster children, wards, or employees who share the housing unit. A person living alone in a housing unit, or a group of unrelated people sharing, a housing unit such as partners or roomers, is also counted as a household. The count of households excludes group quarters. There are two major categories of households, "family" and "nonfamily". A family is a group of two people or more (one of whom is the householder) related by birth, marriage, or adoption and residing together; all such people (including related subfamily members) are considered as members of one family. Family is a subset of households

groups according to ascending income levels and determines the percent of total income received by each group. From this we can derive the Lorenz Curve. For this, the number of income recipients is arranged on the horizontal axis in a cumulative percentage. The vertical axis plots the share of total income received by corresponding percent of the number of income earners. To measure how equal or how unequal income distribution from the Lorenz Curve, as shown in hypothetical chart below, the Gini Coefficient is calculated.

Figure 2. Lorenz Curve



The Gini Coefficient is a summary measure that expresses the degree of overall equality or inequality present in an income distribution and ranges from 0 to 1. The shape of the Lorenz curve indicates the degree of equality and inequality in the income distribution. In an unrealistic case of perfect equality where everyone receives exactly the same income, the Lorenz Curve is the diagonal line (AB) and the Gini is 0. The other unrealistic extreme of perfect inequality is reached when the richest groups receive all income and none is distributed to other groups. In the case, the curve would be ACB and

the Gini would be 1. When policies and measures are successfully adopted to improve income equality, the Lorenz Curve will move towards the diagonal line. If the Gini number is in the range of .20 to .35, this income distribution is regarded as relatively equal while the number in the range of .50 to .70, it is regarded as relatively unequal.

A second and simpler test of income equality or inequality is the ratio of the income received by the top 20% to the bottom 40% of the population (known as the Kuznets Ratio). The higher the ratio, the more the income is earned by the rich income group.

We have estimated Gini Coefficients and Kuznets ratio for the household income, family income and personal income for both Native Hawaiians and Non-Native Hawaiians and results are shown in Table 3. I am pleased to report our main conclusion, Hawaii has relatively equal income distribution for both Native and Non-Native Hawaiian groups, though the Gini Coefficient is a little on the higher side.

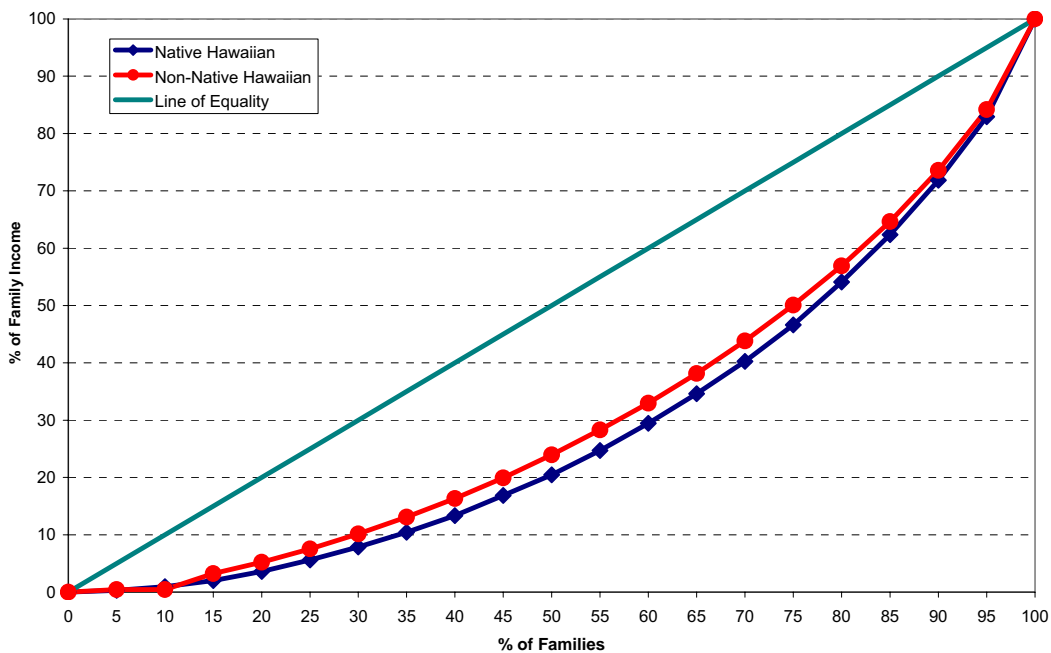
Table 3. Gini Coefficients and Kuznets Ratio: 2005

