The Geographical Distribution of Emigrants by Place of Origin: The Case of Okinawa

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Abstract

On the basis of the 1935 statistical data on international emigration from Okinawa, this paper explores the determinants of the uneven distribution of emigrants by area of origin. It is found that emigrant-sending areas were characterized by higher standards of living than other areas. Consequently, there were inter-area differences in the ability to finance the high cost of international travel. The findings are consistent with the concept of migration as an investment.
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There are many Okinawan communities throughout the Americas (Tigner 1956, 1963). They are relatively concentrated in Hawaii, Brazil, Peru, and Argentina, in that order. These overseas Okinawan communities are the result of vigorous emigration from Okinawa to these countries during 1899-1941. The burst of Okinawan interest in the world outside Ryukyu at the turn of the century was also a curious socio-economic phenomenon. Economics and politics were inextricably intertwined.

The Kingdom of Ryukyu was annexed by modern Japan in 1879 and made a Prefecture of Okinawa in the state system of Meiji Japan. The unsettled international status of Ryukyu stemming from its former "dual subordination" to China and Japan compelled Japan to soft-pedal the modernization drive in Okinawa and to preserve the traditional culture, ethos, and institutions of Ryukyu until Japan's victory over China in the Sino-Japanese War of 1894-95. One of the major institutional changes introduced into Okinawa was the "land reform" (1899-1903) which terminated the traditional communal ownership of land and established private property in land. (For a historical overview of Ryukyu and Okinawa, see Kerr 1958; for geography, see McCune 1975.)

By coincidence, the overseas emigration of Okinawans began in 1899 with the first group of 27 going to Hawaii. After an interruption for three years, the process resumed in 1903 and continued uninterrupted till the outbreak of the Pacific War in 1941. In 1935, for which most
comprehensive data useful for the purposes of this paper are available, Okinawans living outside the Okinawa Prefecture (that is, Japan proper, dependencies of the Japanese empire and foreign countries) were 15.6 percent of the resident population of the prefecture (Ishikawa 1979: p. 89). At the time, 10 percent or more of the prefectural population was ethnically Japanese. If this is subtracted, the overseas Okinawan population would have amounted to more than 17 percent of the ethnic Okinawans (Ryukyuans) resident in the prefecture. ("Ryukyuan" is an ethnic designation of the people indigenous to the Ryukyu Islands, while "Okinawan" is an administrative designation of the people with their present or former permanent domiciles in the Okinawa Prefecture. Although the Ryukyu Islands are geographically larger than the Okinawa Prefecture, for practical purposes, the two designations can be used interchangeably.)

This represents a rather large relative volume of emigration within a short period, even astonishing as compared with the isolation and immobility of the Ryukyuan population before. In international migration (that is, to countries other than Japan), the Okinawa Prefecture out-ranked all other prefectures of Japan. However, very little attention has so far been paid to the analysis of variations in the rate of emigration among prefectures of Japan or among subdivisions of a prefecture. An outstanding exception is Wakatsuki 1979, which consciously pursues a statistical test of quantitative hypotheses but runs into the data problems that limit the range, coverage and matching of the dependent and independent variables. The Wakatsuki conclusion is that at the present stage of knowledge, not even one
factor can be named as a significant determinant for the variations in the rate of international emigration among geographical areas of Japan.

In this paper, as far as data are concerned, we are more fortunate than Wakatsuki: (1) we deal with a small, culturally distinct socio-economic system; and (2) we have data on emigration and related factors covering all the administrative subdivisions of the system we are dealing with (shi-gun-cho-son, or city, county, town and village, administratively defined). (There is a trade-off between the scope of the object of study and the extent of details that can be known about it.) Data on several plausible independent variables are available in the multi-volume History of the Okinawa Prefecture (Okinawa kenshi, especially vols. 7 and 20). Although the quality of the usable data is still subject to debate, multiple regression experiments are facilitated without excessive investment in the preparation of the data. Unfortunately, the available data are largely demographic and economic in nature. Equally comprehensive data on ascriptive and socio-psychological factors are not available. Without such data, motivations and decisions to migrate can only be speculated about. Observations on attitudinal factors, scattered throughout this paper, are based on the authors' personal insights into the culture and institutions of Okinawan society.

