

THE RELATION OF EMPLOYMENT LEVELS TO BIRTHS IN GERMANY¹

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SINCE 1933 Nazi Germany has made an organized effort to raise the German birth rate, and the success of this positive population policy is evidenced by a notable rise in births prior to the present war. The birth rate, which had declined to 14.7 per 1,000 in 1933, had risen to 20.3 in 1939. The latter is not a particularly high birth rate and represents a fertility only slightly above that required for permanent replacement of the population. But because fertility was so low before, the rise is an important one. In absolute terms there were 436,000 more births in the Old Reich in 1939 than in 1933. In the German-speaking areas of the Greater Reich the increase was about 500,000. The comparative magnitude of this increase is suggested by the fact that there were only 612,000 births in France in 1938, 67,000 less than in 1933.

A number of students of population, including Whelpton, Hankins, Glass, and the Taeubers, have appraised the German population effort with some care.² All of these writers have pointed to the difficulties of sorting out the effects of specific policies, such as marriage loans, grants to large families, family allowances, suppression of abortions, etc., as over against other factors influencing fertility. It is the purpose of this article to evaluate one of the most important of the "other factors," namely, employment conditions. Also, it is hoped that certain of the conclusions may have more general ap-

¹ From the Office of Population Research, Princeton University, in cooperation with the Millbank Memorial Fund.

² Whelpton, P. K.: Why the Large Rise in the German Birth Rate? *American Journal of Sociology*, November, 1935, xli, No. 3, pp. 299-313; Hankins, Frank H.: German Policies for Increasing Births. *American Journal of Sociology*, March, 1937, xlii, No. 5, pp. 630-652; Glass, David V.: POPULATION POLICIES AND MOVEMENTS IN EUROPE. Oxford, 1940, pp. 269-313; Taeuber, Conrad and Irene B.: German Fertility Trends, 1933-39. *American Journal of Sociology*, September, 1940, xlvi, No. 2, pp. 150-164.

plicability regarding the relations between economic conditions and births.

Employment indices, as opposed to other economic data, were selected for a number of reasons. Among the most important is that the condition of employment or unemployment is a fact of immediate and decisive importance in people's lives. As a motivating factor, it is probably far more important than diffuse concern about rising costs of living, annoyance over increased taxes, or even the fear and the fact of wage reductions. These things pale by comparison with the personal and familial calamity of losing one's job without much hope of getting another one.

A conclusive reason for using this index for the purpose at hand is the fact that in Nazi Germany other economic indices of significance to population trends, such as wages, cost of living, etc., remained practically constant, while births rose. On the face of things, these other economic variables could not have been important direct influences on fertility. They would be such only if constancy itself tended to increase the number of births through the economic security that predictability suggests. Under a revolutionary regime that stressed turmoil and change, it would be surprising if this were the case.

In contrast with wage and price changes, changes in employment were enormous. When Hitler became Chancellor in 1933 there were fewer than 12,000,000 employed persons and about 6,000,000 unemployed. At the outbreak of war in 1939 there were about 21,500,000 employed and about 4,000,000 unemployed in the same territory; that is, practically all the unemployed were reabsorbed into the economy and about 4,000,000 more were drawn from other sources, including immigration from abroad.

It should be noted in passing that these figures do not relate to the total labor force, but to persons covered by the sickness insurance system, which includes practically all wage employees. This system does not include peasants, many artisans and professional people,

entrepreneurs, and persons in the higher income brackets. It does include persons in labor camps, but not members of the armed forces. That is, the increase in the size of the Germany army was over and above the increase in the number employed. For "Folk" Germans employment opportunities in Hitler's Germany were much superior to what they had been in the latter years of the Republic. Also, they were better than in neighboring countries, judging by the fact that there was a net immigration of 500,000 persons between 1933 and 1939. This was in excess of the much more publicized out-migration of refugees. It does not include organized migration of the Baltic and other Eastern Germans to the Reich.⁸

The impact of this reemployment on the economic outlook of the German people must have been very important. A comparable achievement in the United States would have involved the reemployment of perhaps 20,000,000 persons between 1933 and 1939. It is unbelievable that such an increase in employment would have had no effect on fertility.

