

SECTORS OF PRODUCTIVE CAPITAL AND INCOME INEQUALITY IN HAWAII, 1975¹

Joyce N. Chinen

Many studies of the social situation in Hawaii have noted that income and occupational patterns seem to be related to such characteristics as ethnicity, education and sex, but it is difficult to find a study that systematically explores the social structural bases of these patterns. Most studies have taken a socio-historical approach, and assume that over time social conditions will tend to either improve or deteriorate for certain populations (Lind, 1980; Fuchs, 1968; Daws, 1968; Kent, 1983). Thus, in this study of income inequality in Hawaii, a structural approach will be used. It will begin with a brief review of some recently used theoretical perspectives on income inequality, discuss the rationale for using a structural approach, and then formulate some research questions to guide the study. Following this section, the research methodology, including the variables and data set to be used, will be described. Finally, the results of the analysis will be reported and discussed.

THEORETICAL PERSPECTIVES

Studies of income inequality in the United States in recent years have focused on wage differences, but there is not yet agreement on which factors most affect wages. One researcher, Almquist (1979), has noted that there are at least three schools of thought on this matter. They are (1) the human capital and status attainment theories; (2) the dual labor market theory and (3) the structural or radical economic theories.² These theories differ in terms of their political orientations regarding the desirability of income inequality and approaches to its reduction. Even more important, however, the theories vary in terms of which units are selected for analysis (e.g. individuals, labor markets, sectors of the economy). This is an important consideration since some of the units are more inclusive than others.

The human capital perspective focuses on individuals and assumes that behavioral choices have been made by them in acquiring skills, education, union membership, etc., which then affect their attractiveness to prospective employers. While the status attainment perspective parallels the human capital perspective, it recognizes that social factors such as family background affect the kinds of choices that individuals make in acquiring their skills, education, etc. Both perspectives agree, however, that individuals' motivations and/or actions are the primary determinants of their income levels.

UNIVERSITY OF HAWAII LIBRARY

The dual labor market theory represents a middle level theory. It focuses on the conditions faced by aggregates of individuals because of their representative positions in one of the two segments of the labor market. The work of Doeringer and Piore (1971) suggests that jobs in the primary labor market tend to be more stable, with higher wages and better working conditions, while those in the secondary labor market tend to be unstable, with low pay and undesirable working conditions. Here the unit of analysis is the segment of the labor market, and the focus is on aggregates of individuals whose income levels are determined by their location in one of the segments.

Finally, structural or radical theorists, such as O'Connor (1973) and Bluestone (1973), focus on the features of advanced industrial capitalism, class conflict, and the segmentation of the whole economy. In this perspective, the structure of the political economy is emphasized, and it represents the most inclusive unit of analysis because it subsumes not only aggregates of individuals in different labor markets, but also those in different segments of the economy. While the explanatory factors at this level are impersonal and further removed from individuals' experiences and characteristics, they also structure the variation among the specific aggregates of individuals.

Each theoretical approach to the study of income inequality involves both strengths and weaknesses. Human capital and status attainment models, which are most popular, focus on the specific characteristics of individuals, but ignore how those characteristics are socially ordered. The dual labor market theory focuses on the social ordering of personal characteristics in the labor market, but ignores the structural features of the larger economy. Only the structural theories take into account the structure of the entire economy. For this reason, this investigation of income inequality in Hawaii will take a structural approach and focus on sectors of productive capital as the primary determinant of income inequality in Hawaii. Since the study will adopt the theoretical framework presented by James O'Connor, some of his ideas will now be examined.

O'CONNOR'S THEORETICAL FRAMEWORK

In *The Fiscal Crisis of the State* (1973), James O'Connor analyzes the troublesome condition which is increasingly facing the state in nations with advanced capitalist economies: the condition of simultaneously expanding expenditures and declining revenues. Chronic fiscal instability and periodic crises tend to be the result, and according to O'Connor, the reason for it can be found in the contradictory role that the state must play in capitalist national economies. That contradictory role requires that the state both assist in the process of private capital accumulation and provide the conditions of social harmony in the society.

The latter function (legitimation) is essential and related to the successful performance of the former function (accumulation), but increasingly, meeting the accumulation function produces social dislocations and overall disharmony in the society. Thus, the state continually needs to expand to perform both functions, but it must do so with a constricting resource base.

Essentially, O'Connor asserts that there are three sectors of productive capital: monopoly, competitive, and state.³ The first two sectors are engaged in economic production for private profit, while the state sector is engaged in production presumably for the whole society's benefit. But while monopoly and competitive sectors both produce for private gain, they differ considerably in the particular way they produce for private gain. These differences lie in their respective relationships to the state, and result in differences in their respective levels of profit.

According to O'Connor, the growth in the power of both the monopoly and the state sectors are interdependent. Monopoly sector industries tend to use economies of scale and rely on state sector production to socialize⁴ much of their pre- and post-production costs; they can therefore reap higher levels of profit. The state sector, in turn, relies on the monopoly sector for its legitimation, its justification for its continuing expansion and, to some extent, its capital (taxes). Competitive sector industries, by contrast, do not enjoy the same kind of relationship that monopoly sector industries have with the state sector; thus, the benefits and levels of profit of competitive sector industries are much lower than those of monopoly sector industries.

