



The Theory of Change and Response in Modern Demographic History

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C U R R E N T I T E M S

THE THEORY OF CHANGE AND
RESPONSE IN MODERN
DEMOGRAPHIC HISTORY

The process of demographic change and response is not only continuous but also reflexive and behavioral—reflexive in the sense that a change

in one component is eventually altered by the change it has induced in other components; behavioral in the sense that the process involves human decisions in the pursuit of goals with varying means and conditions. As a consequence, the subject has a frightening complexity—so much so that the temptation is great to escape from its intricacies. One method of escape is to eschew any comprehensive theory, simply describing computations or working on a single hypothesis at a time. Another is to adopt some convenient oversimplification, such as the assumption that population is simply a matter of two capacities—a “reproductive urge” on the one side and “means of subsistence” on the other—or, at an opposite extreme, that demographic behavior is a function of a “traditional culture” or “value system.”

My purpose here is to try to encompass some of the complexities in an overall analysis of demographic change in the industrialized countries. To do this, I prefer to start with Japan. Not only does Japan, the sole fully industrialized non-Western country, furnish a perspective that no other country can furnish, but some phases of its population change are statistically better documented.

Abortion as a Demographic Response

The phenomenon most discussed—and one commonly regarded as peculiarly Japanese—is the rapid rise of the registered abortion rate from 11.8 per 1000 women aged 15-49 in 1949 to a peak of 50.2 per 1000 in 1955,¹ although at the latter date the registration of abortions is estimated to have been only 50 to 75 per cent complete.² The resort to abortion has been the leading cause of probably the fastest drop in the birth rate ever exhibited by an entire nation, births per 1000 women aged 10-49 falling by 41 per cent between 1950 and 1957. Westerners profess to be astonished by this phenomenon, but they should not be. The behavior of the Japanese is essentially the same in kind as the behavior of West Europeans at a similar time in their social and demographic history. The main difference is that Japanese tolerance permits the abortion rate to be reasonably well known, whereas in the past of Europe the abortion rate has never been known and, for this reason, is usually ignored in population theory.

Yet there is indirect and approximate evidence that in the late nineteenth and early twentieth centuries in Western Europe abortion played a great role. David Glass, who in 1940 summarized the findings for eight

Editor's Note.—This is the text of the address delivered by Kingsley Davis, International Population and Urban Research, University of California, President of the Population Association, at the banquet on the evening of April 26, 1963, at Philadelphia, as part of the annual meeting of the Association.

northwest European countries, cited the records of women under a German sickness benefit fund which show a gradual climb in abortions from 38 per 100 births in 1908 to 113 per 100 in 1932./³ In Belgium "there were many books explaining how to induce abortion and any woman could buy, for 60 centimes, a uterine syringe and use this to induce an abortion."/⁴ In both France and Germany advertisements by abortionists were freely published. In fact, one gets the impression that the attitude toward abortion in West European society was much less intolerant between 1900 and 1935 than it is today. A study of maternity cases in Israel in 1958 showed that, for women born in Europe, America, and Australia-New Zealand, 32 per cent of those having a third birth admitted having resorted to induced abortion./⁵

Finally, in five of the People's Republics in Eastern Europe, which have legalized abortion, the subsequent history of the rise of registered abortions, as summarized by Tietze,/⁶ is amazingly like that of Japan. In Hungary, for example, medical boards were established about 1953 for authorizing therapeutic abortions. "That these boards progressively liberalized their policies is reflected in the growing numbers of legal abortions from 1953 onward." After the decree of 1956 permitting "the interruption of pregnancy on request, the number of legal abortions increased rapidly until in 1959 it exceeded the number of live births."/⁷ Not only did the legal abortion rate rise rapidly in all four countries but also, as in Japan again, there was a substantial non-legal rate. The number of abortions per 100 births in 1961 was in Hungary, 145; Czechoslovakia, 55; Poland, 35; and Yugoslavia (1960), 34.

If, then, abortion was once a widespread practice in the most advanced countries of Western Europe, if it is now widespread in Eastern Europe, where it is legal and subject to record, and where economic development is behind that of Western Europe, there is no reason to regard the resort to abortion as peculiarly Japanese. It is not an outgrowth of ancient tradition in Tokugawa times; not an outgrowth of the absence of Christian ideology. It is a response to social and economic conditions arising in country after country at a particular time in the process of modernization. The fact that abortion was not safe earlier in the century shows how determined the people of northwest Europe were in their reproductive control. Now that it is reasonably safe when legalized,/⁸ it is an effective means of family limitation for Hungary and Poland as well as for Japan.

If Western prudery and Oriental realism have led to an exaggeration of the role of abortions in Japan, this tendency has been helped by a statistical illusion. Not only have abortions increased as births have fallen, but the sum of births and registered abortions for each year yields a combined rate per 1000 population that has changed little during the big fertility drop (Table 1)./⁹ This seems to say that an abortion was responsible for each birth saved. Actually, of course, abortions can and do occur much more frequently than births can./¹⁰ Other factors must therefore have played a role in Japan's falling birth rate.

Other Responses in Japan

One such factor was contraception. Irene Taeuber points out that this practice increased rapidly after 1950 although abortions were available,

Table. 1. Births and Abortions in Japan.

	Annual totals (000's)			Sum per 1000 Population
	Births	Abortions	Sum	
1949	2,697	102	2,798	34.4
1950	2,338	320	2,658	32.1
1951	2,138	459	2,596	30.8
1952	2,005	798	2,803	32.8
1953	1,868	1,067	2,935	33.9
1954	1,770	1,143	2,913	33.1
1955	1,727	1,170	2,897	32.6
1956	1,665	1,159	2,825	31.4
1957	1,563	1,122	2,686	29.6
1958	1,653	1,128	2,781	30.4
1959	1,626	1,099	2,725	29.5

Sources: Kimura, Masabumi. "A Review of Induced Abortion Surveys in Japan." Paper No. 43 in mimeographed proceedings of the 1961 conference of the International Union for the Scientific Study of Population. P. 1; United Nations Demographic Yearbook 1960.

relatively safe, and cheap./¹¹ Use prior to that time is shown by a 1950 national survey which found that a fifth of all couples were currently practicing contraception and that nearly a third had done so at some time. Furthermore, the age-pattern of change in marital fertility shows that, before the great rise in reported abortions began, couples were increasingly controlling their births, especially at the older ages./¹²

Of late, further control has been achieved by sterilization. Reported operations, totaling 5,695 in 1949, averaged 42,843 per year during 1955-59, at which time they equalled 3.8 per cent of the reported abortions. There is even some indication of a small amount of infanticide./¹³

In addition, the Japanese migrated from their homeland in sizable numbers. The proportion of Japanese persons aged 15-59 outside to those inside the home islands was 2.8 per cent in 1920; 3.2 per cent in 1930; and 5.6 per cent in 1940./¹⁴

Finally, the Japanese have exhibited still another adjustment—postponement of marriage. The proportion ever married among girls aged 15-19 fell from 17.7 in 1920 to 1.8 per cent in 1955, and for women 20-24 it fell from 68.6 to 33.9 (Table 2). The shift for men was also drastic. Indeed, it may be that the age at marriage rose faster in Japan than in any other country in history. By 1959 the nation had a marital age higher than that of most Western countries (Table 3). In the United States in that year nearly half the brides in first marriages were under 20, but in Japan only one-nineteenth of them were that young. However, the Japanese concentrate their marriages more heavily in the modal ages—20-24 for brides and 25-29 for grooms—than Western countries do, as Table 3 shows.

