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Standardized Birth-, Death- and Natural Increase Rate

of 127 cities in 1935

by

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I. Aim

The aim of this research is to measure the differences found between the natural increase of the cities, and to clarify their characteristics.

II. Method.

Will the birth-rate, death-rate, and the natural increase rate of 1935 in 127 cities of Japan Proper in hand, we have calculated standardized birth-rate, death-rate and natural increase rate. The method is based on New Sholme-Stevenson's Indirect Method of Standardization, and crude rates we used were the average of the three years that respectively precede and follow 1935.

III. Results.

The results are shown in the last table of this data paper. The observation according to this table are as follows.

1. Birth-rate.

The rate in urban districts is exceedingly lower than the average rate, but in about one third of 127 cities the rate is lower than the average urban rate. Above all, Kochi comes last on the list, its rate being 7.12% lower than the average urban rate, with Okayama, Naha, Kobe, Shimonoseki, Osaka, Amagasaki, Moji following in the like order as mentioned here. About two thirds of the 127 cities have a higher rate than the average urban rate, and Hachinohe, above all, comes first on the list showing such a higher rate as 10.75% than the average rate, Yonezawa, Koriyama, Sanjyo, Tsuruoka, Sendai, Naokata, come next on the list and they are here arranged in order as before. These seven cities have the high rate exceeding the average rate.

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Of the six largest cities the rate is remarkably low in Kobe and Osaka, a little lower in Kyoto, a little higher than the average urban rate in Tokyo and Yokohama, and in Nagoya the rate is still higher.

Of the 28 cities, excepting 6 largest Cities, with a population of over 100,000, birth-rate is lower than the average urban rate in nearly 40% of them, about of 53 cities with a population of 50,000 -- 100,000 only 30% of them have lower birth rate than the average urban rate, and of 40 cities with a population of less than 50,000 the birth rate is lower in only 20% of the cities.

Generally speaking, the rate is low in many of cities with large population, and the case is just reverse in many of the cities with small population.

But here we have some exceptions: Sendai, Hakodate, Shizuoka, and Sapporo are the cities, with large population but the birth rates are high, and Onomichi, Kurashiki, and Kishiwada are cities with small population but the rates are low.

Cities where the rate is lower than the average urban rate are distributed in Hokuriku (Niigata excepted), Kinki, Chugoku, Shikoku, the Northern Kyushu districts, while not one city of this kind canbe found in Kwanto, Tohoku, and Hokkaido. In various cities in Hanshin area the rate is very low. On the contrary, in most cities in Tohoku and Hokkaido the rates are equally over 30% higher, and the rate are also high in many cities belonging to the Districts of Kwanto, Tosan, Tokai, in Niigata Prefecture as well. The distribution of cities with high birth-rate in Eastern Japan shows a good contrast to that of the cities in Western Japan where the rate is lows.

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2. Death-rate.

The average urban death-rate is a little lower than the average of all Japan. The rate is still lower than this urban average in about 30% of the 127 cities. On the list, Ichikawa shows lowest, where the death-rate is 3.07% lower than the average urban rate. Next on the list come in turn Urawa, Naha, Shimizu, Miyakonojo, Tokyo and Nishinomiya. Among the cities where the rate is higher than the urban average, Kanazawa comes foremost on the list, its rate being 7.8% higher than the average urban rate. Takada Takaoka, Asahikawa, Obihiro, Hirosaki, and Hachinohe come on the list each following after what precedes.

Of the Six largest Cities, it is Nagoya only where the rate is higher than the average urban rate, and following it on the list are Kyoto, Yokohama, Osaka, Kobe, and then last of all is Tokyo where the rate is lowest, Cities where the death-rate is higher than the average urban rate are 75% of 28 cities with a population of 100,000 (the 6 largest Cities omitted), and are 75% of the 53 cities with a population of 50,000 -- 100,000, and 73% of 40 cities with a population of less than 50,000. Thus, concerning the death-rate we can not find any characteristics by population class of cities, as seen in the case of birth-rate.

Cities where the rate is higher than the urban average are found distributed in Hokkaido, Tohoku, Hokuriku, Southern Half of Kinki Districts Shikoku and Kyushu. Cities with high rates are found especially in Tohoku and Hokuriku. Cities where the rate is lower than the urban average are found distributed in Kwanto, Tokai, Tosan, Keihanshin, Chugoku and in a part of Kyushu. Though the contrast is not seem between Eastern Japan and Western Japan as in the case of birth-rate, a group of cities

where the rate is generally high and which are found in Hokkaido, Tohoku, and Hokuriku is in a marked contrast to the other group lying in Kwanto, Tokai, Tosan districts, Keihanshin area and Chugoku districts, and where the rate is low.