I. Hypotheses and Data

Migration research is often organized around "push" and "pull" factors as sources of motivation or incentive for population movements. When operationalized, studies of migration in these terms tend to
associate emigration with poverty, unemployment, or other misfortunes of the source area. However, the semantics of "push" and "pull" factors may distort the thrust of research and the interpretations of results (Gregory 1986: especially pp. 185-204).

A general non-controversial hypothesis about geographical labor mobility from the perspectives of labor economics is that labor moves from low-income to high-income areas. Indeed, at a highly aggregative level, Japanese and Okinawan migration experience bears this out. During the period under consideration, the average income was lower in Japan than in the countries to which the Japanese and Okinawans emigrated. Within Japan, Okinawa was the poorest of its prefectures. Thus, Okinawa's rate of emigration being highest among Japanese prefectures supports the labor mobility hypothesis. In our data, the rate of emigration is defined as the stock of emigrants overseas as a percent of the source area population (1935).

However, disaggregated data seem to suggest something entirely different. In Okinawa, it is better-off areas which show higher rates of emigration. This calls for a reconsideration of the sources, types and qualities of emigrants in comparison to general characteristics of the population of an emigrant-sending country.

The principal source of the emigration data is Ishikawa 1978. The data on the independent variables are from the Okinawaken shi (History of the Okinawa Prefecture), vol. 20. The unit of observation is the sub-prefectural administrative area; shi, gun, cho, son (city, county, town or village). There are 61 observations for statistical analysis. There are three destinations of emigration from Okinawa: Japan proper,
dependencies of the Japanese empire, and foreign countries. In 1935, 46.1 percent of Okinawan emigrants were in foreign countries (especially in the Americas), 34.9 percent in Japan proper, and 19.0 percent in the dependencies of the Japanese empire (especially Taiwan and Micronesia). Table 1 presents simple correlation coefficients between rate of emigration by destination and variables thought to be explanatory. The actual numbers and distribution of resident emigrants by major destinations are also noted.

Insert Table 1 about here

Comments on Table 1 and the characteristics of the variables may now be offered as a preliminary analytical interpretation of the determinants of emigration.

For the explanatory variables, desirable data should refer to periods around the beginning of emigration. The data of earlier dates reflect the initial conditions that must have shaped the motivation for emigration. They may be considered "causal." Later data may in part reflect the "effects" of emigration that had occurred in preceding years. Some of the available data do not always meet these "cause and "effect" considerations. Later data may be proxies for earlier conditions under long-term structural stability, however. We sometimes use later data, with qualifications and reservations, for guessing what initial conditions might have been.

Population density (per square kilometer). This is generally considered a "push" factor in migration studies. The data on population density in this paper are for 1935, the same year as that of the
emigration data. Population data for around 1900 are more appropriate, but unfortunately unavailable. A peculiar relationship that emerges in our statistical analysis between the emigration rate and population density is more extensively commented upon later in this paper.

Per capita output (in yen). This refers to the 1940 gross value of output per capita from agriculture, livestock, forestry, fishery, mining, and manufacturing. Again, the data fail to meet the chronological requirements of causes and effects, unless the ranking of areas by per capita output was similar between 1940 and, say, 1900. Besides, the absence of the output of other sectors (construction, trade, utilities, services, etc.) biases the figures against urban or urbanizing areas. This remark is most relevant to the capital city, Naha. To correct the bias against it, the Naha figure was doubled to approximate what one would consider as "output" of Naha.

Cultivated land per household (in tsubo, which is 3.31 square meter or 3.95 square yard). This derives from the 1894 Majiri data. ("Majiri" was the premodern basic administrative unit replaced by the modern system in 1908. Boundary adjustments that took place at the time of transition introduced some discontinuities into the statistical data.)

The date of the data in this case meets the "cause and effect" considerations. Table 1 shows a rather strong negative correlation between this variable and the rate of international emigration, implying that people in areas where land was relatively plentiful were more reluctant to emigrate than those in land-scarce areas. This relationship is intuitively plausible.
Land value per tan (\(\text{tan} = 300\) tsubo = about a quarter of an acre). This refers to the value of dry field of 1902. Dry fields for upland crops exist in all areas, while some areas lack wet land for paddy rice. The choice of dry land increases the coverage of this variable. The date of the data meets the "initial conditions" criteria.