Differences in benefits extend to workers in the economic sector as well. O'Connor explains that the costs of wages, benefits and working conditions of monopoly sector workers tend to be *administered*, or simply passed on in the prices of goods and services produced by the monopoly sector. In contrast, *competition* in the marketplace determines the wages, benefits and working conditions of workers in the competitive sector. And, since the state sector is tied to the monopoly sector, the conditions of state sector workers tend to resemble those of monopoly sector workers, although to a somewhat lesser degree. Thus, wage levels are presumably highest in the monopoly sector, and lowest in the competitive sector, with state sector wages in between the two, but closely following those in the monopoly sector.

One attempt to empirically test O'Connor's ideas as they apply to the conditions of labor was conducted by Randy Hodson (1978). Using Current Population Survey data from March 1973 for a cross-sectional analysis, Hodson demonstrated that sectors of productive capital seem to structure inequality into the wage, unemployment and underemployment conditions of the U.S. labor force. However, the data also indicated patterns which did not exactly correspond to those predicted by O'Connor's framework, particularly the proportional distribution of the labor force across the sectors. O'Connor expected that the work-

force would be evenly divided among the three sectors, but Hodson found the workforce distribution to be 24% in the monopoly sector, 43% in the competitive sector, and 17% in the state sector.⁵

Both O'Connor's framework and Hodson's empirical work involved analyses of the political economy at the level of the nation-state. This study will attempt to extend their respective work, to see whether this framework might be equally useful in understanding income inequality in a local-level economy. There are some problems, however, in taking this approach. First, as O'Connor has pointed out, state and local governments' borrowing and debt are governed by different political economic principles from those of the federal government; state and local government debts involve limited-term private financing, whereas federal debt is indefinite and administered (O'Connor 1973:193). Second, state and local government operations tend to be circumscribed by the structure and operations of the federal government. But to the extent that O'Connor's major propositions about the dual and contradictory functions of the state (to facilitate both accumulation and legitimation) also apply to the state at state and local levels, the framework may also be used to study the structural basis of income inequality in Hawaii.

This study will be guided by three major research questions. The first inquires about the proportional distribution of employment and social characteristics across sectors. The answer to this question will permit comparison of the sectoral distribution in the national and Hawaiian economies. The second concern, the distribution of incomes across sectors, will indicate whether there are indeed structural bases of the income inequality in Hawaii, just as there appear to be at the national level. Finally, the effects of social characteristics on the sector-based income levels, will be examined to see how these variables interact to produce particular kinds of income patterns.

METHODOLOGY

Data

The data set to be used in this investigation is a subsample of the 1975 Office of Economic Opportunity (OEO) Census Update, a random sample survey of households for the island of Oahu. Although other islands were included in the statewide survey, there were problems with the Kauai data, so this study will limit itself to the Oahu sample. This should not cause any problems since 80% of the state's resident population is located on Oahu. Also, this county incorporates both urban and rural areas, with both corporate and entrepreneurial agricultural activities represented in rural areas. Moreover, Honolulu, the capital and largest city in Hawaii, is located on this island; Oahu,

therefore, represents quite well the social, political and economic activity for the State of Hawaii. Thus, the data set for this study consists of a random sample of the Oahu sample survey and includes 1656 subjects, of which 485 were employed full-time.

Variables

This study has proposed to investigate the relationship between sectors of economic production and income inequality. Income level will therefore be considered the dependent variable. Since income was coded into income-range categories, calculations of mean income levels will use the mid-point of income-range categories. The mid-point of income categories will therefore be used as the indicator of a subject's income. Because income levels are affected by the type of employment, most of the analysis will be performed on full-time employed persons.

The determination of the productive sectors represents a somewhat more complex task. While O'Connor has provided a description of the characteristics of each of the sectors, he has not provided precise criteria for their determination. Instead, O'Connor suggests that the sectors are composed of different types of industries, and this is why Hodson used industries to indicate sectors. Unfortunately, however, the criteria Hodson used to assign specific industries into the specific sectors are also not clearly specified. Nevertheless, both authors point to the need to view the sectors of economic production as being organized in terms of industries. In this regard, they are not alone. Other scholars, such as Robert Blauner, have previously noted that industries differ in their economic structure as well as in other characteristics, and that these differences have important implications for workers in those industries (1964:10).

The methodological question, then, is: on what basis should industries be distinguished? The answer depends both on theory as well as on the kinds of information available on industry characteristics. On the bases of both theoretical considerations and a review of two sources of census data, two characteristics will be used to differentiate industries into the three sectors of economic production: *workforce size* and *amount of sales or receipts*.

Workforce size will be used because O'Connor states that monopoly sector industries tend to utilize economies of scale. Furthermore, the usefulness of this criterion has been empirically supported. For example, Aldrich and Weiss (1981:283) have demonstrated that workforce size is an important characteristic which internally differentiates the capitalist class. Similarly, although the 1975 County Business Patterns data show an average per-firm size of 15.7 employees for all industries, there is a considerable range, from an average of 3.7 employees for the 99 dentist offices, to 750 for a single electrical service

firm. Based on these considerations, the criterion of 25% or more firms in a given three-digit industry category with fifty or more employees, will be used to distinguish monopoly sector industries from other sectors' industries.⁶

The second characteristic which will be used to differentiate industries into productive sectors is the average per-firm amount of sales or receipts of industries. The use of economies of scale would also require sizeable sales (or receipts) by monopoly sector industries. The 1972 *Censuses of Manufactures, of Wholesale Trade, of Retail Trade and of Services* were examined for information on amount of sales or receipts. They show that average industry per-firm sales or receipts vary from \$107,624 for services to \$1,236,869 for manufactures. Thus, industries with average per-firm receipts of \$1,000,000 or more will be considered to be monopoly sector in this study.⁷

Finally, both the distribution and effect of social characteristics such as age, education, ethnicity, and sex across sectors will be examined. Grouped categories will be used for age and educational level, and comparisons will be made among the five largest ethnic groups for ethnicity (non-Protuguese Caucasian, Chinese, Filipino, Japanese and Part-Hawaiian).