In order to carry out an organized attack on the problem of the influence of employment on births, a set of *a priori* hypotheses was formulated to be tested by whatever statistical evidence was available. The hypotheses were:

(a) In the short run, changes in the birth rate are closely associated with employment levels. Employment conditions are not an independent cause of long range secular trends in birth rates, but they may be decisive in determining short range fluctuations.

(b) The relationship should have increased as fertility declined in time.

(c) The relationship should be greater in urban and industrial regions and countries than in rural regions and countries.

Considering the first of these, it seems rather evident that the secular trend of the birth rate could not be associated positively with

⁸ On the basis of census data for Austria and the Sudetenland, it seems likely that the bulk of the immigrants into Germany between 1933 and 1939 were German-speaking persons from these areas.

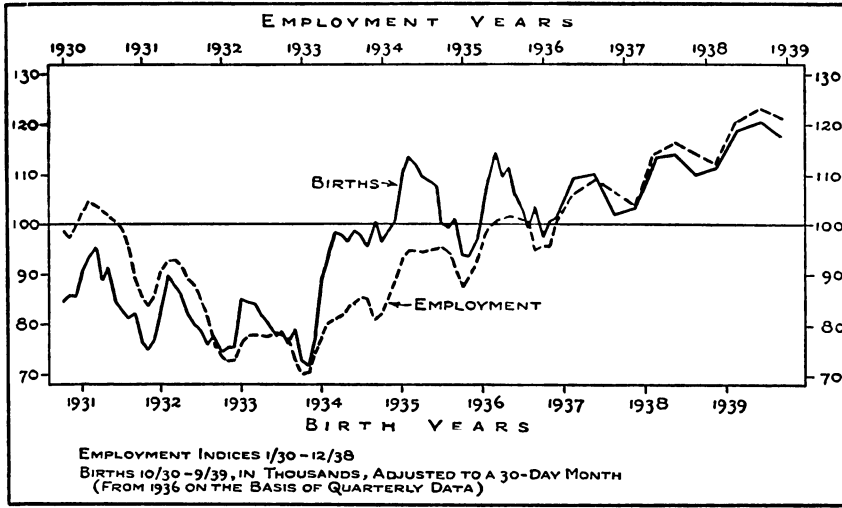


Fig. 1. Employment indices and births in Germany, 1930-1939, births lagged nine months.

employment conditions, because over any considerable time period, birth rates have declined and employment has not. To check the influence of employment over shorter periods, a series of correlations of employment indices and births by months and by quarters was made, using data from various countries and for various time periods. Experimentation revealed that the highest correlations were achieved where births lagged nine months, or three-quarters, behind employment, depending on the nature of the data. The correlations in Germany were generally high.

Figure 1 presents the monthly fluctuation of employment indices and births from 1930-1939, with births lagged nine months. The correspondence of the two is clear throughout, though the rise of births much outdistanced the rise in employment in the first years of Nazi control. Over the whole period the correlation was $+ .79$ for quarterly data.

A first question obviously arises as to whether the apparent high correlation was merely the result of the chance concatenation of basic trends. The association of employment and births in the early 'thirties might well be a fortuitous relationship arising from the

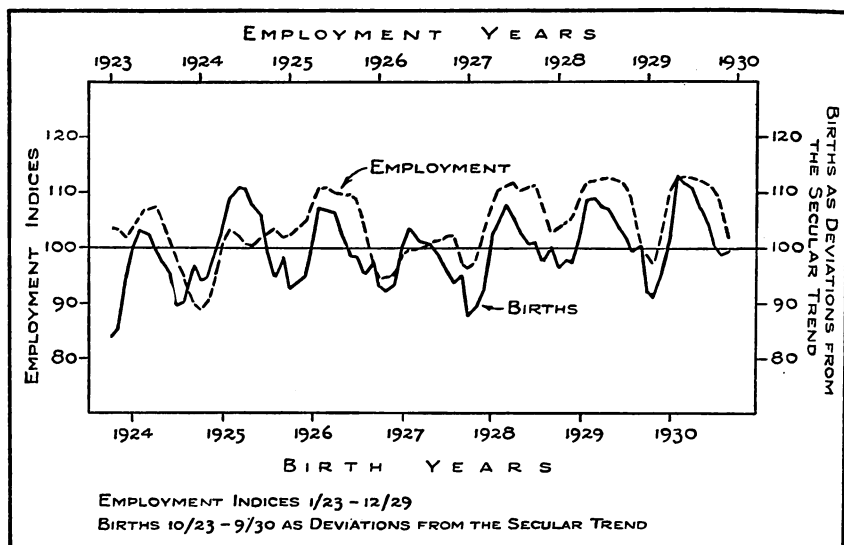


Fig. 2. Employment indices and births in Germany, 1923-1930, births lagged nine months with secular trend removed.