The correlation between this variable and international emigration is positive and fairly strong. If land value is taken as an indicator of an area's economic level, the positive correlation implies that people of better-off areas were more prone to emigrate than people of worse-off areas. This conflicts with expectations from "push" factors.

Tax burden per household (in yen). This includes state and local taxes of 1901. This was part of the "initial conditions." It may also be considered as an indicator of the household's ability to pay taxes and, therefore, an indicator of the household's level of living. The positive correlation between this variable and international emigration implies that better-off households were more able to send their members abroad than worse-off households.

State taxes in arrears per household (in yen). This refers to 1911. This also meets the "initial conditions" criteria. It is an indicator, though in the reverse, of an area's relative well being. More directly, it is an indicator of an area's relative poverty. In Table 1, this variable is positively correlated with emigration to Japan. This appears to imply that a "push" factor was at work; i.e., poorer people were pushed out of Okinawa by their own poverty. But they went to Japan instead of foreign countries. It then appears that
richer people emigrated to the Americas, while poorer emigrated to Japan.

Immigrant households as a percentage of the area households. The "immigrant household" is one that is not permanently domiciled (hi-honseki) in the area concerned. This refers to 1913 and can still be considered part of the "initial conditions." Migrant-receiving areas were the urbanizing capital city (Naha) and several outlying areas (Kunigami) and islands (Yaeyama). There is some negative correlation between this variable and emigration.

Distance from the prefectural capital. This is an illustrative variable: two cities (Naha, new capital, and Shuri, old capital) = 0, counties, towns and villages adjacent to the capital on the Okinawa Island = 1, towns and villages in a northern county (Kunigami) and in islands around the Okinawa Island = 2, and remoter Southern Ryukyu (Miyako and Yaeyama) and Great East (Daito) islands = 3. This variable is thought to be a proxy for access to information on employment opportunities abroad. "Emigration companies," for example, had their main offices in the capital. Transportation was costly and inconvenient during the period under consideration. In Table 1, international emigration is negatively correlated with "distance."

School enrollment rate. This refers to the primary school enrollment rate in 1890, when modern school education was not widespread. By 1930, primary school enrollment in all areas converged toward 100 percent of the relevant age groups. The earlier dispersion in school enrollment among various areas is thought to have oriented people
differently with respect to the outside world. However, this variable is not correlated with any of the emigration variables in Table 1.

II. Regression Analysis

We now proceed to identify the combination of independent variables that offers the best explanation for inter-area differences in the rate of emigration. The method is computer-assisted stepwise regression. (The computer starts with the single most significant variable and keeps adding variables in steps according to the order of significance from among the remaining variables. Computations automatically stop roughly when the adjusted $R^2$ is maximized.) This method was applied to international emigration and to emigration to Japan. The results are presented in Tables 2 and 3.

| Insert Tables 2 and 3 about here |

The "best" explanation is the equation which gives the highest adjusted $R^2$ subject to the condition that all the regression coefficients are significant. According to this standard, the best explanation for inter-area differences in the rate of international emigration is Equation 6 in Table 2, where the explanatory variables are population density, cultivated area per household, land value, and tax arrears per household. Similarly, the best explanation with respect to emigration to Japan is Equation 4 in Table 3, where the explanatory variables are cultivated land per household, land value, rate of immigration, and tax arrears. The explanatory power of the international emigration equation is substantially higher ($R^2 = .3856$) than that of the emigration to Japan equation ($R^2 = .2025$).
Comments on the "best" explanatory variables and their coefficients are now in order. Equation 6, Table 2 (international emigration) and Equation 4, Table 3 (emigration to Japan) share 3 variables in common: cultivated land per household, land value and tax arrears per household. In both equations, cultivated land per household carries a negative sign, indicating that more people tended to move out of land scarce areas. Interestingly, the signs of the other two common factors are reversed between emigration to Japan and international emigration. Both of the variables can be considered proxies for the relative well being of the sending areas. The positive sign of the land value variables suggests that international emigration was more vigorous in richer areas than poorer ones. On the other hand, emigration to Japan was more vigorous in poorer areas, as suggested by the negative sign of the land value variable and the positive sign of the tax arrears variable. We attach central importance to this contrast in the economic characteristics of sending areas for Japan and foreign countries. To dramatize a little, richer emigrants from Okinawa went to the Americas, while poorer emigrants went to Japan. We probe analytical implications of this contrast in the next section.