To summarize, then, income will be considered the dependent variable in this study, and the mid-point of income-range categories of employed persons will be used to measure income. Productive sectors will be considered the independent variable, and two factors, workforce size and per-firm sales or receipts, will be used to classify industries into monopoly, competitive and state sectors (see appendix). Lastly, in order to examine the effects of social characteristics on the sector-income relationship, the effects of variables such as age, education, sex and ethnicity will also be considered.

RESULTS AND DISCUSSION

Size of Sectors

The first task of this study is to determine the proportional distribution of Hawaii's productive sectors. Table one presents information on the relative size of each of these sectors, and is accompanied by O'Connor's estimates and Hodson's national level findings. The figures show that total employment in Hawaii's state sector is comparable to that found by Hodson at the national level. The monopoly sector, on the other hand, is extremely small, less than half the size nationally; thus most employment is found in the competitive sector.

While it is possible that these figures are the result of sampling error, the phenomenon of a large competitive sector and a small monopoly sector is quite understandable in light of the kinds of industries that

make up the Hawaiian economy. Most of Hawaii's firms are engaged in service or retail trade areas; manufacturing, which is usually associated with monopoly sector industries, represents only about 7% of economic activity in Hawaii, and most of that is in non-durables. As a result, the four leading industries in Hawaii are tourism, the military, sugar and pineapple, in that order (Department of Planning and Economic Development, 1980:233). Furthermore, Hawaii's modern social history—its legacy of colonialism, the agency system, the use of contract immigrant labor, concentration of political power in the hands of a few and the resulting need to use external capital to fuel its recent economic development efforts — all point to the reasonableness of finding such distortions in these economic sectors.⁸

Table 1: Distribution of Employment in Productive Sectors
(in percentages, with numbers in parentheses)

| | Productive Sector | | | |
|-----------------------------------|-------------------|---------------|------------------|------------------------------|
| | Monopoly | State | Com- petitive | Total |
| Sample | 10.4 (172) | 15.4 (255) | 74.2 (1228) | 100.0 ₁ (1656) |
| Full-time employed | 26.8 (130) | 25.4 (123) | 47.8 (232) | 100.0 (485) |
| ----- | | | | |
| Hodson's findings ² | 26.9 | 18.8 | 48.8 | 94.5 ³ |
| O'Connor's estimate | 33.3 | 33.3 | 33.3 | 99.9 |

¹One missing case.

²Hodson's findings are based on a subsample of the Current Population Survey (CPS) of March 1973. It consists of the experienced civilian labor force (ECLF) which is comprised of all non-institutionalized civilians over fourteen years of age who worked last year.

³Hodson's also found 5.4% of the employment in the construction sector. Since construction functions as a local-level monopoly sector employer, construction was kept separate for national-level analysis, but subsumed under monopoly sectors for the Hawaii analysis.

Distribution of Social Characteristics

O'Connor's assertions regarding the properties of the sectors would suggest that certain social characteristics should predominate in certain sectors. Youth and old age, female, minority racial/ethnic background and low education are all characteristics associated with lesser privilege in this society. Thus, if sectoral location affects the levels of derivable privilege, as O'Connor suggests, a greater proportion of persons with the previously mentioned characteristics can be expected to be found in the competitive sector. This is precisely what Hodson discovered in his national level study. But, what about the situation in Hawaii?

In spite of the differences between the national and the Hawaiian economy in terms of the size of the monopoly and competitive sectors, the distribution of social characteristics in the sectors, for the most part, appears to parallel Hodson's findings. However, there are also some important differences, as Table two shows, in the sectoral distribution of such factors as age, sex and education.

While the prime age group dominates in each of the sectors, their representation is highest in the state sector (84.6%). The monopoly sector prime age workers make up 65.4% which is not too much more than the competitive sector (60.3%). Youth and older workers appear to be excluded from the state sector, but appear evenly represented in both the monopoly and competitive sectors. Thus, contrary to the theoretically generated expectations, the state sector appears to be the preferred sector in Hawaii, and the one from which both youth and the aged tend to be excluded.

Sex is another ascribed characteristic which may affect sectoral location. Table 2 also shows that women were more likely than men to be located in the competitive sector, and less likely to be in the monopoly sector. This finding is consistent with the expectations from O'Connor's model and Hodson's national level findings.

Educational variation within the sectors generally seems to parallel the age and sex distribution. Educational levels vary only slightly in the monopoly and competitive sectors, and in both, lower educational levels predominate. Higher (post-secondary) educational levels seem to dominate in the state sector. This is reasonable, since civil service and other equal employment opportunity requirements within this sector tend to stress the use of educational credentials as "objective" indicators of competence. Additionally, much of state sector work involves the collection and management of information, and would require personnel with higher levels of skill and training.

These findings generally parallel those of Hodson, but with one exception. That is that educational levels in all of Hawaii's sectors appear to be slightly higher than those nationally (the percentages for post-secondary schooling in the monopoly, state and competitive sectors in Hawaii are 32.2%, 58.5% and 41.0% as compared to 28.7%,

49.9% and 28.8% respectively at the national level). One reason for this difference may be the restricted size of Hawaii's monopoly sector which seems to have forced even those with post-secondary levels of education into the competitive sector.