Race Group	Gini Coefficient		
	Household Income	Family Income	Personal Income
Native Hawaiian	0.416	0.425	0.409
Non-Native Hawaiian	0.417	0.378	0.412
U.S.	0.462	0.432	0.462
Race Group	Kuznets Ratio		
	Household Income	Family Income	Personal Income
Native Hawaiian	3.2	3.4	3.1
Non-Native Hawaiian	3.3	2.6	3.0

Source: Calculated from U.S. Census Bureau, 2005 American Community Survey, Public Use Microdata.

The Kuznets ratios also point to the same conclusion. For your reference, the Lorenz curves for family income distribution for both groups are shown in Figure 3. The lines are almost identical, though the Gini Coefficient for Native Hawaiians (0.37) is slightly higher or worse than the curve for Non-Natives (0.33). The latter is a little closer to the diagonal line.

Figure 3. Family Income Distribution: 2005



U.S. Census Bureau publishes the Gini ratios for Household and Family distribution of all 50 States in the U.S. every ten years (1979, 1989, 1999). Results for 1999 show that Hawaii has the 14th and 17th lowest Gini ratios in the United States for Household (.434) and Family (.401) respectively.

One concerning aspect is that the Gini goes up for the U.S., Hawaii and basically all other individual States, suggesting that income distribution across the U.S. is

worsening and not improving. The Gini ratio for the U.S. (Household) has gone up from 0.415 in 1979 to 0.462 in 2005. Hawaii's ratios have also gone up though Hawaii's Gini is considerably lower than the U.S.⁵ suggesting more equal distribution than in the U.S. as a whole.

For international comparison purposes, the Gini Coefficient and Kuznets Ratio for six countries (U.S., Japan, Brazil, Sweden, Korea, and Mexico) reported in World Development Report of 1994 are shown in Appendix Table 1. The data for these countries are outdated but still useful. Hawaii's Gini numbers are basically the same as for the US (.369), though the Kuznets Ratio of Hawaii is higher than the US average (2.67). Both measures show that Sweden, Japan and Korea have higher equality. On the other hand, our numbers are substantially better than Brazil (Gini .610, Kuznets, 9.64) and Mexico (Gini .493, Kuznets 4.70).

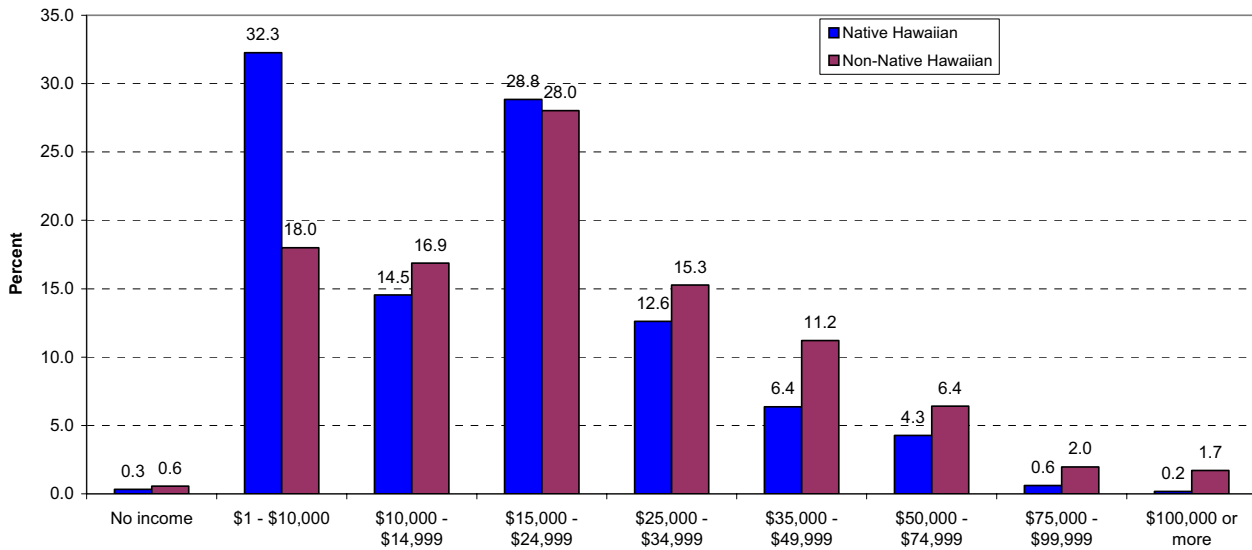
Income distributions are relatively equal within Native Hawaiian and Non-Native Hawaiian groups but, as previously mentioned, we have to be concerned with the worsening tendency of Hawaii's distribution (as seen from the higher Gini Coefficient over time). Of greater concern is the much lower income of Native Hawaiian group. In order to better assess this difference, income distributions of both groups are compared using household income.