Table 2. Japan: Changing Proportion Ever Married, by Age.

Age	Percentage Ever Married					
	Women			Men		
	1920	1940	1955	1920	1940	1955
15-19	17.7	4.3	1.8	2.8	0.4	0.1
20-24	68.6	46.5	33.9	29.1	10.0	9.8
25-29	90.8	86.5	79.8	74.3	58.0	59.3
30-34	95.9	94.7	92.0	91.8	89.7	90.8
35-39	97.3	97.1	96.0	95.9	95.6	97.0
40-44	97.9	98.0	97.6	97.2	97.3	98.3
45-49	98.1	98.4	98.3	97.7	98.0	98.8

Source of data: Taeuber, Irene B. The Population of Japan. Princeton, Princeton University Press, 1958. P. 211.

Table 3. Age at First Marriage, Selected Countries.

Country and Date	All Marriages with Age Known	Percentage Marrying at Following Ages					
		Under					
		20	20-24	25-29	30-34	35-39	40+
Brides							
Japan, 1959	100	5.3	63.8	27.5	2.9	0.3	0.1
U. S. A., 1959	100	48.6	37.8	7.4	2.8	1.5	2.0
Sweden, 1950	100	13.5	45.0	24.6	8.3	4.1	4.6
Italy, 1951	100	14.1	46.0	27.0	6.9	3.2	2.8
Grooms							
Japan	100	0.4	23.7	61.8	12.7	1.2	0.3
U.S.A.	100	16.1	53.5	18.5	6.1	2.6	3.2
Sweden	100	1.9	31.4	38.4	15.7	6.7	5.9
Italy	100	1.7	24.6	42.3	18.3	8.1	5.0

Sources of data: for Japan, United Nations Demographic Yearbook 1961, Table 28; for the United States (29 states only), U. S. National Office of Vital Statistics, Vital statistics of the United States 1959, Vol. 1, p. 61; for Sweden and Italy, United Nations Demographic Yearbook 1958, Table 22.

The one adjustment the Japanese have not adopted is celibacy. In 1955 the proportion of women aged 40-44 who had never married was only 2.4 per cent, whereas in the United States in 1950 it was 8.1, and in Italy in 1951 it was 15.7 per cent (see Table 4). It looks as though the age at marriage is flexible in Japan, but not the decision to marry or not to

Table 4. Proportion Never Married among Women Aged 40-44.

	Per cent
Japan, 1955	2.4
U. S. A., 1950	8.1
New Zealand, 1951	11.3
England and Wales, 1951	14.2
Austria, 1951	14.3
Italy, 1951	15.7
Sweden, 1950	15.8
Finland, 1950	17.8
Portugal, 1950	18.5
North Ireland, 1951	23.0
Ireland, 1951	26.7

marry. However, even this may change. The women who in 1955 were aged 40-44 represent a generation whose marriages, occurring mainly in 1930-40, were still almost wholly arranged by parents. As the age at marriage gets later, and as mating becomes more a matter of individual selection, a rising contingent of women may never succeed in attracting a man they are willing to marry.

The Theory of the Multiphasic Response

What, then, is the picture that Japan presents? It is the picture of a people responding in almost every demographic manner then known to some powerful stimulus. Within a brief period they quickly postponed marriage, embraced contraception, began sterilization, utilized abortions, and migrated outward. It was a determined, multiphasic response, and it was extremely effective with respect to fertility. It brought down the gross reproduction rate, with only a brief wartime interruption, from 2.7 in 1920 to 0.99 in 1959./¹⁵ A change that took at least 60 years in the United States required only 40 years in Japan.

What was the stimulus that caused such a massive response? In my view, the demographic stimulus was the decline in mortality and the sustained natural increase to which it gave rise. The data prior to 1920, though not entirely trustworthy, do at least suggest a declining death rate./¹⁶ This is consistent with the better established trend after 1920, when, in not quite 30 years, mortality dropped to an extent that had required, starting at the same level, 76 years in Sweden and 37 years in Germany. The resulting natural increase climbed above 10 per 1000 around the turn of the century and averaged 12.8 from 1900 to 1959. When, as in Fig. 1, these rates are plotted on the same chart as those for three Scandinavian countries averaged together (Denmark, Norway, and Sweden), with Japan lagged 50 years, the latter appears to be re-enacting the history of natural increase in northwestern Europe, but more abruptly./¹⁷

But why the multiphasic reaction to sustained natural increase? Were the Japanese experiencing increased poverty? Were their "means of subsistence" disappearing under the impact of increased millions? No,

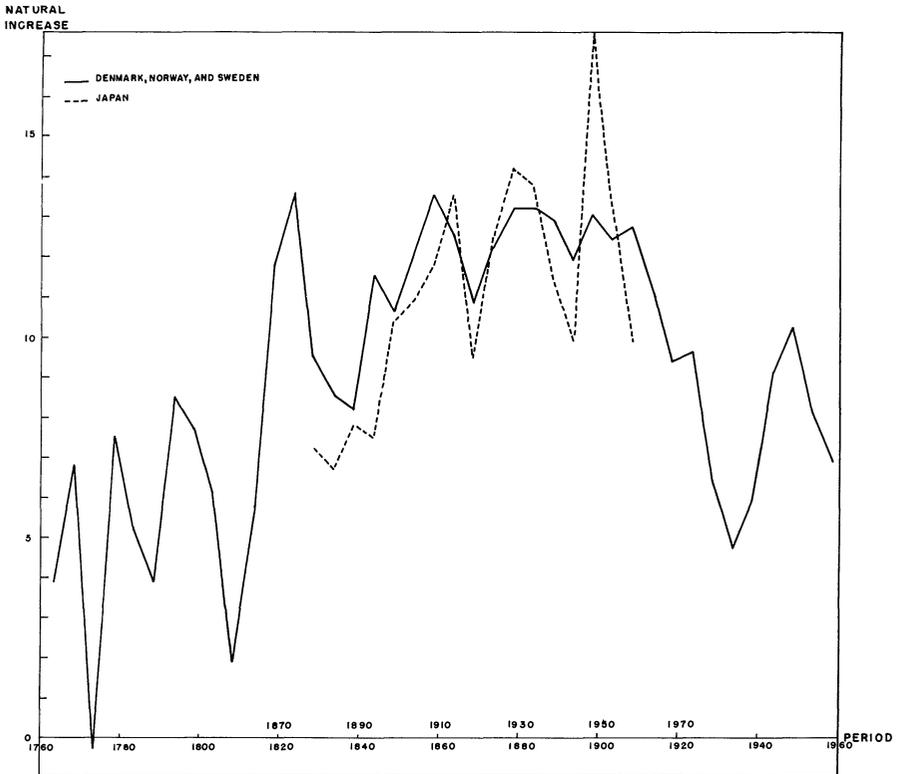


Figure 1. Rates of natural increase in Denmark-Norway-Sweden (averaged) and Japan, with Japan lagged 50 years.