Table 2: Age, Sex and Education of Full-Time Employed Persons by Sector (in percentages)

| | Productive Sector | | |
|-------------------------------|-------------------|-------|-------------|
| | Monopoly | State | Competitive |
| <u>Age</u> ¹ | | | |
| 0-17 | 0.0 | 0.0 | 0.0 |
| 18-25 | 20.0 | 6.5 | 24.6 |
| 26-54 | 65.4 | 84.6 | 60.3 |
| 55 plus | 14.6 | 8.9 | 15.1 |
| <u>Sex</u> ² | | | |
| Females | 23.8 | 39.0 | 49.1 |
| Males | 76.2 | 61.0 | 50.9 |
| <u>Education</u> ³ | | | |
| Grades 0-8 | 9.2 | 6.5 | 10.3 |
| Grades 9-12 | 56.9 | 35.0 | 47.4 |
| Business/Trade | 3.8 | 5.7 | 4.3 |
| College | 24.6 | 33.3 | 31.5 |
| Graduate Work | 3.8 | 19.5 | 5.2 |
| Other | 1.5 | 0.0 | 1.3 |
| N= | (130) | (123) | (232) |

1 $\chi^2 = 23.6858$ with 4 d.f. signif. = 0.0001
 $\lambda = 0.00$

2 $\chi^2 = 22.2853$ with 2 d.f. signif. = 0.00
 $\lambda = 0.00$

3 $\chi^2 = 36.0156$ with 10 d.f. signif. = 0.001
 $\lambda = 0.00$

Ethnicity is probably one of the most important social characteristics in multi-ethnic Hawaii. Table three shows the distribution of ethnic groups across productive sectors, and while there are again a few unexpected findings, the results generally conform to the expectations of the sectoral theoretical framework. The most frequent location for the bulk of most ethnic groups is the competitive sector, and this finding is consistent with an earlier one that showed Hawaii's competitive sector being larger than its national level counterpart. However, contrary to expectations, a sizeable proportion of Filipinos and Part-Hawaiians were located in the monopoly sector. Also, Japanese and Caucasians were not as dominant in the state and monopoly sectors as expected. Noting the dominance of tourism, sugar, pineapple and construction, etc., in the monopoly sector, it can be speculated that the relatively large percentage of Filipinos and Part-Hawaiians in that sector may be due to their location in blue-collar type jobs of the monopoly sector industries. Similarly, their low percentage in the state sector may reflect that white-collar jobs are more likely to be occupied by Chinese, Japanese and Caucasians. This is certainly consistent with the ethnic occupational patterns for civilian males found by Lind in the *U.S. Census* and *Hawaii Health Surveillance Program Survey* data (Lind, 1980:82, 85, 87, 89).

Table 3: Ethnic Background of Full-time employed by Sector

| Ethnicity ¹ | Productive Sector | | | Total |
|------------------------|-------------------|-------|-------------|-------|
| | Monoply | State | Competitive | |
| Caucasian | 24.0 | 28.1 | 47.9 | (121) |
| Chinese | 13.5 | 35.1 | 51.4 | (37) |
| Filipino | 30.6 | 10.2 | 59.2 | (49) |
| Part-Hawaiian | 42.4 | 22.0 | 35.6 | (59) |
| Japanese | 25.0 | 29.1 | 45.9 | (172) |
| All Others | 27.7 | 17.0 | 55.3 | (47) |

¹ $\chi^2 = 21.238$ with 10 d.f. signif. = 0.0195
 $\lambda = 0.02$

In Tables two and three, the sectoral distribution of four social characteristics (age, sex, education and ethnicity) were examined. This was guided by the expectation that because certain social characteristics were more highly valued in the society, those characteristics would tend to dominate in certain sectors. Of the four variables examined, only the sectoral distribution of sex in Hawaii's economy was found to conform exactly in the manner anticipated by O'Connor's framework and Hodson's national level findings. The sectoral distribution of the other three variables seems to suggest that the state sector appears to be the preferred sector, and that these patterns may be related to the small size of the monopoly sector in Hawaii. This study will now turn to an examination of the impact of sectoral positions, and address the major question of this study: Are income levels structurally affected by positions in sectors of economic production? If this is so, in what ways does the composition of sectors affect the income levels found within them?

Income by Sectors

Mean income patterns appear to both conform to, and deviate from, those expected by O'Connor's theory and Hodson's national level findings. As anticipated, mean income appears to be lowest in the competitive sector (\$2,247). However, contrary to expectations, the mean income in the state sector (\$10,555) seems to surpass that in the monopoly sector (\$10,369). An *eta* value of 0.52 for income by sectors, indicates that a moderate association exists between these two variables, such that knowledge of sectoral location may enhance the prediction of income values by about 26%.

How then should these sectoral income patterns be understood? It appears that the lower mean income in the monopoly sector in Hawaii is related to the limited size of that sector (nearly half the size of its counterpart nationally). Size of the monopoly sector may be important in two interrelated ways. First, O'Connor has asserted that the growth of the state sector is tied to the growth of the monopoly sector because the state must facilitate monopoly capital accumulation. Extending this reasoning, it would be logical to expect that state sector activities should support, rather than surpass, the activities of private monopoly capital. Thus, if and when state activities extend beyond those of monopoly capital (as is indicated here by the relative size of the sectors), it would suggest a situation where state activities have taken priority over the interests of monopoly capital. Under these conditions, it would be reasonable to find mean income in the state sector to be somewhat higher than that in the monopoly sector.