effects of depression conditions on employment and the quite unrelated continuation of the downward secular trend of births. In the later period the rise of employment and of births might well be the result of completely independent aspects of Nazi policies. As is well known the degree of correlation in time series may be greatly magnified by such coincidence in trends.

To test this possibility, reference was made to the relationship between employment and births in the period from 1923 to 1930. The correlations in the earlier period were not of a very high order, but they were statistically significant. However, when the downward secular trend of births was removed, as in Figure 2, the coefficients were found to be quite high. This was especially true of the period after 1926. The association was weak in the earlier years, perhaps in part because of the vagaries of inflation and its aftermath, which so disturbed the German economy through 1923 and 1924. The coefficient of correlation in the period 1923-1926 was only $+0.37$, as compared with $+0.88$ in the period 1926-1929, and $+0.62$ over the entire series.

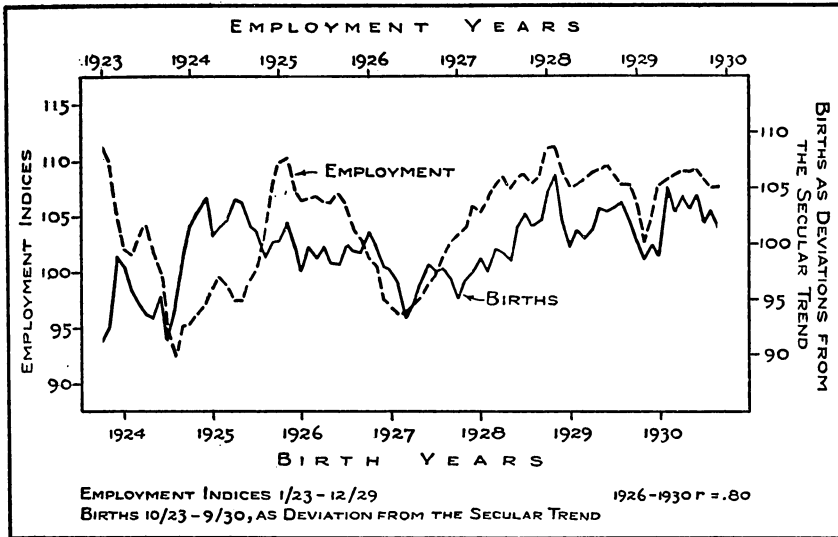


Fig. 3. Employment indices and births in Germany, 1923-1930, adjusted for seasonal variation, births lagged nine months with secular trend removed.

This chart also affords something of a test of the second hypothesis, namely, that the relationship between employment and births should have increased as fertility declined in time. The relationship in the early part of the period was somewhat tenuous, later increasing and rising to a rather impressive association in the latter part. However, as has been indicated, the early period was much disturbed by inflation and this test is not completely adequate, though what little evidence there is accords with the hypothesis. The testing of this hypothesis in other countries was generally hampered by the difficulties of getting coherent employment series for periods before 1930.

It is apparent in the entire series from 1923-1940 that seasonal variation of employment and births (lagged nine months) coincide and that this fact might possibly explain much of the correlation noted. When seasonal variation in addition to secular trend is removed, as in Figure 3, there is clearly no significant correlation in the earlier 'twenties. Births reacted at once to the stabilization of the Reichsmark in November 1923, whereas employment rose