Before we proceed, two variables deserve comments.

(a) Population density

One of the strong determinants of the international emigration equations (Table 2) is population density. The inclusion of population density in this analysis was inspired by its popularity as a "push" factor for emigration. The expected sign of the coefficient
for this variable was positive. But we ended up with a negative sign. This is hard to interpret. Since the data refer to the same date, 1935, as the rate of emigration (more than 30 years after the emigration began), it is possible that emigration itself may have had a cumulative effect of reducing the population density of the sending area. If emigration on a scale that de-populates the sending area is "incredible," an alternative interpretation may be that the areas with high rates of international emigration may have had lower population density to begin with. But then the puzzle is why lower-density areas should produce relatively more emigrants than higher-density areas. At the moment, we lack proper historical data on population density by area that may clarify the issues like this.

A numerical exercise might shed some light on this question. Before World War II, Okinawa's natural rate of population increase was about 1 percent per annum. At this rate in a closed society, the original population would increase by 42 percent over 35 years. If emigration over the same period occurs on a scale equal to the population increase, the society in question ends up having a rate of emigration, as defined by us, equal to 42 percent. The total rate of emigration (to all destinations) ranges from a low of 2 percent to a high of 53 percent in our data. With such generally high, but varied rates of emigration among areas of origin, it is conceivable that over a period of 35 years, the initial ranking of these areas by population density might have been considerably disturbed. In an extreme hypothetical case of an equal density of all the areas at the beginning and an
equal natural rate of population increase in subsequent years, the rate of migration at the end would be inversely and perfectly correlated with the population density across the areas. To what extent the actual experience in Ryukyu approximated these hypothetical conditions cannot be answered without reliable population data by area over time. The need for historical demographic research is indicated.

(b) Internal migration

This variable is significant in the emigration-to-Japan equations. Its sign is negative as expected, indicating that relatively fewer people emigrated to Japan from immigrant-receiving areas of Ryukyu. This is intuitively plausible, although why similar logic with respect to international emigration does not work is rather puzzling. Indeed, this simple correlation between the rate of immigration and the rate of international emigration is negative and fairly strong (Table 1). But this variable was not picked up by the computer as a significant determinant in multiple regression (Table 2). One wonders whether the failure to play a role in multiple regression renders simple correlations "spurious." This is a technical puzzle for which we have no explanation.

Another technical puzzle may be mentioned in passing. As shown in Table 2, the strongest variable that first enters the stepwise regression is "distance." As other variables are added, it is washed out by the time the "best explanation" (Equation 7) emerges. This again makes one wonder if "distance," which at first sight appears important
(borne out by strong simple correlation), is also "spurious." Regardless of its technical merit, the eventual non-significance of "distance" introduces a new element into the interpretation of international emigration of Okinawans. For example, despite distance variations from the urban center, one might hypothesize that all areas were evenly impacted by information on employment opportunities abroad—an important assumption which helps the following interpretation of emigration behavior.

III. Emigration as Investment

One major economic factor that rationed the opportunity for international emigration in favor of better-off farmers of Okinawa was the cost of travel to Hawaii or other places in the Americas, including transportation, lodging, fees to the emigrant-recruiting company, entry taxes, required cash reserves, etc. The trip to Hawaii for plantation employment in the first decade of the twentieth century cost each immigrant about ¥250. Brazil was twice as expensive. During the same period, the annual earnings of contract labor on Okinawan farms were about ¥24, while the day labor rates were about ¥0.12, which would result in ¥36 of annual earnings under a favorable assumption of 300 days worked in a year. At such earnings, the cost of an international travel was prohibitive to ordinary laborers (Kinjo 1974: pp. 120-123).