Another possibility for the larger size, and thus the higher income in the state sector, may be found in the very nature of Hawaii's monopoly and state sectors. As stated earlier, the monopoly sector is largely dominated by services and non-durable manufacturing - industries

which are less likely to generate much capital. At the same time, state sector activities involve at least three distinct governmental bureaucracies: County, State, and Federal (including the four services of the military). The activities of these various bureaucracies may tend to increase the size and influence of the state sector, and to limit the size and influence of the already small monopoly sector. Under such conditions, a disparity in mean income between the two sectors can again be expected.

Table 4: Mean Income for Full-time Employed Persons in Productive Sectors by Age, Sex and Education (in dollars with Standard Deviations in parentheses)

| | Productive Sectors | | |
|------------------|--------------------|--------------------|--------------------|
| | Monopoly | State | Competitive |
| <u>Age</u> | | | |
| 0-17 | --- | --- | --- |
| | (---) | (---) | (---) |
| 18-25 | 7,864 (4,518) | 6,214 (3,806) | 5,663 (3,412) |
| 26-54 | 12,865 (7,564) | 13,146 (6,716) | 11,621 (9,431) |
| 55-plus | 13,893 (8,612) | 15,357 (13,155) | 11,140 (10,731) |
| <u>Sex</u> | | | |
| Females | 7,019 (2,669) | 9,774 (3,933) | 6,543 (4,266) |
| Males | 13,614 (7,793) | 14,743 (8,192) | 13,966 (10,841) |
| <u>Education</u> | | | |
| Grades 0-8 | 12,042 (7,721) | 7,286 (4,112) | 6,550 (5,617) |
| Grades 9-12 | 10,611 (5,247) | 11,262 (5,498) | 8,542 (6,117) |
| Business/Trade | 13,250 (3,069) | 9,571 (4,420) | 8,500 (5,196) |
| College | 13,000 (8,926) | 14,606 (9,584) | 11,177 (9,383) |
| Graduate Work | 23,100 (14,989) | 15,761 (6,140) | 26,611 (16,124) |

While the monopoly sector seems to follow the state sector in terms of mean income, its mean income is over four times that found in the competitive sector. Furthermore, when the ratio of monopoly to competitive sector income in Hawaii is compared to the national ratio in Hodson's sample, the monopoly to competitive income ratio in Hawaii is much higher than it is nationally (1.64 for the civilian labor force as compared to 4.61 for the Hawaii subsample). This suggests that it may be more important to be located in the monopoly sector in relative terms rather than in absolute terms in Hawaii, and that this may be related to the structural features of Hawaii's political economy.

The examination of sectoral incomes has found important differences in the mean incomes of the three productive sectors. Competitive sector income was clearly much lower than either monopoly or state sector incomes. While this finding was anticipated by the theoretical framework used, the magnitude of this difference was much greater than anticipated. On the other hand, the finding that the monopoly sector mean income was lower than that of the state sector was not anticipated by the theory, but this is probably related to the size of Hawaii's monopoly sector.

This study will now turn to an analysis of sectoral income with regard to four social characteristics: age, sex, education and ethnic background. Since income level is tied to the number of hours worked, the following analysis will only examine full-time workers in the subsample (i.e. only those working 35 or more hours per week).

Sectoral Income by Social Characteristics

Table four shows the mean incomes in monopoly, competitive and state sectors for the various age groups. As expected, younger members of the workforce have the lowest mean incomes of all age groups. Human capital theory would attribute this to their lack of work experience. The O'Connor framework, however, would suggest that this represents a structural pattern of discrimination which is based on the specific characteristics of each sector. The latter contention appears to be supported in these data, since younger members of the workforce (18-25) not only seem to have the lowest mean incomes, but additionally, low incomes which vary by sectoral location. Thus, those located in the monopoly sector have the highest income (\$7,864), followed by those in the state sector (\$6,214), and finally those in the competitive sector (\$5,663).

The curvilinear relationship between age and mean income anticipated by O'Connor's framework appears to hold only in the competitive sector. This finding seems fairly reasonable since the theory asserts that competitive market conditions tend to operate in this sector; consequently the older age of workers would form a basis for discrimination against them. By contrast, in the monopoly and state sectors, mean in-

comes tend to increase with age. Human capital and status attainment theories would suggest that this pattern results from greater experience and career progression. The structural framework, however, would assert that the monopoly and state sectors' use of concepts such as *seniority* to permit wages to be administered rather than set competitively; the practice of administering wages thus accounts for the pattern of higher income with age in monopoly and state sectors. Once again, however, higher incomes seem to be associated with the state rather than the monopoly sector. While this pattern deviates from those expected by O'Connor and Hodson's work, it is consistent with the pattern found earlier in this investigation.

With regard to the characteristic of sex, Table four also shows that the mean incomes of males are consistently higher than those of females, and even the highest of the female mean incomes is lower than the lowest of male mean incomes. However, there are also important sectoral differences in these mean incomes. For both males and females, mean income is highest in the state sector (\$9,774 for females and \$14,743 for males). It is lowest for females in the competitive sector (\$6,543), whereas it is lowest in the monopoly sector for males - \$13,614).

Perhaps a more important finding was that the ratio of male-to-female mean income appears to be considerably affected by productive sectors. In relative terms, women appear to benefit most from being in the state sector: the male-to-female ratio for income is 1.51, as compared to 1.94 in the monopoly sector, and 2.13 in the competitive sector. This is consistent with the earlier findings, and also with O'Connor's framework, which suggests that women and other minorities tend to benefit most by being located in the state sector where the legitimation function encourages more egalitarian treatment of minorities.