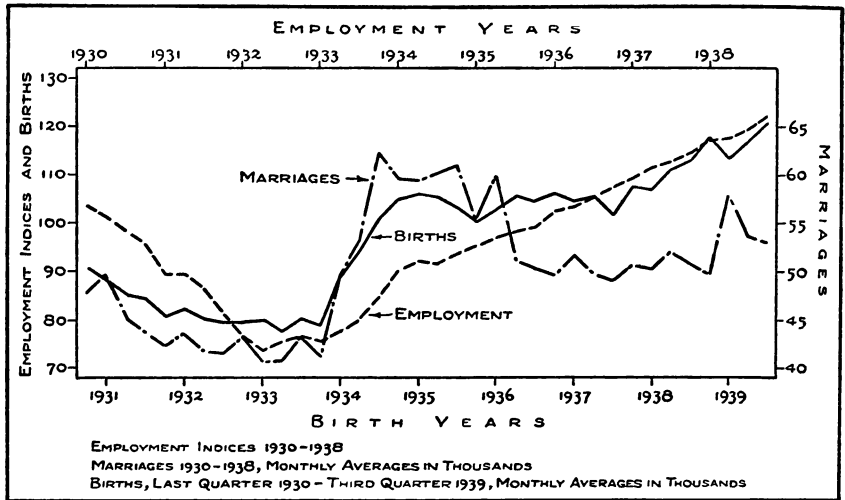


Fig. 4. Employment indices, marriages, and births in Germany, by quarters, 1930-1939, adjusted for seasonal variation, births lagged nine months.

more slowly. When employment did rise, births failed to respond. Between 1926 and 1930 there was a close correspondence in the movements of the two variables despite adjustment for seasonal variation, and the correlation was high, namely $+ .77$. The correlation in this period indicates that the relationship is not a transitory one that might have arisen in the 'thirties owing to a chance association of trends.

The coefficient of correlation in the period from 1930-1939 was somewhat higher for the adjusted data ($+ .83$) than for the uncorrected data presented in Figure 1, indicating that the relationship of the variables was independent of seasonal fluctuation. Another factor, however, clearly disturbs the relationship in this period, namely marriages. The correlation coefficient for marriages and births was $+ .72$, indicating a degree of interdependence almost as great as between employment and births. Examination of Figure 4 will reveal that fluctuations of births often appear to be a compromise between changes in employment and in marriages. The great increase in births in 1934 in particular seems to have been as much influenced by marriages as by employment, no doubt as a

result of the official policy of encouraging marriages through marriage loans without interest. In the later period the pull of reemployment seems to have been greater. The logic of this explanation is upheld by the fact that the initial rise of births in Germany was mostly a function of first births, whereas in the later period rises in fertility were brought about by increases in the higher orders of parity, especially in second and third births. When marriages were held constant the correlation coefficient between employment and births rose to $+.90$ for the period 1930-1939.

Surprisingly enough, the number of marriages does not appear to be very closely linked to employment conditions. The coefficient of correlation for the period 1930-1939 was only $+.33$. However, the decline in marriages contrary to employment trends in 1935 may be explained by the fact that the high marriage rates of late 1933 and 1934 could not be indefinitely maintained, owing to the limited number of marriageable persons available once the marriages postponed from the depression years were consummated.

According to the last of the three hypotheses, the relationship between employment and births should be greater in urban and industrial regions and countries than in rural regions and countries. On *a priori* grounds this should be true (1) because the impact of employment conditions in rural areas is cushioned by the high proportion of peasants and small town merchants and craftsmen, (2) because more rational control of fertility is to be expected in the city than in the country.

Within Germany births in large cities appear to be more responsive to changing employment conditions than in the country as a whole, particularly in periods of declining employment. However, large cities seem to have been more affected by the rapid increase of the marriage rate than the rural areas, and births rose more rapidly in the cities than in the remainder of the country in the first years of the Nazi regime. Employment also rose more rapidly in these areas.