The price of land in better-off farming areas around the prefec-
tural capital was about ¥20 per tan in 1902. The area of cultivated land per household was about 12 tan. The proceeds from selling the
family farm plus some liquid savings, if any, would have been the maximum a household could raise. And yet this maximum was barely enough to enable one person to travel overseas. The outright sale of a family farm was of course too reckless a way of raising cash for emigration. A common way was to borrow from the rich in the neighborhood by mortgaging the land or from friends through a mutual assistance arrangement called moai (tanomoshi in Japanese). If there are 15 participants with a share of subscription at ¥20, one can borrow ¥300, which is paid back to the group in installments of ¥20 plus interest at regular intervals. The moai group dissolves when all participants have had their turns to obtain the pooled resources. (This is only an illustration of the basic mechanism of moai. In actual practice, there are several variations on the theme.)

Emigrant recruiters also profited from lending money to the emigrants secured by their families' or relatives' land. This was an open invitation to unethical practices. Some recruiters exploited the relative ignorance of the emigrants regarding the fine points of the contracts. The unwary emigrants' families or relatives were thus forced to give up land by foreclosure due to faulty contracts that the emigrants signed in ignorance. Despite occasional litigations and sensational reports on frauds in the newspapers, however, emigrants kept leaving Okinawa year after year. A great majority of them were no fools; they knew how to safeguard their interests. Nor were all recruiters racketeers; many made honest profits.

What attracted Okinawans to overseas farm employment was obvious: high wages. In Hawaii, in 1904, the monthly earnings of farm workers
were ¥30, half of which was spent on food. If they saved ¥5 to ¥10 per month, their annual savings would amount to ¥60 to ¥120. It was commonly believed that the equivalent of the travel expenses could be saved from earnings in three to five years. Emigrants dutifully remitted a good part of their savings to their families or relatives in Okinawa, initially to pay off the debt incurred for the travel and later to share with them the profits of emigration. Emigration was thus an investment which produced income streams over time. For the contemporary Okinawan level of living, it was a very good investment.

A few more quantitative illustrations may be helpful. From statistics on emigrants' remittances during the period of 1926-1937 (Ishikawa 1978: p. 61), it may be estimated that the remittances per emigrant were, conservatively, ¥70 per annum. Even if the cost of travel for emigration had risen to ¥1,000 by this time (although a number of changes in the emigration procedures such as new subsidies to emigrants to Brazil in the 1920's as well as economic development in Ryukyu itself may have kept the actual cost to the emigrant at a level lower than that), the rate of return (annual per-emigrant remittances relative to investment in emigration) amounted to 7%, not a bad rate of return.

In the early 1930s, Japan's net national product per capita was ¥230. Okinawa's could not have been more than one-third as much as Japan's, or ¥77. Okinawan emigrants' remittances per emigrant, averaging at ¥70, were close to this figure. The aggregate of remittances would have reached more than 10% of Okinawa's net national product.
Thus, emigration's macroeconomic impact on the Okinawan economy must have been substantial.

The view of emigration as investment clears the mystery of the question why it was the better-off areas of Okinawa that produced relatively more emigrants. This only amounts to saying that it was the better-off areas that invested relatively more in income-yielding assets. This is also consistent with the common belief that higher-income people invest proportionately more from their incomes than lower-income people do from theirs.

To put the Okinawan emigration behavior in a broader perspective, it may be noted that migration as an investment is actually a well-received view among labor economists. For example, T. Paul Schultz cogently puts: "Since migration requires resources and time to realize a new set of employment and consumption opportunities, it is often treated as an investment opportunity" (Schultz 1982: p. 101). Peter Gregory expresses a similar view (Gregory 1986: p. 189). Gregory's generalizations on the sources, attributes, behavior and destinations of Mexican emigrants to the United States corroborate the migration behavior of Okinawans. "One of the most striking [constants in the character of migration flow] is the stability in the relative importance of various states [of Mexico] as a source of migrants and the disproportionate share of migrants contributed by small number of states" (ibid., pp. 185-186). This can also be taken as a description of the migrant flow from Okinawa as to its source areas within Okinawa. Further, questioning the validity of argument for "push" factors,
Gregory points out that "some of the poorest states in the republic... are very minor sources of migrants (ibid., p. 195), that "even within [the sending] states, migrants do not necessarily originate in those communities with the poorest employment prospects" (ibid., p. 196), and further that within the sending communities, "it is not the poorest households that provide the migrants to the United States" (ibid., p. 196).