Figure 4 presents the size distribution of per-capita income of both groups. The horizontal axis shows nine income categories ranging from no income to \$100,000 or more group, all in per capita income basis. The numbers above bars show the percent of individuals earning that income with each group adding up to 100%. For example, 1.7%

⁵ From U.S. Census Bureau, 1970, 1980, and 2000 Censuses of Population.

of Non-Natives earn more than \$100,000 per person whereas it is only 0.2% for Native Hawaiians. On the other hand, 32.6% (0.3% for no income + 32.3% for \$1 to \$10,000) of Native Hawaiians earn less than or equal to \$10,000 but it is 18.6% (.06 + 18.0) for Non-Native Hawaiians.

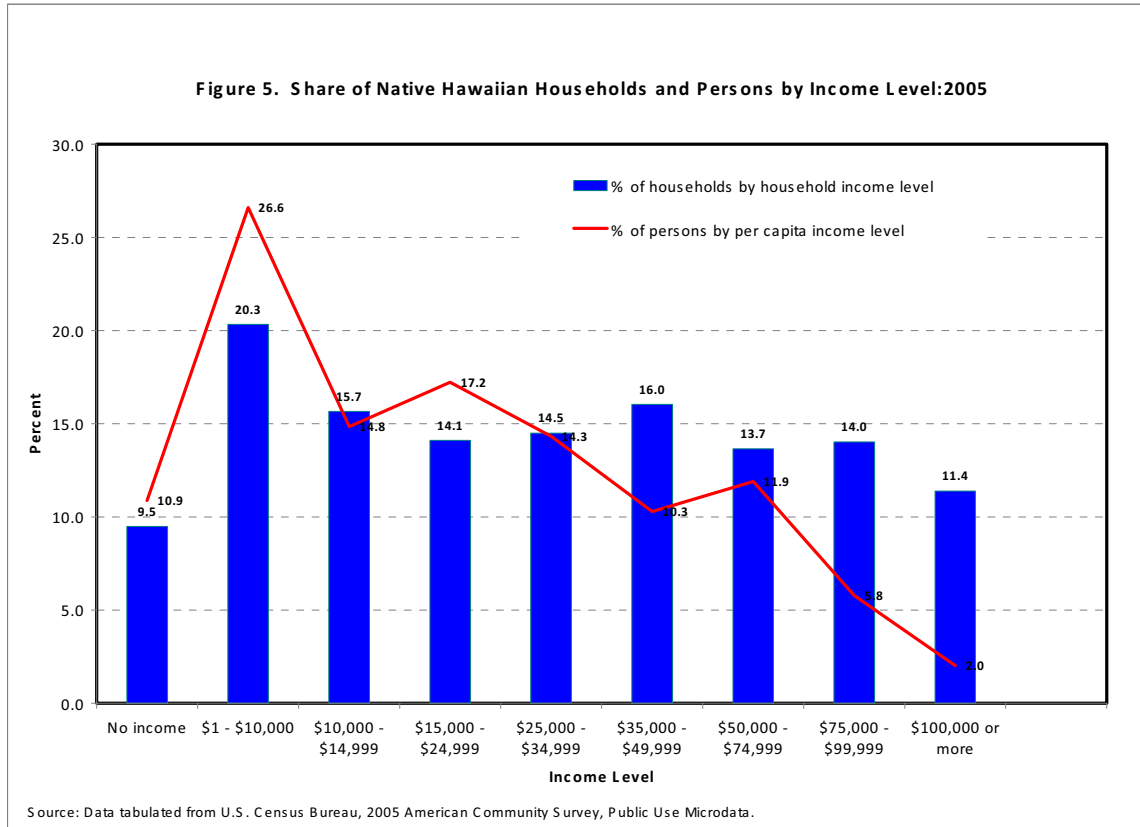
Figure 4. Size Distribution of Per Capita Personal Income: 2005