Education is one of those characteristics that human capital and status attainment theorists seem to stress in order to account for differences in income levels, and in Table four, it is evident that mean incomes vary by educational levels. However, while higher education is generally associated with higher mean income, sectoral location also produces considerable variation in income, even for those with the same level of education. For example, the mean income for those with college education is generally higher than for those with only primary or secondary education; however, the mean income in the college-educated category in the state sector was \$14,606, or \$1,606 higher than in the monopoly sector, and \$3,429 higher than in the competitive sector. Finally, it is noteworthy that, with the exception of the graduate educational level, mean incomes in the competitive sector are consistently lower than those in the two other sectors, and this is true for all levels. Clearly, sectoral placement makes a difference.

The relationship of ethnic background to sectoral mean income will now be examined. Table five shows that there is considerable variation

in mean incomes by ethnic background. In general, the mean incomes of Caucasians and Japanese are higher than those of other ethnic groups, while Filipino mean incomes are consistently lower than those of other ethnic backgrounds. Furthermore, some ethnic groups, like the Chinese and Part-Hawaiians, have considerably more variation in their mean incomes, while others, like the Japanese, have less variation in their mean incomes across sectors.

Table 5: Mean Income for Full-time Employed Persons in Productive Sectors by Ethnic Background

| Ethnicity | Productive Sector | | |
|---------------|--------------------|-------------------|--------------------|
| | Monopoly | State | Competitive |
| Caucasian | 14,454 (11,616) | 15,250 (8,811) | 11,310 (9,314) |
| Chinese | 6,400 (4,904) | 15,333 (7,142) | 8,615 (4,704) |
| Filipino | 9,900 (5,565) | 7,800 (3,154) | 5,942 (3,465) |
| Part-Hawaiian | 12,952 (6,791) | 7,542 (5,475) | 8,250 (4,701) |
| Japanese | 11,972 (5,461) | 13,189 (6,603) | 12,642 (11,740) |
| All Others | 10,727 (5,742) | 9,875 (2,642) | 8,333 (5,363) |

Mean incomes vary by productive sectors as well as by ethnicity, but only Filipinos follow the expected pattern of having their mean income highest in the monopoly sector and lowest in the competitive sector. This is probably related to their concentration in blue-collar jobs within monopoly sector industries such as sugar, pineapple, tourism and construction, and their underrepresentation in state sector industries (Lind, 1980:82, 106). Part-Hawaiian mean income is also highest in the monopoly sector, but it is still much lower than the monopoly sector mean income of Caucasians. Japanese and Chinese, whose mean incomes are highest in the state sector, followed by the competitive sector, have their lowest mean incomes in the monopoly sector. This is a deviation from the pattern expected by O'Connor; however, it is con-

sistent with the historical pattern of the post-plantation movement of the Japanese and Chinese into the entrepreneurial or proprietary areas of the competitive sector, as well as the movement of the second and third generations into professional and technical areas in the state sector described earlier by other scholars (Lind, 1980:88; Fuchs, 1968).

The examination of the variation in mean incomes by social characteristics such as age, sex, education and ethnic background, has found that the effects of these characteristics on income levels seem to be surpassed by the effect of location in a particular productive sector. Overall, this study has found the same pattern of low competitive sector income expected by the O'Connor framework. However, in most cases, mean incomes have been found to be higher in the state sector rather than the monopoly sector. While this deviates from the pattern expected by O'Connor's theory, it is nevertheless consistent with earlier patterns found in this study of a weak monopoly sector.

SUMMARY AND CONCLUSION

This investigation of income inequality in Hawaii utilized a structural framework emphasizing location in productive sectors as the independent variable. The choice of this approach, rather than a more individualistic one emphasizing human capital or status attainment variables, was inspired by some of the propositions found in James O'Connor's theory regarding the relationship between state and private capital in production. It was also sparked by Randy Hodson's study which had utilized O'Connor's theoretical framework to examine the conditions of labor at the national level. In this study, both workforce size and sales (or receipts) were used to classify industries into the three productive sectors (monopoly, competitive and state). The distribution of various social characteristics and mean incomes within each of the sectors was then examined.

One important finding has been that the proportional distribution or size of the sectors differs in important respects from the national sample studied by Hodson. Specifically, the monopoly sector in Hawaii appears to be quite small, only about half the size of the monopoly sector at the national level. On the other hand, the state sector seems to conform in size to that found by Hodson, and this means that the competitive sector in Hawaii is much larger than its national counterpart.

The examination of the distribution of four social characteristics (age, education, sex and ethnicity) across the sectors was guided by the expectation that individuals with highly valued social characteristics (i.e. higher education, being male, prime age, of a particular ethnic background) would tend to predominate in certain sectors. It appears that those characteristics are more likely to be found in the state sector rather than in the monopoly sector as expected by O'Connor and

Hodson. However, in the manner predicted by O'Connor and Hodson, the least valued characteristics seem indeed to predominate in the competitive sector.

Finally, the examination of sectoral mean incomes shows that mean income appears to be highest in the state sector and lowest in the competitive sector in Hawaii. While this finding does not conform exactly to theoretical expectations, it is nevertheless consistent with this study's earlier findings on size and the distribution of social characteristics across productive sectors. Furthermore, while mean income patterns vary by education, age, sex and ethnicity, those variations generally follow the patterns of sectoral mean incomes found earlier in this study.