such an explanation—of a type often called upon in demographic theory—has no relation to the facts. During the 45 years from 1913 to 1958 the average rate of growth of industrial output in Japan rose by 5.4 per cent per year, thus exceeding the 5-per-cent rate of Germany, Italy, and the U. S. A. from 1880 to 1913, and greatly exceeding the performance of the United Kingdom and France in any sustained period.¹⁸ Obviously the demographic response of the Japanese is not to be explained in terms of spreading poverty or diminishing resources. Nor were the people influenced in their behavior by concern about national “overpopulation,” for they let their government proclaim a policy of population expansion during the “Co-prosperity” era. In short, an explanation of the vigorous Japanese response to sustained natural increase must account for the antagonism between such increase and prosperity, in terms of behavior prompted by personal rather than national goals.

Was the Northwest European Response Similar? Since the northwest European countries, years ahead of Japan, also had a sustained natural increase, did they manifest a similar multiphasic response? The answer is undeniably yes. Although generally overlooked because of our preoccupation with the contraceptive issue, the fact is that every country in northwest Europe reacted to its persistent excess of births over deaths

with virtually the entire range of possible responses. Regardless of nationality, language, and religion, each industrializing nation tended to postpone marriage, to increase celibacy, to resort to abortion, to practice contraception in some form, and to emigrate overseas. The timing and relative importance of the reactions were not identical in the various countries, and of course methods could not be used that were not then technically feasible for the public at large (e.g., harmless sterilization); but the remarkable thing is that all of the northwest European countries reacted, that they did so in each case with the reappearance of the whole range of responses, and that virtually the entire panorama was later repeated in Japan.

That the stimulus was also similar to that in Japan is clear. Our three Scandinavian countries in Fig. 1 reached a high plateau of natural increase around 1815 and sustained it for more than a hundred years. Since the plateau was reached long before a significant drop in the birth rate occurred, there were about six decades of what was then an unprecedented rate of human multiplication—sufficient to double the population every 61 years in the absence of emigration—before the birth rate began visibly to fall around 1870, and it took another 30 years or so before the drop in fertility could move fast enough to gain on the steadily falling mortality. Periods of substantial increase had of course been known before, but they were brief and virtually self-correcting, since each time the death rate would soon rise again and wipe out the gain. What was unprecedented in northwest Europe was that self-correction was avoided so long over such a wide region. Local catastrophes did occur—as in the Irish potato famine of the 1840's—but it was characteristic of Europe at the time that these were accepted not as inescapable acts of God but as examples of what must be avoided at all costs by collective effort. Northwest Europe was winning the fight against death to a degree never before accomplished, and its success, with the resulting natural increase, explains the desperateness of the subsequent demographic response.

The Theory of How the Stimulus Produces the Response. But how were the stimulus and the response connected? It was not true in Europe, any more than in Japan, that the connecting link was poverty. From 1860 to 1900, the gross domestic product grew on the average at almost 3 per cent per year in Denmark and Sweden, and almost 2 per cent in Norway.¹⁹ When interpreting the effects of sustained population growth, most observers seem to assume that the question concerns the level of living. Was the population growth too fast, they ask, to maintain the general level? If the answer is “no,” interest tends to vanish, because there is no “problem.” If the answer is “yes,” then all sorts of further consequences supposedly follow, because, with growing poverty, human beings must bestir themselves. But, as we have seen, the northwest Europeans and Japanese bestirred themselves in the face of prolonged natural increase without being goaded to do so by rising poverty. The answer to the central question about modern demographic history cannot be posed, then, in the framework of ordinary population theory, which assumes the sole “population factor” to be some relation between the population-resources ratio and the collective level of living. It is doubtful that any question about demographic behavior can be satisfactorily posed in such terms, because human beings are not motivated by the population-resources ratio even when they know about it (which is seldom).

My own view is that no society has been geared to a sustained high rate of natural increase except by conquest. Under a prolonged drop in mortality with industrialization, people in northwest Europe and Japan found that their accustomed demographic behavior was handicapping them in their effort to take advantage of the opportunities being provided by the emerging economy. They accordingly began changing their behavior. Thus it was in a sense the rising prosperity itself, viewed from the standpoint of the individual's desire to get ahead and appear respectable, that forced a modification of his reproductive behavior.

Mortality decline impinged on the individual by enlarging his family. Unless something were done to offset this effect, it gave him, as a child, more siblings with whom to share whatever derived from his parents as well as more likelihood of reckoning with his parents for a longer period of life; and, as an adult, it gave him a more fragmented and more delayed share of the patrimony with which to get married and found his own family, while at the same time it saddled him, in founding that family, with the task of providing for more children—for rearing them, educating them, endowing their marriages, etc.—in a manner assuring them a status no lower than his. The obligations of marriage and expanded parenthood were not easy, as Banks has shown so convincingly for nineteenth century Britain,²⁰ in a changing society where one's position was threatened from every side and where one's children had to acquire new and costly forms of education. The parent needed to conserve some means for himself, because of longer life-expectancy and because of the importance of capital for seizing opportunities or staving off disaster in the fluid situation of the times.

The inappropriateness of the old demographic behavior was not confined to one segment of society, such as the "middle class" or the towns and cities. Nor was it characteristic of some societies and not others. Whenever and wherever mortality declined on a sustained basis, there the continuation of old demographic patterns brought a train of disadvantages.

Readjustments in the Agricultural Areas

Our view receives an acid test, for example, with respect to the peasantry, because a central tenet of population theory is that farmers lag behind other classes in altering their demographic behavior. We note, however, that the explanations given for this alleged fact are mutually contradictory. On the one hand, it is commonly taken for granted that no adjustment is made by farmers because none is needed: agrarian societies can assimilate natural increase indefinitely, because "children are an asset on the farm." This makes the farmer's unchanging reproductive behavior purely rational. However, it is hard to avoid seeing that a sustained natural increase in a delimited farming area will eventually mean "too many people for the land." This much granted, the theorist may explain rural demographic slowness by saying that farmers feel children to be an asset on the farm. Now, however, the farmer is no longer rational but irrational, and one must find an explanation for his stupidity. This is easy if one assumes that peasants are "traditional in their attitudes." By this route we are led to feel it is natural for modern attitudes and practices to begin in the cities and "diffuse" gradually to the countryside.

Such thinking appears to be a case of a non-existent fact being "explained" by a plethora of unsubstantiated reasons. In Japan and north-west Europe, population increase was especially hard on the peasantry, with the consequence that their reaction was especially drastic. The structure of the rural societies was such that they could accommodate permanently growing populations only on one assumption—territorial expansion. Technological improvement provided no accommodation, because it called for fewer rather than more workers. As capital was increasingly applied to agriculture and the optimum size of farm unit rose, a young man found it more difficult, rather than less, to acquire what was necessary in agriculture to guarantee a satisfactory social status.