The literature on disaggregated cross-section studies of emigrants in relation to their areas of origin in the sending country is not extensive in the United States. (Examples of sub-national (disaggregated) studies of source areas of immigrants to the U.S. are Chaney 1986, Hvidt 1975, Kubiak 1981.) The usual study of "origin" uses a country (nation-state) or a region comprising several countries (Asia, Africa, Europe, etc.) as the unit of analysis. Such studies also tie in well with ethnic studies in the U.S. One unfortunate consequence of the study of immigrants from the vantage point of the receiving country is the temptation of a facile belief in "push" factors, hastily concluding on the basis of international income or wage comparisons, that the immigrants must have been the poorest of people in their countries of origin. It is true that the immigrants to the U.S. before their arrival had lower incomes than what they expected to earn, and later actually earned, in the United States. Much of this personal betterment was the reflection of the international income differential between the United States and the emigrants' lower-income home countries. But this does not mean that they were necessarily poorer than their average compatriots in their home countries.
Disaggregated (cross-section) studies suggest that they were better-off people by the standards of the sending countries.

IV. Okinawan Emigration to Japan

The emphasis of this paper is on Okinawan emigration to countries other than Japan. But the same type of data are available on Okinawan emigration to Japan and the colonies of the Japanese Empire. The data on emigration to Japan are subjected to a similar statistical analysis in Section II above. What is remarkable about the regression results is the reversal of the signs of two powerful determinants for the rate of emigration between international and to-Japan emigration. Generalized, this reversal indicates that better-off people emigrated to foreign countries and poorer people to Japan.

One economic factor is responsible for the contrasts between international and Japan-bound emigrants from Okinawa. The cost of travel to Japan was much lower than that to international destinations. The investment in the travel to Japan therefore made sense despite much lower Japanese wages (roughly one-third as high as the wages in Hawaii, for example). In addition, although international emigrants were predominantly adult male farmers (joined later by their spouses), migrants to Japan were unskilled construction workers or girls recruited for textile factories. Many of the migrants to Japan returned to Okinawa after short periods of employment in Japan under the well-known arrangements called dekasegi. An increasing number, however, settled permanently in Japan. Despite the geographical proximity of Japan and the ease of travel back and forth between Japan
and Okinawa, the stock of Okinawans in Japan in 1935 was smaller than that in foreign countries. This was in part due to the weakness of demand for labor in Japan. The net return to migration may well have been lower in Japan than abroad: e.g., per capita remittance per remitter from Japan in 1926 was ¥39 (Aniya 1974: p. 244), as compared with the previously mentioned ¥70 per emigrant from the Americas. However, the relative unattractiveness of Japan for Okinawans was also psycho-cultural, stemming from historical relationships between Japan and Ryukyu.

The historical forces that shaped the geographically differentiated responses of various areas to the pressure or opportunity for emigration are complex. But several non-quantifiable factors are well-known. Okinawans began to pay attention to employment opportunities outside Ryukyu, just when the hopes for reviving the Ryukyuan state were conclusively destroyed and when Japan's pressure for assimilation and acculturation of Okinawans began to intensify. It is possible that the negative image of Japan in the minds of Okinawans directed their attention away from Japan and to other countries. Especially frustrating was the language barrier: though of common Altaic origin linguistically, Japanese and Ryukyuan parted company with each other 2,000 years ago and developed independently (Rouse 1986: pp. 77-83).

Between 1900 and 1940, Japan succeeded in a high degree of assimilation and acculturation of Okinawans. By 1940, many Okinawans had come to think and say of Japan as "our country." The early antipathy toward Japan had considerably diminished, although it had not completely disappeared. Okinawan emigration to Japan began in earnest in
the early 1920s. But by then, some areas of Okinawa had already been linked to international emigration due to their earlier head start and the "gravity effects" of emigrants abroad from those areas (Kinjo 1974: p. 131).