3. Natural Increase Rate.

The urban natural increase rate is very low than the general average or the average throughout the country. Yet in about 40% of the 127 cities the natural increase rate is still lower than the average urban rate. Kochi, above all, has - 2.23% and comes lowest on the list and with Kanazawa its rate is negative. Next to these cities come Fukui and Beppu where the rats are over 7% lower than the urban average. Next on the list come Takaoka, Yamaguchi and then Okayama. Of 65 cities where the rate is higher than the urban average, Shimizu is the foremost in showing more than twice the rate than urban average, with Koriyama, Yonezawa, Yawatahama and Shizuoka following it each coming on the list after what precedes as is written above, in these five cities the rate is higher than the average of the whole Japan.

Of all the Six largest Cities, Tokyo is the top (highest); Nagoya is the second, Yokohama, Kyoto and Kobe are respectively the third, fourth and the fifth, and Osaka is the last Kyoto and the two following cities are those in which the rate is below the urban average. By population class, requiring the ratio of cities where the rate is higher than the urban average, such are 51% of the 28cities, with the exceptions of Six largest Cities, having a population of over 100,000, 57% of 53 cities with a population of over 50,000, and of 40 cities whose populations are less than 50,000 70% come under this head. In other words, we come to a general conclusion that cities where

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the natural increase rate is high can be found most widely in the cities with small population while in cities with large population few such cities are found out. The cities whose population is less than 50,000 and where the rate is high are such as Yamaguchi, Shingu Onomichi, Kishiwada, Kurashiki, and while Shizuoka, Sendai, Niigata and Kagoshima are the cities with a population of our 100,000 and where the rate is high.

The cities where rate is higher than the urban average may be found comparatively many distributed in each of Tohoku, Kwanto, Tokai, Tosan and Niigata Prefecture, but are found only scattered in other districts.

Cities where the rate is low are found most widely distributed in such districts as Hokuriku with Niigata excepting, Kinki, Chugoku, Shikoku and the Northern Kyushu, and this distribution is very much similar in the distribution of the birth-rate, showing that in Eastern Japan where they have high birth-rate natural increase rate is also high and in Western Japan where the birth-rate is low, natural increase rate is also low. And thus, various cities in Kwanto and Nobi Plains are in marked contrast to those cities in Hanshin area and Northern Kyushu. district.

Typically classified, we have the following classes of cities where the natural increase rate is high:

a) Shimizu and Shizuoka where the birth rate is considerably high and the death-rate is remarkably low;

b) Nagano, Takasaki, Hachioji, Yawatahama where the birth-rate is high and the death-rate is low to a considerable extent;

c)

c) Koriyama, Yamagata, Niigata, Sendai, Maebashi, and Kumagaya where the birth-rate is high and the death-rate is neither high nor low; and

d) Yonezawa, Hachinohe, Sanjo, Nokata, Kushiro, Wakamatsu (in Fukushima), where the death-rate and the birth-rate are equally high.

Next we come to examine those cities where the natural increase rate is very low, and we have the following classes:

a) Kochi, Kanazawa, Fukui, and Beppu, where the birth-rate is considerably low while the death-rate is very high;

b) Okayama, Shimonoseki, Osaka, Hiroshima, Onomichi, Moji, and Amagasaki where the birth-rate is considerably low but the death-rate is neither high nor low;

c) Toyama, Takaoka, Shingu, and Yamaguchi, where the death-rate is remarkably high though the birth-rate is neither high nor low;

d) Naha and Kobe where the death-rate is remarkably low and the birth-rate is very low, too.

IV. Summary

1. In the distribution of natural increase in the urban districts, we can recognize very conspicuous regional characteristics — the natural increase in each individual city or town is the reflection of the characteristics proper to the prefecture or blocks of prefectures in which such a city or town is located. My belief is that it can be fully

explained

explained by the spacial limit of population movement treated by Ravenstein which I pointed in the other paper of mine.*1) The natural increase in urban population, however, clearly shows some decline than that of the surrounding localities. Then, what makes such difference? That is what is called "The Urban".

2. The determinant factor of the natural increase in urban population is not the death-rate but the birth-rate, the former distributes from 12% to 26% concentrating principally around 17%. On the contrary, the birth-rate ranges from 17% to 37%, which is very dispersing.

3. In big cities with a large population and that are densely populated as well and are conspicuously in dust realized, the general tendency is discernible that the natural increase rate is low since the birth-rate is low, but positive correlation is not clearly seen between the indices of each individual city, but as to the immigrant population rate some clear statistical correlation might possibly be expected. And if so, they may be one of helpful sources of proving positively the foundation of the social milieu theory concerning the increase and decrease of births.

*1) Cf. "Birth Place Composition of Population of 109 Cities in 1930". — Research-data, B. No. 12.