Prolonged Natural Increase, Inheritance, and Agriculture. In the absence of long-run natural increase, there is no general problem of rural inheritance. The few parents with numerous surviving offspring are fortunate, for they have not only the child labor but also the eventual old-age security that children can furnish. Their children can receive enough land or substance to marry at a normal age, because each large family is matched by families that have died out entirely or have had only one child survive. Naturally, land and goods flow from the dead to the living in several ways—by purchase prior to death, by collateral relatives in the absence of true heirs, by remarriage of widows—and so large families acquire the means to endow their children for marriage. Without population growth, then, the demographic inequalities of one generation are ironed out in the next. There is no general problem of inheritance but only a problem for an occasional family that has lost out by ineptitude or has no heirs because of misfortune.

When, however, there is a sustained high rate of natural increase, inheritance becomes a chronic problem. Since the proportion of families with numerous surviving children is now much higher, these families are not matched by others that have land but few or no survivors. As a consequence, if their children are given land to marry with, the size of the farm will be reduced; if they are given cash or goods, its capital will be denuded. The parents are reluctant to do either, because they also have to live and, given their now greater life-expectancy, they hang on to the land until much later in the life of the offspring. Young people are forced to postpone marriage, and some to forego it altogether. Thus the strictly agrarian system has very little capacity to absorb population increase.

This inability, be it noted, has nothing to do with "the inheritance system." The latter is concerned solely with the matter of discrimination among potential heirs, whereas our concern is with the growth of the total number of potential heirs (all with their social expectations) in relation to the resources available in agriculture. If there are more heirs than can be accommodated at the expected standard of living with the land available, no inheritance system can itself alter this fact. It can at best decide who gets hurt and who does not. In other words, if there is no sustained natural increase in a settled agrarian area, any system of inheritance will work. If the opposite is the case, then no inheritance system will work, unless, of course, there is some real solution available. Despite the vogue of inheritance systems in population theory, it is doubtful that they play any determinative role in demographic change. Rather, they simply reflect whatever demographic solutions are developed in the society. This view is strengthened when one realizes that

fixed and rigid inheritance systems are figments of the social scientist's imagination. They are not something "laid on," which the people follow in the fashion of automatons; rather, they are fashioned and modified as changing conditions and interests demand.

"Traditionalism" and Agrarian Demographic Response. If historically the peasant communities of Japan and western Europe experienced a sustained natural increase, did they fail to respond successfully because "the peasant was wedded to his traditional value system"? To say so is to commit not only a factual error, as we shall see in a moment, but also a tautology. An explanation in terms of "tradition" has no value in social science, because "tradition" is merely a name for absence of change. A type of social behavior is like the momentum of a moving body: it will not change unless something forces it to change. If the absence of a contrary force is itself not explained, we have no real theory of the persistence but merely another name for it. As for the so-called values, they should be recognized as being a part, or aspect, of the behavior itself and, accordingly, as requiring to be explained rather than being used as the explanation. The fact that people migrate is not explained by their favorable evaluation of migration. By definition, nobody does anything voluntary without some purpose, however vague, in mind. The question of change or persistence is therefore a question of what did or did not act upon the total action (motive-plus-conduct). In other words, to say that fertility continues to be high in some group because of the group's "high-fertility values" is like saying that birds fly because they have wings.

In the case of the European peasantry, however, the alleged fact to be explained—a lack of demographic response—is itself not true. The demographic behavior of the rural population did change, and it changed drastically, because it had to. The common assumption to the contrary seems to arise from our parochial tendency to ignore all changes except the reduction of marital fertility by contraception. If contraception was not at first adopted on a major scale in most of the agrarian sectors, it was because ready alternatives were available. One of these was migration. As the economic revolution advanced, the rural sections found in the rising cities an ever expanding outlet for their excess natural increase—an outlet that helped them to capitalize on the opportunities offered by continued industrialization.

Indeed, as we know, in all of the industrializing countries rural-urban migration removed not only the farmers' natural increase but also a substantial portion of the base population as well. In Japan, for example, Irene Taeuber estimates that, without migration, the rural population of 45.9 million in 1920 would have reached 62.6 million by 1940 instead of the actual 45.5 million./²¹ The significance of rural-urban migration is that it involves a shift of occupation as well as residence. In fact, members of a farm family can leave agriculture, either part-time or fulltime, without ever leaving home./²² The best indicator of rural migratory adjustment is therefore the diminution of the agricultural labor force. In Great Britain the greatest number of men employed in agriculture was 1.8 million in 1851. A hundred years later, when the total population was nearly 2-1/2 times as great as in 1851, the agricultural male labor force was down to 1.1 million./²³ In Japan the population employed in agriculture, given as 15.7 million in 1876,/²⁴ was 13.7 million

in 1958/25 when the total population was more than 2-1/2 times greater. Daughters often left the countryside in greater abundance than sons. Village girls in Japan went to work in cities as maids or in factories and shops, typically remaining away for six years, often saving enough to get married either upon returning home or while remaining in distant towns and cities./26

Thus it can hardly be said that rural population in industrializing countries made no demographic response. They responded to sustained natural increase by the drastic process of removing it. Their failure to feature contraception and abortion was not due to "traditional attitudes" (mass migration out of agriculture was not "traditional" either) but to the availability of an alternative which fitted the interests and structure of peasant families in the evolving economy.

The critical moment in the peasant family-cycle, especially in north-west Europe, was the time when the surviving young people were to get married. Up until then their labor was useful on the farms and their consumption limited; but, if they were to marry, they had to have the means (i.e., adequate land) to support a family in a fully adult, independent, and respectable manner. The common process by which reproduction was brought into equilibrium with the agrarian economy was the postponement or hastening of marriage according to the socially defined scarcity or abundance of land. With a prolonged decline in mortality, there were more claimants to land for marriage and a greater reluctance on the part of elders to give it up; but the same progressive forces in the society which were bringing the mortality decline were also opening up opportunities for employment in non-agricultural sectors. The decision to stay in agriculture or to seize these new opportunities was made in the young person's life at about the same time as the marital decision. Indeed, the two decisions—whether to postpone marriage and whether to leave agriculture—were doubtless often made jointly. Leaving agriculture might be the only hope for getting married—as in the case of Japanese girls who had to have a dowry. Migration out of agriculture was thus an adjustment that was congruent with the response-pattern already built into the rural social structure.

This adjustment would not have been available, however, if it had not fitted into and aided the trend of the larger economy. Since industrialization by its very nature requires an exodus from agriculture,27 the fact that economic development was occurring is proof enough that rural-urban migration was being rewarded. Many a farm got desperately needed capital, many a farm-boy or farm-girl achieved matrimony, because of receipts from the city. The adjustment of Japanese and European peasants was clearly not a descent into grim poverty and senseless subdivision; it was not a "resistance to the forces of modernization" in the name of a "traditional value system." It was, on the contrary, a utilization of the new opportunities of the economic revolution.