In each of all five higher income categories, shares of Native Hawaiians are lower. If we total the percentage shares of the five highest income groups, it is 24.1% for the Native Hawaiians and 34.8% for Non-Native Hawaiians. It is clear that the number of Native Hawaiians earning higher income is much smaller, whereas those earning low income are much larger, explaining why poverty is so much higher. This pattern applies to other two distributions (households and families) though not shown here.

Figure 5 shows the percentage number of households (in Bar) and persons (in Line) in total number of households (and per capita income) in the State for each income category. For example, for household income from \$1-\$10,000 range, Native Hawaiian households comprise 20.3% of State total of this income range, but Native Hawaiian

households having \$100,000 or more comprise only 11.4% of total number of households in the State.



The numbers on the line shows the similar percentage but in per capita income of individuals. For example, Native Hawaiian individuals earning \$100,000 or more comprise less than 2% of State total of this income group and therefore 98.7% are Non-Native Hawaiians. On the other hand, Native Hawaiians earning \$1-\$1,000 range comprise 26.6% of the individuals of this income group in the State.

There is one noticeable difference in the pattern of household income (Bars) and per capita income (Line). Examining the per capita income (Line), one notices that the share of Native Hawaiians declines rapidly as income rises. Or individually, percentage share of Native Hawaiians fall as income rises, or proportionately less number of Native

Hawaiians earn higher income. But the decline is a lot less for the Native Hawaiians at the household income level compared to per capita income. In other words, the Native Hawaiians do better at household level income than per capita income.

Though Native Hawaiian households accounted for 12.7% of the State total household income, the distribution among Native Hawaiian households is about the same as Non-Native Hawaiians. The main reason can be attributed to the *Ohana* spirit. There are two factors for Native Hawaiian households: 1) 18.3% of the Native Hawaiian households had non-relative members living in the households vs. 12.3% for Non-Native Hawaiians; 2) the higher the income of the households, the larger the size of the households.

The size of the household rises as income rises for both groups but rises faster for Native Hawaiians (see Table 4). At income of \$1 to \$10,000, the size of the Native Hawaiian household is 2.29 persons, in comparison to 2.11 persons for Non-Native Hawaiians. But at income exceeding \$100,000, the number of persons is 4.66 compared

Table 4. Average Household Size by Income Level: 2005

Household income level	Average household size (Persons)		Difference
	Native Hawaiians	Non-Native Hawaiians	
No income	1.76	1.69	0.07
\$1 - \$10,000	2.29	2.11	0.18
\$10,000 - \$14,999	2.75	2.66	0.09
\$15,000 - \$24,999	3.01	2.42	0.59
\$25,000 - \$34,999	2.79	2.47	0.32
\$35,000 - \$49,999	2.91	2.86	0.05
\$50,000 - \$74,999	3.50	3.09	0.42
\$75,000 - \$99,999	4.03	3.73	0.31
\$100,000 or more	4.66	3.87	0.79
All households	3.47	2.77	0.70

Source: Tabulated from U.S. Census Bureau, 2005 American Community Survey, Public Use Microdata.

to 3.87 persons. When income level increases, more people share the income. The income distribution is not skewed to the smaller group of rich people. This will have the effect of narrowing the income gap at household and family level than individual per capita income level.