The implied dichotomy that Okinawans in the central areas favored international emigration and those in poorer outlying areas preferred Japan may also reflect different effects of Japanization on Okinawans of different areas. Okinawans in the central areas were proud Ryukyuans with memories of the glory days of the Ryukyu Kingdom still strong in their minds. Okinawans in the outlying areas were as much "subjects" of a remote state even during the Ryukyu days as they were of Japan in the 20th century. Okinawans in these areas therefore may have become more easily "Japanized" than central Okinawans. These different socio-political statuses of Okinawans in different parts of Ryukyu, rooted in Ryukyuan history, may be considered "ascriptive" insofar as they were inherited, not chosen, by the 20th-century Okinawans.

V. Okinawan Emigration to the Japanese Empire

Okinawans in the dependencies of the Japanese empire were the smallest of the three major groups of emigrants from Okinawa (Table 1). No multiple regression analysis has been performed on them yet. Although simple correlation is a poor guide for the evaluation of the relative merits of various factors as attested by the analysis of international and Japan-bound emigration, Table 1 suggests a pattern
of determinants for emigration to the empire which appears to be different from that for international or Japan-bound emigration.

Future quantitative analysis can benefit from the implications of the findings of historical research on Okinawan emigrants in the Japanese empire. For example, Japan's Micronesia took 3/4 of all empire-bound emigrants from Okinawa. One study describes the significance of Micronesia to Okinawans as follows:

For Japanese from the Ryukyu Islands, Okinawa in particular, Micronesia seemed to hold the greatest hope for new beginnings. Among the poorest of the nation's prefectures, with a population density greater than most of the rest of Japan, a great surplus of labor, and too little land, the Ryukyus had begun to experience intolerable economic and population pressures even before 1900 (Peattie 1986: p. 157).

The above is an aggregative description emphasizing Okinawa's need for emigration because of poverty and population density. A prediction implicit in the statement is that given the pressures ("push" factors) for emigration in Okinawa that are higher than in Japan, the Okinawan rate of emigration to Micronesia should be higher than the Japanese. This "prediction" was historically proved correct. Not only was the "rate" of emigration higher, but Okinawans in Micronesia, though coming from a population base that was less than 1 percent of Japan's, exceeded the Japanese in number. Thus we rediscover the same relationship as established earlier: the aggregative comparison of Japan and Okinawa validates "push" factors. But, how all this may look when disaggregated by area of origin remains to be seen.
Conclusion

This paper examines the distribution of the rate of emigration by area of origin in the sending country on the basis of data from the Okinawa prefecture of Japan. The rate of emigration is defined as the stock of emigrants from an area as a percentage of that area's resident population at a point in time (1935 in this paper). It is found that areas with higher rates of emigration are economically better-off than areas with lower rates of emigration. This is puzzling from the standpoint of emigration theories which emphasize "push" factors. These theories imply that emigrants are poorer elements of the sending country. However, our findings are consistent with labor mobility theories which regard migration as an investment in higher-income employment opportunity. Although the "pull" of very high overseas wages (almost unbelievably high to the Okinawans during 1900-1935) was the same all over Okinawa, the cost of travel to places where these wages could be earned was exorbitant, equivalent to the entire value of the average family farm in areas of higher land value. People in these areas utilized informal credit facilities to raise the required cash. People in poorer areas simply lacked the initial resource endowments to generate enough cash for international travels.

Statistically significant cross-section relationships are found between economic factors and emigration. However, as the adjusted R-square indicate, these economic factors explain at most 40 percent of the inter-area differences in the rate of emigration. A great deal still remains to be explained. Some of the factors needed for better explanation may well be non-economic. The unusual historical context
in which international emigration from Okinawa occurred may play a role in such endeavors.
Footnotes