Delayed Marriage, a Continued Rural Response. The rural populations of industrializing nations did not respond to sustained natural increase by one means alone. In addition to out-migration, they adopted their old mechanism—postponement of marriage—to the new exigences, particularly in regions remote from urban centers. They did this, of course, not as a deliberate effort to reduce fertility or to solve the population problem, but as a response to the complexity and insecurity of the

new requirements for respectable adult status under changing circumstances. In Japan, as noted already, a dowry was required for a girl's marriage. Her farm family, short on land and long on surviving members, needed cash more than it needed girl-power. Japanese factories and offices, on the other hand, needed cheap labor. It was therefore advantageous all around for rural girls to work under supervision, have their salaries returned home, and delay marriage for several years./²⁸ As a consequence, the age at marriage rose almost as fast in the rural areas of Japan as it did in the urban./²⁹ In neither sector was postponement a response to deepening poverty. Agriculture, as well as the total economy, was increasing in productivity./³⁰ In all sectors of the economy, then, families had to grasp the new opportunities of the evolving society or else face relative loss of social status and consumption. Their chances were not improved by demographic behavior that permitted the large family size made possible by declining mortality.

Rural marital postponement was particularly important in the eighteenth and early nineteenth centuries in northwest Europe, because outside opportunities were then too few to make out-migration work as the sole adjustment. Even in England and Wales, the country most conducive to rural-urban migration around 1800, less than 17 per cent of the population resided in places of more than 20,000 inhabitants. If within a decade the natural increase of the rest had migrated to cities, the urban population would have risen by approximately two-thirds instead of the actual one-fourth. In the United States, with plausible assumptions as to differential natural increase, one finds that, had all the natural increase of the farm population and one-half of that of the rural nonfarm population between 1840 and 1850, gone to the urban places, the latter would have increased by approximately 275 per cent during the decade, or three times as fast as they actually did. Apparently, the earlier in economic development the downward trend in mortality occurs, the more difficult it is, other things equal, to avoid solely by out-migration an increase of people on farms./³¹

Even with both marital postponement and rural-urban migration, a decline in farm-size often occurred in areas of northern Europe. A study of twenty villages in southern Poland finds, for example, that the average size fell from 7.24 hectares in 1787 to 3.17 in 1931, "although the whole area owned by peasants increased from 16,966 to 21,558 ha."/³² In Ireland there was evidently a similar shift, with the result that by 1841 more than half the holdings were of less than five acres./³³ Even in the United States, in the Southeastern region, the improved acreage per farm fell from 103.6 in 1860 to a low point of 37.9 in 1925./³⁴

Forgetting the possibility of increased yields,/³⁵ one tends to view such declines as the consequence of some "inheritance system" or as simply an indication of population pressure and deepening poverty; but they can more properly be viewed, in my opinion, partly as the maintenance of the same product per family with less land and partly as the consequence of a one- or two-generation lag of the adjustment mechanism behind the lowered mortality. That the adjustment mechanisms were there is evident in the twenty Polish villages. As can be seen in line 3 of Table 5, the number of children born per mother, during roughly the period 1872 to 1914, was almost twice on the largest farms what it was on the smallest. This positive association between completed fertility

Table 5. Children Born and Surviving, and Age at Marriage, for Polish Mothers Born between 1855 and 1880, by Size of Farm.

	Land-less	Size of Farm (Hectares)			
		0-1	1-4	4-7	7+
Number of Mothers	9	36	110	31	15
Average Year of Birth for Mothers	1872	1875	1875	1874	1874
Number of Births per Mother	3.9	5.4	6.4	7.7	9.1
Surviving Children per Mother/a	2.9	4.1	5.0	5.9	8.0
Age at Marriage of Mother	31	25	24	22	20
Births per Year from Marriage to Age 45	0.28	0.26	0.30	0.35	0.37
Births per Year from Marriage to Birth of Last Child	0.43	0.35	0.36	0.39	0.41

a/Evidently these were the children who survived to get married.

Source: Stys, W. "The Influence of Economic Conditions on the Fertility of Peasant Women." *Population Studies* 11(2): 136-148. Nov. 1957.

and size of farm has been reported often for peasants.³⁶ In the Polish case, differential mortality adds to the inequality in surviving children, but only slightly. The main factor in the differential fertility and in the number of surviving children alike is the age at marriage (line 5). That there is little limitation within marriage is shown by the sixth line—births per year between a woman's marriage and her 45th year. Comparison of the last two lines suggests, however, that the poorer peasant couples stopped their reproduction earlier (perhaps by abstinence and abortion), or suffered more impaired fecundity; for the births per year between marriage and the last child (last line) show smaller class differences than those between marriage and the woman's 45th birthday (previous line).

The European peasants' response to sustained natural increase clearly reflected a social structure that held married couples responsible for their children. This feature—along with its corollary, postponement of marriage for those incapable of supporting children—was part of the independence and separateness accorded the nuclear family, as opposed to the joint household, in west European society. As such, it went back to medieval and post-medieval times;³⁷ and it tended to yield a later age at marriage than is found in most joint household systems. It did not necessarily produce a late marital age, however, because, with high mortality, individuals so unfortunate as to have to marry late were balanced

by those lucky enough to marry early. When, in the late eighteenth and the nineteenth centuries, the rural areas were faced with a natural increase unprecedented in its size and duration, postponement of marriage appeared as one of the adjustments. This was by no means the only adjustment that enabled the peasants to avoid subdividing land to the point of severe poverty and resurgent mortality. In addition, the peasants maximized migration off the farm, increased permanent celibacy, and curtailed reproduction in the later years of marriage (probably by abortion, folk-contraception, and abstinence). Since, owing to the accelerating economic transformation, rural-urban migration became increasingly available, the forces tending to depress fertility, especially marital fertility, did not need to act so strongly as they did in towns and cities. In the latter places, migration out of agriculture was obviously not a possible alternative. The city-dweller's "migration" into a more lucrative occupation was mainly by acquiring education, skill, experience, and contacts—none of which was helped by an improvident marriage or a high marital fertility. His solution lay more in the direction of contraception and abortion, to which he had better access than the peasant.

Ireland as a Test Case

If correct, our analysis should hold not only for the different social classes but also for the various countries of northwest Europe, even in cases that are commonly regarded as demographically unique. Ireland, for example, is habitually cited as a country having in modern times a population history unlike that of any other nation. Not only did she experience a pronounced decline in population while her neighbors were all showing an unprecedented increase, but she exhibited a tendency toward late marriage and celibacy that strikes many observers as peculiar. On the assumption of uniqueness, particularistic explanations of her demographic history have been given—e.g. that it is a result of the Irish famine, the "land" situation, or extreme religious zeal./38

But how unique is Ireland? It is certainly not unique in having a marital age that was comparatively late to begin with and which grew later in the last half of the nineteenth century. In 1830-40 Irish women married reasonably early for Europeans: the proportion of brides who were under 21 was 28.1 per cent; under 26, it was 66.5 per cent—both proportions similar to those in England and Wales./39 The Irish age at marriage evidently rose after that, reaching its highest point about 1911, at which time it started gradually down, as Table 6 shows. By 1957 the average age at marriage for Irish women was 27.6, only two years above the figure of 25.6 years for women in England and Wales./40

If the late age at marriage in Ireland is to be explained, it must therefore be explained in terms applicable to northwest Europe as a whole. In seventeen countries of that region around 1950, the proportion of brides at first marriage who were age 25 or older was 39.6 per cent, compared to 24.9 per cent in three East European nations and 21.5 per cent in five overseas industrial countries of European origin. The 1959 Irish figure of 53.1 per cent seems abnormally high until we realize that in 1950 the Spanish percentage was 50.4, the Norwegian 50.8, and the Swiss 46.7.