3. Components of Income and Factors Related to Poverty

Still, the income gap between the Native and Non-Native Hawaiian groups is so large and the poverty level is so much larger for Native Hawaiians. In the previous analysis, how income is earned is not examined. In order to better assess the income gap, I have examined the items of per capita income (Table 5).

INCOME STRUCTURE

Table 5. Per Capita Income by Category: 2005

Income Category	Native Hawaiians	Non-Native Hawaiians	NH as % of Non-NH
Interest, dividends, and rental income	355.4	1,681.9	21.1
Public assistance income	131.9	34.6	381.5
Retirement income	853.6	1,891.7	45.1
Self-employment income	826.9	2,361.2	35.0
Supplementary security income	83.7	86.8	96.4
Social security income	718.9	1,606.1	44.8
Wage and salary income	13,699.8	19,303.5	71.0
All other Income	261.8	448.2	58.4
TOTAL PER CAPITA INCOME	16,932.0	27,414.0	61.8

In terms of per capita income, Native Hawaiians were low on all of the categories except public assistance income. Especially low was the interest, dividends, and rental income which is commonly referred to as the property income. Native Hawaiians' per capita income in this category was only 21.1 percent of the Non-Native Hawaiian level. This indicates that Native Hawaiians had lower savings, less in financial investment and less income from this source.

It is not surprising that Native Hawaiians had more government assistance income compared with Non-Native Hawaiians. Native Hawaiians received an average of \$132 per person from the governments, 3.8 folds higher than the Non-Native Hawaiians. But public assistance comprises less than 1% of total per capita income of Native Hawaiians and therefore is too small to lift their income up.

Another low category for Native Hawaiians was the self-employment income which was only 35 percent of the Non-Native Hawaiian level. This is consistent with the 2002 Census of Business Owners which indicated that Native Hawaiians, though accounted for nearly 20 percent of the State population, operated only 7.6 percent of the firms in Hawaii, and produced only 2.1 percent of the total State sales. We also find that there are relatively fewer Native Hawaiian entrepreneurs compared with other ethnic groups in the State.

Before suggesting a recommendation to OHA about what they can do to assist Native Hawaiians to expand business opportunities, we consider factors that might explain the high poverty levels (see Table 6).

1. Native Hawaiians are relatively young. Median age for Native Hawaiians in 2005 was 24.6 years, while median age for Non-Native Hawaiians was 38.5 years. Being young, Native Hawaiians have much less wealth accumulation.
2. Native Hawaiians have bigger family size. Average family size is 3.87 in 2005 compared with 3.40 for Non-Native Hawaiians.
3. Though the high-school graduation record is good, the Native Hawaiian labor force has a lower ratio of college degrees. 42.2% of Native Hawaiian workers were college graduates or above, while Non-Native Hawaiians had a ratio of 57.5%. Education level is reflected in the wages earned.
4. Native Hawaiians are low in graduates from high tech field. In FY 2005, 7% of Native Hawaiians graduates earned degrees in science and technology at UH Manoa, vs. 14.1% for Non-Native Hawaiians. Also, low in business degree, 12.1% vs. 17.8%.⁶

⁶ Many attend colleges and universities on the mainland which are not included.

5. 22.7% of Native Hawaiians were employed in the management and professional positions vs. 32.2% for Non-Native Hawaiians. Management and professional occupations are paid higher than others.
6. There are 3.2 business firms per 100 Native Hawaiians compared to 10.4 firms for Non-Native Hawaiians. Average sales per firm is about one-fourth of Non-Native firms.

Most of these factors are related to education. Education is the greatest equalizer and crucial in narrowing the income gap. But it does not happen overnight and is a long-term effort. More immediately, OHA may consider the following which is related to its loan program.