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<th>Variables</th>
<th>Rate of international emigration</th>
<th>Rate of emigration to Japan</th>
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<th>Rate of emigration to all destinations</th>
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<tbody>
<tr>
<td>International</td>
<td>1.000***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Japan</td>
<td>-0.079</td>
<td>1.000***</td>
<td>-0.052</td>
<td>0.658***</td>
</tr>
<tr>
<td>To empire</td>
<td>-0.018*</td>
<td>-0.052</td>
<td>1.000***</td>
<td>0.245*</td>
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<tr>
<td>To all destinations</td>
<td>0.692***</td>
<td>0.658***</td>
<td>0.245*</td>
<td>1.000***</td>
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<tr>
<td>Population density</td>
<td>-0.089</td>
<td>-0.042</td>
<td>-0.270**</td>
<td>-0.170***</td>
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<tr>
<td>Per-capita output</td>
<td>0.102</td>
<td>-0.197</td>
<td>0.138</td>
<td>-0.039</td>
</tr>
<tr>
<td>Cultivated land per household</td>
<td>-0.424***</td>
<td>0.184</td>
<td>0.007</td>
<td>-0.447***</td>
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<tr>
<td>Land value per tan</td>
<td>0.429***</td>
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<td>-0.222*</td>
<td>0.134</td>
</tr>
<tr>
<td>Tax burden per household</td>
<td>0.348**</td>
<td>-0.206</td>
<td>-0.006</td>
<td>0.027</td>
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<tr>
<td>Tax arrears per household</td>
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<td>0.251**</td>
<td>-0.244*</td>
<td>-0.033</td>
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<tr>
<td>Immigrants as % of area population</td>
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<td>-0.135</td>
<td>-0.103</td>
<td>-0.365***</td>
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<tr>
<td>Distance from capital city</td>
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<td>-0.044</td>
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<td>School enrollment</td>
<td>0.032</td>
<td>-0.188</td>
<td>-0.205</td>
<td>-0.178</td>
</tr>
</tbody>
</table>

**Reference:**
- Number of emigrants (persons): 42,669 (46.1); 32,335 (34.9); 17,614 (19.0); 92,618 (100.0)
- Rate of emigration (%): 7.2; 5.5; 3.0; 15.6

*Significant at 10%.
**Significant at 5%.
***Significant at 1%.
Table 2. Computer-Assisted Stepwise Regression Experiments: The Rate of International Emigration as the Dependent Variable

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
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<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
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<tbody>
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<td>0.406</td>
<td>0.325</td>
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<td>Tax burden</td>
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<tr>
<td>Tax arrears</td>
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<td>-2.168</td>
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<tr>
<td>Immigrants as % of area population</td>
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<td>-3.470</td>
<td>-1.859</td>
<td>-0.487</td>
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<tr>
<td>School enrollment</td>
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</tr>
<tr>
<td>Adjusted R²</td>
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<td>.3098</td>
<td>.3221</td>
<td>.3414</td>
<td>.3753</td>
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<td>.4026</td>
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</table>

*Significant at 10%.
**Significant at 5%.
***Significant at 1%.

Unit of measurement:

Rate of emigration: %; population density: 1000 per square kilometer; per capita output: yen; cultivated land: 1000 tsubo; land value: yen per tan; rate of emigration: %; distance: 0, 1, 2, 3; school enrollment: %.
Table 3. Computer-Assisted Stepwise Regression Experiments: The Rate of Emigration to Japan as the Dependent Variable

<table>
<thead>
<tr>
<th></th>
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<th>(5)</th>
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<td>Population</td>
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<td>density</td>
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<tr>
<td>Per capita output</td>
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<td>(2.26)**</td>
<td>(2.02)**</td>
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<tr>
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<td></td>
<td>(1.99)**</td>
<td>(3.09)***</td>
<td>(3.69)***</td>
<td>(3.46)***</td>
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<tr>
<td>Immigrants as % of area population</td>
<td>-0.241</td>
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<td>-0.299</td>
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<td>(2.54)**</td>
<td>(3.10)***</td>
<td>(3.14)***</td>
<td>(3.10)***</td>
<td>(3.03)***</td>
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<tr>
<td>Distance</td>
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<tr>
<td>School enrollment</td>
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<tr>
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<td>(5.05)***</td>
<td>(4.73)***</td>
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</tbody>
</table>

*Significant at 10%.
**Significant at 5%.
***Significant at 1%.