Table 6. Percentage of Women in Young Age Groups Ever Married: Ireland and Sweden.

Ireland				Sweden			
Date	Women			Date	Women		
	15-19	20-24	25-29		15-19	20-24	25-29
-	-	-	-	1750	4.4	27.3	56.6
-	-	-	-	1800	2.7	22.4	51.8
1851/a	0.0	10.0	40.0	1850	0.8	16.5	49.4
1861	2.2	25.3	36.0	-	-	-	-
1871	1.9	21.9	51.0	1870	1.0	15.7	46.2
1891	0.8	14.0	40.9	-	-	-	-
1901	0.6	12.0	37.8/b	1900	1.1	19.6	48.5
1911	0.5	11.6	34.4/b	1910	1.1	19.8	48.6
1926	0.7	13.0	38.2	1920	1.1	20.3	49.3
1936	0.9	13.6	35.9	1930	1.0	19.6	48.3
1946	1.6	17.5	42.4	1945	3.3	36.1	69.7
1951	1.1	17.7	45.4/b	1950	3.7	40.3	73.6

a/ These percentages relate to age groups "under 17," "17-25," and "25-35."

b/ For 1901, 1911, and 1951, data were available only for the age group 25-34. The figures here are our estimates derived by interpolation from earlier and later censuses giving the five age classifications.

Sources: Ireland, Census of Population, 1946, Vol. 5, Part 1, p. 34; U.N. Demographic Yearbook, 1958, p. 187; British Sessional Papers, 1856, Vol. 31, pp. 0-99; 1863, Vol. 61, p. 616; 1874, Vol. 74, Part 2, Table 18; Historisk Statistik för Sverige, Vol. 1, 1720-1950, (Stockholm; 1955).

Granted that Ireland is part of the late-marrying wing of northwest Europe, one may explain this fact as due to her Roman Catholicism. But for five Catholic countries of the region,⁴¹ the average percentage of first-brides aged 25-plus was 40.4, as compared to 39.1 for ten non-Catholic countries. Even if Catholicism were involved in Irish marital postponement, how would it be? It would certainly not be because the church has an injunction against early marriage. The usual interpretation is that the church defines marriage as second best, and hence gives no powerful encouragement to early marriage; but Belgium, an eminently Catholic country, has an earlier age at first marriage for females than does Norway, Sweden, or Scotland.

The way to understand Ireland's demographic career is hardly in such particularistic terms. Fascination with her late marriage should not blind us to the fact that she responded to long-continued natural increase by other means as well. She responded by permanent celibacy, for example, and here again Ireland was not an isolated case but rather an extreme exemplification of the northwest European pattern, itself extreme. In 1951 some 24.7 per cent of the Irish women aged 45 or more had never

been married. In 1950 the Icelandic figure was 21.5 per cent; the Norwegian and the Scottish, 20.9. The degree to which Europe stands out can be seen from the following:

Table 7. Regional Comparison of Average Percentage Single of Women Aged 45 or Over.

	Number of Countries	Average Percentage Single among Women Aged 45 or Over
European/a	30	12.6
Northwest European	22	15.7
Catholic	8	16.6
Non-Catholic	14	15.2
Eastern European	8	4.0
Overseas European Industrial	5	9.8
Moslem (North Africa, Turkey, Pakistan)	7	2.0
Asian	12	2.2

a/Ireland is excluded throughout. If added, the northwest Europe average rises to 16.1 and the "Catholic" group to 17.5. France is counted as a "non-Catholic" country. Scotland, Northern Ireland, and England and Wales are counted as separate countries.

Source of data: United Nations Demographic Yearbook 1960, Table 10.

A third Irish response—again typically west-European and extreme in character—was the very high and prolonged rate of out-migration. The peak of Irish-born living abroad was reached about 1880, when, in four countries alone, they represented 60 per cent as many as lived in Ireland itself. From 1901 to 1956 the net emigration came to an estimated 1.34 million, an average of 24,300 per year. The loss during 1946 to 1956 amounted to about half the number of births./⁴²

It is commonly claimed that the Irish postponed marriage or migrated as an alternative to practicing birth control within marriage. However, as Glass has noted,⁴³ data from the 1946 census show class differences in marital fertility. Furthermore, a decline of 25 per cent occurred in overall marital fertility between 1911 and 1946. Couples in Ireland, as elsewhere in Europe, were apparently taking to birth control, though not to the same extent as in neighboring countries. One should note, of course, that a shift to a later age at marriage, other things equal, will independently bring a reduction in marital fertility by pushing a greater part of the marital exposure into the less fecund years of the reproductive span. It will cause an additional loss through the greater proportion of women who die before marrying. For these reasons the influence of a shift in the age at marriage is greater than the simple proportion of the reproductive years added or eliminated.

If, then, Ireland exhibited a multiphasic response similar to that shown by her neighbors, differing from theirs only in the relative emphasis placed on the various means and in its vigor—so drastic that it halved the absolute population within 80 years—the explanation must be in terms applicable to the rest of the region. A significant fact is that Ireland was, and has to a considerable degree remained, a rural part of northwest Europe. It was a rural backland when it belonged to Great Britain, and after its independence in 1922 it was cut off from its most industrial section, the northern six counties—much as if Mississippi, Arkansas, and Louisiana were given their independence but with New Orleans and the rest of the Gulf Coast removed. A late age at marriage, as we have seen, was particularly characteristic of rural northwest Europe; and in Ireland it prevailed more in the rural areas than in the towns. Ireland's continued rurality, together with the circumstance that Catholicism became a symbol and rallying point of Irish Nationalism as against the Protestant British, enabled the Catholic clergy to remain strong. Being in control to an unusual degree, the celibate clergy could implement its ascetic supervision over courtship and instill its negative attitude toward marriage, including state enforcement of the indissolubility of wedlock. It thus gave its blessing to marital postponement and lay celibacy, and at the same time kept down illegitimate fertility. Concomitantly, the exceptional power of the clergy tended, as in other Catholic countries, to discourage economic development and thus to keep the area rural.