4. Conclusion

One of the major obstacles facing the Native Hawaiians wishing to start business is access to credit. With low income, individuals will have difficulty in borrowing, because borrowing requires collateral. A smaller initial loan can be a ticket to successful business.

Table 6. Possible Factors of Low Income for Native Hawaiians

Item	Factor	Native Hawaiian	Non-Native Hawaiian
1	Young Population (median age, years, 2005 figure)	24.6	38.5
2	Family Size (avg. # of persons, 2005 figure)	3.9	3.4
3	College Degree of Labor Force (% of workers 25 yrs+, 2005 figure)	42.2	57.5
4	UH Graduation Major (2005)		
	a. Science & Technology (% of graduates)	7.0	14.1
	b. Business Administration (% of graduates)*	12.1	17.8
5	Management Professional Positions	23.0	32.0
6	Business Ownership and Performance (2002 figure)		
	a. Firm to Population Ratio (firms per 1,000 people)	3.2	10.4
	b. Average sales per firm (\$1,000)	180	711

* Many attend colleges and universities on the mainland which are not included. See Appendix Table 2 for details.

Source: U.S. Census Bureau, 2005 American Community Survey, for items 1, 2, 3, and 5.

U.S. Census Bureau, Native Hawaiian and Other Pacific Islander-Owned Firms, 2002, and author's estimate for item 6.

Banner Operational Data Store (ODS) Iro-Degree for item 4.

Then how do you allot loans without adequate collateral? The Grameen Bank approach of community based micro-loan may be a good example of how credit can be provided to the poor while minimizing the risk that loans will be wasted. I suggested this as one of the recommendations in my presentation last year. I was very pleased that Mr. Muhammad Yunus, who conceived this approach in Bangladesh, was awarded with the Nobel Peace Prize last year. For me, it was a pleasant surprise. I know this micro loan program is highly promoted by international lending agencies such as World Bank and Asian Development Bank.

This community based lending program is based on the idea of mutual responsibilities of 4 to 5 person group for borrowing, based on the idea of mutual responsibilities and peer-to-peer monitoring. The Bank organizes training and technical assistance programs regularly for current and potential borrowers. 95% of the borrowers in Bangladesh are women and repayment record is 90%, not too bad for a poor country. OHA has a loan program. I hope very much that OHA considers this approach in conjunction with private banks or by OHA themselves. Thank you.

Appendix Table 1: Income Distribution in Selected Countries

Country	Gini	Kuznets Ratio
US	0.369	2.67
Japan	0.282	1.71
Sweden	0.279	1.74
Korea	0.331	2.14
Brazil	0.61	9.64
Mexico	0.293	4.7

Source: World Bank, World Development Report, 1994.

Appendix Table 2: Degrees Earned at UH-Manoa: July 1, 2004 to June 30, 2005

	Native Hawaiians		Non-Native Hawaiians		Total	
	Number	% share	Number	% share	Total	% share
Total	330	100.0	3,845	100.0	4,175	100.0
Arts & Humanities	19	5.8	328	8.5	347	8.3
Lang, Ling & Lit	18	5.5	245	6.4	263	6.3
Natural Science	17	5.2	341	8.9	358	8.6
Social Sciences	59	17.9	699	18.2	758	18.2
Other Art & Science	9	2.7	108	2.8	117	2.8
Hawaii, Asian, & Pac studies	23	7.0	52	1.4	75	1.8
Ocean earth Science Tech	1	0.3	63	1.6	64	1.5
Architecture	1	0.3	16	0.4	17	0.4
Business Admin	40	12.1	686	17.8	726	17.4
Travel Industry MGT	2	0.6	109	2.8	111	2.7
Education	63	19.1	459	11.9	522	12.5
Engineering	5	1.5	139	3.6	144	3.4
Tropical Ag & Human Res	20	6.1	151	3.9	171	4.1
Medicine	11	3.3	120	3.1	131	3.1
Nursing and Dental HYG	8	2.4	135	3.5	143	3.4
Social Work	19	5.8	105	2.7	124	3.0
Law	15	4.5	89	2.3	104	2.5

Source: Banner Operational Data Store (ODS) Iro-Degree.

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