These findings also suggest that future studies of income inequality might benefit by taking into consideration the following points. First, while the variables emphasized by the human capital and status attainment perspectives appear to be related to income levels, structural variables such as productive sectoral location should also be considered. This is because they seem to affect income patterns beyond the effects of the variables suggested by the former perspectives. Second, while O'Connor's structural framework of productive sectors appears to be useful for studying income inequality, it is also problematic in two ways. Theoretically, the criteria for conceptualizing sectors require further clarification; otherwise, these ideas will be difficult to test empirically. Also, the political economic functions of the state at state and local levels require theoretical explication; otherwise the differences in the units of analysis may block potential analyses of state and local political economies, and thus neglect the effects of the connections between these and the national political economy. The third point that studies of income inequality need to consider, is the influence of capital external to the nation-state. As capital continues to be internationalized, it will increasingly penetrate not only national economies, but also state and local ones. Hawaii's political economy seems to be a good example of the consequences of this international capital penetration, and judging by the experience of newly industrializing nations, it may mean even greater aggravation of the condition of income inequality in the years to come.

This paper has taken a structural approach to the study of income inequality, and it has discovered that distortions in the structure of the economy can have important consequences for the patterns of income inequality in Hawaii. It is hoped that the merits of this approach will invite other researchers to utilize the structural approach in their future studies of other aspects of Hawaii's social patterns.

APPENDIX

The criteria for determining monopoly sector industries were: a) that at least 25% of the establishments within a 3-digit industry classification of *U.S. County Business Patterns* employed 50 or more employees; and/or b) that industries have per-firm sales of \$1,000,000 or more per annum according to the *Census of Manufactures, Wholesale and Retail Trade, and Services*.

Industries considered to be *monopoly* sector:

| | | |
|-------|-----|----------------------------|
| (E)* | 071 | soil preparation |
| (E) | 142 | crushed stone |
| (E) | 144 | sand & gravel |
| (E) | 201 | meat products |
| (E) | 202 | dairy products |
| (S) | 203 | preserved fruits |
| (S) | 204 | grain mill products |
| (E&S) | 205 | bakery products |
| (E&S) | 206 | sugar |
| (S) | 209 | Misc. food & kindred |
| (E) | 245 | wood buildings |
| (S) | 251 | household furniture |
| (E) | 265 | paperboard containers |
| (E) | 271 | newspapers |
| (E) | 287 | agricultural chemicals |
| (E) | 291 | petroleum refining |
| (E) | 324 | cement, hydraulic |
| (E) | 327 | concrete products |
| (E) | 331 | blast furnace |
| (E) | 341 | metal cans |
| (E) | 373 | ship building |
| (E) | 414 | charter transp. |
| (E) | 445 | water transp. |
| (E) | 446 | water transp. svc n.e.c. |
| (E) | 458 | air transp. svc |
| (E) | 481 | telephone communications |
| (E) | 489 | communication svc n.e.c. |
| (E) | 491 | electric service |
| (E) | 492 | gas prod. & distribution |
| (S) | 501 | motor vehicles - wholesale |

* E = employment (criterion 1 above)

S = sales (criterion 2 above)

| | | |
|-------|---------|---------------------------------|
| (S) | 503 | lumber & const. materials |
| (S) | 505 | metals & mineral except Petrol. |
| (S) | 506 | electric goods |
| (E) | 513 | apparel piece goods |
| (S) | 514 | groceries & related prod. |
| (S) | 517 | petroleum & petro. products |
| (E&S) | 518 | beer & wine |
| (E&S) | 531 | dept. stores |
| (E&S) | 551 | new & used car dealers |
| (E) | 601 | Fed. Reserve Banks |
| (E) | 604 | trust companies |
| (E) | 632 | medical & health ins. |
| (E) | 636 | title ins. |
| (E) | 654 | title abstract offices |
| (E&S) | 701 | hotels |
| (E) | 805 | nursing & care facilities |
| (E) | 806 | hospitals |
| (E) | 808 | out pts care facilities |
| (E) | 822 | colleges & univ. |
| (E) | 836 | residential care |
| (E) | 841 | museum & art galleries |
| | 152-179 | construction industries |

Industries considered to be in the *state* sector:

| | |
|---------|--|
| 411 | local trans. (MTL) |
| 417 | bus terminal fac. |
| 431 | U.S. Postal Service |
| 449 | merchant marines |
| 495 | dept. of sanitation |
| 911-998 | government (fed., state, municipal, other nation, other U.S. states) |

Industries considered to be in the *competitive* sector:

all else

In order to estimate the validity of the method used to classify the industries into productive sectors, the resulting distribution of sectors was compared with one resulting from the classification of industries by face validity (or intuitive knowledge of the industries). The comparison of the two, which is shown in the following cross tabulation, suggests the classifications probably represent an accurate picture of the sectors.

Crosstabulation of Productive Sectors by 2-Factor Criteria,
by Productive Sectors, by Face Validity

| Productive Sector by 2-Factor Criteria | | | | | |
|--|---------------|----------------|----------------|--------------|-------|
| Sectors by Face Validity | Monopoly | State | Competitive | NR | Total |
| Monopoly | 97.7 (168) | 0.0 (0) | 3.6 (44) | 0.0 (0) | 212 |
| State | 0.0 (0) | 100.0 (255) | 0.0 (0) | 0.0 (0) | 255 |
| Competitive | 2.3 (4) | 0.0 (0) | 96.4 (1184) | 0.0 (0) | 1188 |
| NR | 0.0 (0) | 0.0 (0) | 0.0 (0) | 100.0 (1) | 1 |
| Total | 172 | 255 | 1228 | 1 | 1656 |