As an agrarian region, Ireland partook of the exodus out of agriculture that accompanies modern economic development—except that, without economic development in its own territory, the migration out of agriculture was simultaneously a migration out of Ireland. In other words, international and overseas migration and rural-urban migration were one and the same thing for Ireland. The lack of economic opportunity at home powerfully discouraged marriage, while ecclesiastical determination of family, criminal, customs, and censorship laws made abortions, contraceptive materials, and birth control information and services difficult to obtain. Marriage tended to be postponed not only because the economic requirements for it were hard to secure, not only because it could not be dissolved if it proved personally obnoxious, but also because it was likely to lead to several children. In addition, clerical control, poor economic development, and rural community opinion worked together to discourage married women from entering the labor force, thus reducing still more the economic support for marriage. Recently the proportion of married women aged 15 to 65 in paid employment was less than 3 per cent, as compared to about 23 per cent in England and Wales./44

Ireland thus manifests a combination of the demographic responses of Europe, extreme in its totality and in its result but composed of familiar strands indeed, all understandable under the circumstances. It thus illustrates the principle that the explanation of as fundamental a feature of society as its demographic changes is not to be found in some inflexible biological or economic law or in some particularistic cultural idiosyncrasy, but rather in the main features of the operating social organization on the one hand and, on the other, in the changing conditions which arise from past performance and the altering international politico-economic environment.

Conclusion

My thesis is that, faced with a persistent high rate of natural increase resulting from past success in controlling mortality, families tended to use every demographic means possible to maximize their new opportunities and to avoid relative loss of status. An understanding of this process in population theory has been hindered by a failure to see the multiphasic character of the response and by an interpretation of demographic behavior as a response either to absolute need or to some cultural idiosyncrasy such as a particular "value system" or "custom." When the demographic history of industrialized nations is analyzed comparatively, an amazing similarity of the response syndrome seems to me to emerge. An explanation of a country's demographic behavior by reference to a peculiarity or accident of its culture fails to cope with this basic similarity of response. Curiously, we do not adopt such an easy way out with respect to mortality. We do not "explain" India's high death rate and Sweden's low death rate by saying that the one "values" high mortality and the other low mortality. Yet we sometimes come perilously close to this in regard to other aspects of human demography, especially fertility.

As for the view that the motivational linkage between change and response depends on fear of absolute poverty, we have seen that it fails to account for the fact that the multiphasic effort to reduce population growth occurs simultaneously with a spectacular economic growth. Fear of hunger as a principal motive may fit some groups in an extreme stage of social disorganization or at a particular moment of crisis, but it fits none with which I am familiar and certainly none of the advanced peoples of western Europe and Japan. The fear of invidious deprivation apparently has greater force, and hence the absolute level of living acts more as an environmental condition than as a subjective stimulus. If each family is concerned with its prospective standing in comparison to other families within its reference group, we can understand why the peoples of the industrializing and hence prospering countries altered their demographic behavior in numerous ways that had the effect of reducing the population growth brought about by lowered mortality.

FOOTNOTES

- 1/ Kimura, Masabumi. "A Review of Induced Abortion Surveys in Japan." Paper No. 43 in mimeographed proceedings of the 1961 conference of the International Union for the Scientific Study of Population. P. 1.
- 2/ Muramatsu, Minoru. "Effect of Induced Abortion on the Reduction of Births in Japan." Milbank Memorial Fund Quarterly 38:152-166. April 1960.
- 3/ Glass, D. V. Population Policies and Movements in Europe. Oxford, Clarendon Press, 1940. Pp. 278-280. Other health-fund data showed more abortions than births in the late 1920's.
- 4/ Ibid., pp. 444-445.

- 5/ Bachi, Roberto, and Judah Matras. "Contraception and Induced Abortions among Jewish Maternity Cases in Israel." Milbank Memorial Fund Quarterly 40(2):207-229. April 1962. P. 227.
- 6/ See: Tietze, Christopher. "Legal Abortion in Eastern Europe." Journal of the American Medical Association 175:1149-1154. April 1, 1961; Idem. "The Demographic Significance of Legal Abortion in Eastern Europe." Paper presented at annual meeting, Population Association of America, April 25-27, 1963. Mimeographed.
- 7/ Tietze, op. cit., pp. 1149-1154.
- 8/ In Denmark and Sweden, 1953-57, there were only 6 or 7 deaths per 10,000 legal abortions. See: Tietze, Christopher. "The Current Status of Fertility Control." Law and Contemporary Problems, Vol. 25, Summer 1960. P. 442.
- 9/ The combined rate would doubtless remain even more unchanging if the number of unregistered abortions were known.
- 10/ According to surveys in 1949-50 and 1953-54, the gestation preceding abortions in Japan lasted between 9 and 11 weeks, depending on the order of the abortion. Kimura, op. cit., pp. 3, 9.
- 11/ Taeuber, Irene B. The Population of Japan. Princeton, Princeton University Press, 1958. P. 274.
- 12/ Legitimate births per 1000 married women:
- | Age of married women | 1950 rate as % of 1925 rate |
|----------------------|-----------------------------|
| 15-19 | 92.8 |
| 20-24 | 96.4 |
| 25-29 | 93.3 |
| 30-34 | 75.4 |
| 35-39 | 54.4 |
| 40-44 | 40.5 |
| 45-49 | 13.2 |
- Derived from data in: Taeuber, op. cit., p. 265.
- 13/ Ibid., pp. 278-282.
- 14/ Ibid., p. 203.
- 15/ Annual gross reproduction rates, 1920-55 from: Taeuber, op. cit., p. 232. Annual gross reproduction rates, 1956-59 from: Population Index 28(2):205. April 1962.
- 16/ Taeuber, op. cit., pp. 50-51.
- 17/ Dudley Kirk pointed out in 1944 the similarity between the Japanese birth and death rates of 1921-41 and those of England and Wales in 1880-1900. ("Population Changes in the Postwar World." American Sociological Review, Vol. 9, Feb. 1944. P. 34.)
- 18/ Patel, Surendra J. "Rates of Industrial Growth in the Last Century, 1860-1958." Economic Development and Cultural Change, Vol. 9, April 1961. Pp. 317-318.
- 19/ Based on average rates of growth over various specified periods, with constant prices, as given in: Kuznets, Simon. "Quantitative Aspects of the Economic Growth of Nations: VI. Long-term Trends