NOTES

1. I gratefully acknowledge the assistance I received from Hagen Koo, Patricia Steinhoff, Herbert Barringer, George Won, Gene Kassebaum, Robert B. Stauffer and the anonymous reviewers of *Social Process in Hawaii* on an earlier version of this paper. They are of course not responsible for any errors which may remain.
2. Almquist (1979) also notes that each of the four perspectives provides an ahistorical explanation for the current status of minority groups; she points to the work of Edna Bonacich (1972, 1976) and of Donald Noel (1968) which identify historical and social factors contributing to the status of minority groups.
3. These are the terms used by O'Connor, and his use of these terms differs considerably from the commonly held economic definitions of these terms. When classical economists use the term *monopoly*, they mean a situation in which there is a single seller of a given product or service in the marketplace. O'Connor's use of the term *monopoly* conforms more closely to the term *oligopoly* in classical economics, which denotes a situation where the marketplace is dominated by a few producers/sellers of a product or service (Samuelson, 1970).

4. By *socialize* O'Connor means that certain costs of production are thrust upon the society and its general population rather than being paid for by those who are actually using such services. These include direct and indirect costs, and costs prior to, as well as resulting from, the production process. These may include such costs as research facilities; access to water, transportation, and energy; industrial parks; low interest loans; pollution cleanup; unemployment compensation; and so on.
5. Hodson also retained a special category for the construction industry, which he observed "... is similar to the monopoly sector because of its regional monopoly power and because of the powerful position of both sectors in relation to the state" (Hodson, 1978:451). He found about 5% of the workforce in that sector, with the remainder in agriculture or self-employment. Additionally, mining, manufacturing industries (especially of durable goods), and finance, tend to dominate among the industries of the monopoly sector.
6. The workforce size criterion was determined by dividing the number of firms with 50 or more employees in a given industry category by the number of firms in that category. If the resulting quotient was 0.25 or greater, the industry was assigned to the monopoly sector.
7. Average per-firm amount of sales and/or receipts was determined by dividing the amount of sales and/or receipts in each industry category by the number of firms in that category for the manufacturers, services, wholesale trade and retail trade.
8. Two essays summarizing Hawaii's historical and present-day dependent development can be found in *Occasional Papers in Political Science*, 1(4) published by the Department of Political Science, University of Hawaii at Manoa. The first is by Noel Kent, and the second by Deanne Neubauer and Sam Pooley.

REFERENCES

- Aldrich, Howard and Jane Weiss
1981 "Differentiation Within the U.S. Capitalist Class: Workforce Size and Income Differences" *American Sociological Review* 46:279-290
- Almquist, Elizabeth McTaggart
1979 *Minorities, Gender and Work* Lexington, Mass.: D.C. Heath and Company
- Blauner, Robert
1964 *Alienation and Freedom: The Factory Worker and His Industry* Chicago: The University of Chicago Press
- Bluestone, Barry, William Murphy, and Mary Stevenson
1973 *Low Wages and the Working Poor* Ann Arbor: Institute of Labor and Industrial Relations, University of Michigan
- Bonacich, Edna
1972 "A Theory of Ethnic Antagonism: The Split Labor Market" *American Sociological Review* 37:547-559
- Bonacich, Edna
1976 "Advanced Capitalism and Black/White Relations in the United States: A Split Labor Market Interpretation" *American Sociological Review* 41:34-51
- Bridges, William P.
1980 "Industry Marginality and Female Employment: A New Appraisal" *American Sociological Review* 45:58-75
- Daws, Gavan
1968 *Shoal of Time: A History of the Hawaiian Islands* Honolulu: The University Press of Hawaii
- Department of Planning and Economic Development
1980 *The State of Hawaii Data Book: A Statistical Abstract* Honolulu: State of Hawaii
- Doeringer, Peter B. and Michael J. Piore
1971 *Internal Labor Markets and Manpower Analysis* Lexington, Mass.: D.C. Heath and Company
- Fuchs, Lawrence
1968 *Hawaii Pono: A Social History* New York: Harcourt, Brace and World

Hodson, Randy

- 1978 "Labor in the Monopoly, Competitive and State Sectors of Production" *Politics and Society* 8(3-4):429-480

Kent, Noel J.

- 1982 "Illusions of Development — Hawaii: The Crises of a Peripheral Society" *Occasional Papers in Political Science* University of Hawaii 1(4):1-19

Kent, Noel J.

- 1983 *Hawaii: Islands Under the Influence* New York: Monthly Review Press

Lind, Andrew

- 1980 *Hawaii's People* 4th Edition Honolulu: University of Hawaii Press

Neubauer, Dianne, and Sam Pooley

- 1982 "An Alternative Political Economy for Hawaii" *Occasional Papers in Political Science* University of Hawaii 1(4):26-80

Noel, Donald

- 1968 "A Theory of Ethnic Antagonism" *Social Problems* 16:157-172

O'Connor, James

- 1973 *The Fiscal Crisis of the State* New York: St. Martin's Press

Samuelson, Paul A.

- 1970 *Economics* 8th Edition New York: McGraw-Hill

U.S. Bureau of Census

- 1972 *Census of Manufacturers, 1972* Washington, D.C.: U.S. Government Printing Office
- 1972 *Census of Selected Services, 1972* Washington, D.C.: U.S. Government Printing Office
- 1972 *Census of Retail Trade, 1972* Washington, D.C.: U.S. Government Printing Office
- 1972 *Census of Wholesale Trade, 1972* Washington, D.C.: U.S. Government Printing Office
- 1975 *County Business Patterns, 1975* Washington, D.C.: U.S. Government Printing Office