- in Capital Formation Proportions." Economic Development and Cultural Change, Vol. 9, July 1961. Pp. 76, 82, 88.
- 20/ Banks, J. A. Prosperity and Parenthood. London, Routledge and Kegan Paul, 1954.
- 21/ Op. cit., p. 145. Dr. Taeuber shows, p. 71, that the communes of less than 10,000 inhabitants—which in 1930 had 68.1 per cent of their occupied population in agriculture—lost 4.6 per cent of their population between 1920 and 1940, while the whole nation gained by 31.0 per cent. Since the farmland of Japan was densely settled already, "absorption of additional population would have jeopardized economic well-being, social organization, and political stability. The preservation of the status quo required the exodus of younger sons and daughters to urban areas and non-agricultural employment." (p. 73.)
- 22/ As a consequence, agricultural density may be highest in those areas where the most farmers are only part-time in that occupation. See: Ishino, Iwao, and John W. Bennett. Types of the Japanese Rural Economy. Columbus, Ohio State University Research Foundation, 1953. Mimeographed. Pp. 24-25.
- 23/ Mitchell, B. R., and Phyllis Dean. Abstract of British Historical Statistics. Cambridge, University Press, 1962. Pp. 60-61. For data on agriculture's diminishing proportion of the labor force in the evolution of industrial countries, see: Kuznets, Simon. "Industrial Distribution of National Product and Labor Force." Economic Development and Cultural Change, Supplement to Vol. 5, No. 4, July 1957. Appendix Table 4.
- 24/ Ishii, Ryoichi. Population Pressure and Economic Life in Japan. Chicago, University of Chicago Press [1937]. P. 78.
- 25/ Japan. Ministry of Foreign Affairs. Statistical Survey of Economy of Japan 1959. P. 9.
- 26/ In one village of 2,752 population in 1948, a total of 58 girls were working in the city. Out of 72 girls marrying in 1948, 16 married men in distant cities and towns. (Ishino and Bennett, op. cit., p. 91.) The exodus of women out of agriculture in Japan is shown by the fact that the younger the age group, the smaller the proportion in farming. (Taeuber, op. cit., p. 94.)
- 27/ Davis, K. "The Role of Class Mobility in Economic Development." Population Review, Vol. 6, July 1962. Pp. 67-73; and Idem. "Internal Migration and Urbanization in Relation to Economic Development." Proceedings of the World Population Conference 1954, Vol. 2. New York, 1955. Pp. 783-801.
- 28/ In 1930 some 435,800 girls, representing 4.2 per cent of the female labor force, lived in factory dormitories. (Taeuber, op. cit., pp. 87, 116.)
- 29/ The proportion of women ever married by age was:

Age Group	Shi (Towns and Cities)			Gun (Small Towns and Villages)		
	1920	1935	Ratio	1920	1935	Ratio
15-19	13.5	5.7	2.4	18.9	8.7	2.2
20-24	60.6	48.4	1.3	70.9	59.8	1.2

Age Group	Shi (Towns and Cities)			Gun (Small Towns and Villages)		
	1920	1935	Ratio	1920	1935	Ratio
25-29	86.3	85.4	1.0	92.0	91.1	1.0

From: Taeuber, op. cit., p. 211.

- 30/ Between 1878-82 and 1913-17, land productivity in Japan rose by 80 per cent and labor productivity in agriculture by 136 per cent. See: Ohkawa, Kazushi, and Henry Rosovsky. "The Role of Agriculture in Modern Japanese Economic Development." Economic Development and Cultural Change 9(1, part 2), Oct. 1960. P. 46.
- 31/ When the urban sector is small and the farm sector large, a rural-urban migratory stream that is big from the standpoint of cities will be insignificant from the standpoint of the countryside. See: Davis, K. "Internal Migration and Urbanization in Relation to Economic Development," loc. cit. However, it should be clear that there are other variables. One is the magnitude of the rural natural increase, which is greater today in underdeveloped countries than it was in nineteenth century Europe. This means that, given the same rural-urban distribution of the population, the out-migration from agriculture has a greater burden to carry in currently underdeveloped countries. See: Davis, K. "Urbanization in India: Past and Future." Turner, Roy, Editor. India's Urban Future. Berkeley, University of California Press, 1962.
- 32/ Stys, W. "The Influence of Economic Conditions on the Fertility of Peasant Women." Population Studies 11(2):136-148. Nov. 1957. The change is graphically shown, p. 148, by two maps of the farms in the area at the beginning and at the end of the period.
- 33/ My estimate based on: Connell, K. H. The Population of Ireland, 1750-1845. Oxford, Clarendon Press, 1950. Pp. 163-164.
- 34/ Vance, Rupert B. All These People. Chapel Hill, University of North Carolina Press, 1945. P. 164.
- 35/ Per-acre productivity rose early in the economic transformation because of shifts in land-use, better methods and instruments of tillage, and higher-yielding types of plants and animals. Thus "during the eighteenth century the traditional bias of Irish agriculture towards grazing had shifted to tillage," methods of tillage were steadily improved; and the potato, introduced in the sixteenth century and yielding more calories per acre than any other plant, became the main food crop. See: Green, E. R. R. "Agriculture." P. 90 in: Edwards, R. Dudley, and T. D. Williams, Editors. The Great Famine. New York, New York University Press, 1957. Also, Connell, op. cit., pp. 136, 158-159.
- 36/ E. g., Tsarist Russia, China between the two world wars, Japan in 1940, Bulgaria, and India. See in particular: Skinner, G. Wm. "A Study in Miniature of Chinese Population." Population Studies 5(2): 98-103. Nov. 1951; United Nations. The Mysore Population Study. New York, 1961. P. 86; Okazaki, A. Investigation on Differential Fertility. Japan, Welfare Ministry, Institute of Population Problems, Research Data, B, No. 2. Additional references, with tabular data for Germany and China, are in: Stys, op. cit., pp. 143-144.

- 37/ For evidence, references, and discussion, see: Davis, K., and J. Blake. "Social Structure and Fertility: An Analytic Framework." Economic Development and Cultural Change 4(3):214-218. April 1956.
- 38/ Honohan believes that the famine created "in the minds of the people a hard-headed and somewhat irrational scepticism in regard to the prospects and permanence of material betterment in Ireland," and that "a strong religious faith" led to resistance to trends that developed elsewhere. (W. A. Honohan. "The Population of Ireland." Journal of the Institute of Actuaries 86(1, 372):30-49, 1960. Pp. 48-49.) He does not explain, however, why a famine should have an effect different in Ireland from the effect in India, why this attitude should last for a century, or why the Irish should happen to have such a strong religious faith. If the Irish were hard-headedly sceptical about future prospects in Ireland, why were they not also sceptical about the Roman clergy?
- 39/ Connell, op. cit., p. 39.
- 40/ Honohan, op. cit., p. 37.
- 41/ Austria, Belgium, Italy, Portugal, Spain. France is omitted because of some question about its being a "Catholic country."
- 42/ Honohan, op. cit., p. 42.
- 43/ Glass, David V. "Malthus and the Limitation of Population Growth." In: Glass, D. V., Editor. Introduction to Malthus. New York, Wiley, 1953. Pp. 35-37.
- 44/ Honohan, op. cit., p. 39.

CURRENT FERTILITY EXPECTATIONS OF MARRIED COUPLES IN THE UNITED STATES

Actual fertility and the future fertility expectations of American couples in the childbearing years are being followed by a time-series project conducted at the Population Studies Center of The University of Michigan. In the January 1963 issue of Population Index this project was described in detail./1

This, the second report, consists of results based on interviews taken from a national sample in three separate studies conducted by the Survey Research Center of The University of Michigan in May, August, and November 1962. The cases from all three are combined to get a composite picture for the year 1962. A total of 1402 interviews were taken with couples where the wife was less than 40 years old and living with her husband. Approximately half the respondents were male and half, female. These interviews were merged for this report, as in the first one, as representing in general the couples' fertility expectations. /2. The questions asked to obtain information on number of births and expected family size are similar to those in the 1955 and 1960 Growth of American Family (GAF) studies, /3 and thus it is possible to compare these series to locate possible trends, and to test past predictions.