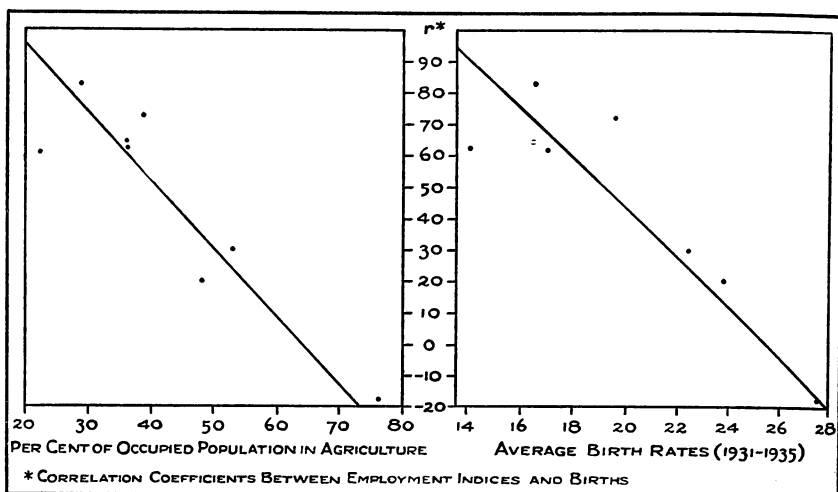


Fig. 5. Relation of r in selected countries¹ to per cent of occupied population in agriculture and to birth rates.

¹ The coefficients of correlation and time periods to which they apply were: Germany $+0.83$ (1930-1939); Czechoslovakia $+0.72$ (1931-1937); France $+0.64$ (1930-1935); Sweden $+0.62$ (1933-1938); United States—A. F. of L. data— $+0.61$ (1935-1939); Hungary $+0.30$ (1933-1940); Italy $+0.20$ (1929-1936); and Poland -0.18 (1931-1938). Except for the United States the proportions of the occupied population in agriculture were obtained from the League of Nations. EUROPEAN CONFERENCE ON RURAL LIFE 1939. POPULATION AND AGRICULTURE WITH SPECIAL REFERENCE TO AGRICULTURAL OVER-POPULATION, p. 8. Birth rates were taken from *Population Index*, July, 1941, vii, No. 3, pp. 244-245.

Comparisons between countries reveal that there is a negative relation between the proportion of the occupied population in agriculture and the association between births and employment. In Figure 5, the correlation coefficients between employment and births are plotted against percentage of the working force in agriculture. The countries and time periods were selected on the basis of the availability of the data.⁴ Because of the character of the data and the varying time periods used the precise relationships between

⁴ The coefficients were computed, as for Germany, with births lagged nine months. Employment indices were taken from various issues of the *International Labour Review* and birth data from official sources of the countries concerned. Great Britain was omitted because its employment series in certain respects is noncomparable with those used. On the basis of the British employment figures as given and without adjustment for secular trend of births, there is a negligible correlation between employment and births. When the secular trend and seasonal variation of births are removed (assuming the years 1924-1931 to represent the true secular trend) the correlation between employment and births from 1924-1938 was $+0.86$.

countries are of little significance. However, the general pattern is clear. Poland, Italy, and Hungary, with relatively high proportions of their populations in agriculture, had low or even negative associations between employment and births. In contrast, the more industrial nations of Western Europe generally had significant correlations between the two variables.

The pattern is equally distinct as regards the level of birth rates, also presented in Figure 5. Countries of high birth rates, notably Poland and Italy, had no significant relation between employment and births. Countries of low birth rates, such as Sweden, France, Germany, and the United States, had a rather close association.

In general the *a priori* hypotheses on the relationship of employment and births were supported by the data. The high degree of covariation in Germany therefore fits into a logical scheme that greatly strengthens the purely statistical evidence. Both logic and statistical evidence bear out the belief that employment must have been an important element in the rise of the German birth rate.

A final series of evidence may serve to strengthen the argument and give some quantitative estimate of the importance of employment conditions. Examination of changes in employment levels and birth rates between 1932-1933 and 1938-1939 suggests that a large increase in births in Germany might well have been anticipated on the basis of reemployment alone. In Figure 6 these changes are presented for those countries demographically comparable⁵ to Germany for which data on general employment levels are available. The countries are arranged from left to right in order of the ratio of employment in 1938 to employment in 1932. These columns are paired with similar ratios for birth rates in 1939 as compared with 1933.

Germany experienced the greatest increase in employment and at the same time much the greatest rise in the birth rate. Sweden,

⁵ Though employment series were available for certain Eastern European countries, they were not included. In these predominantly agricultural countries of high fertility, birth rates continued to decline regardless of changes in employment conditions.

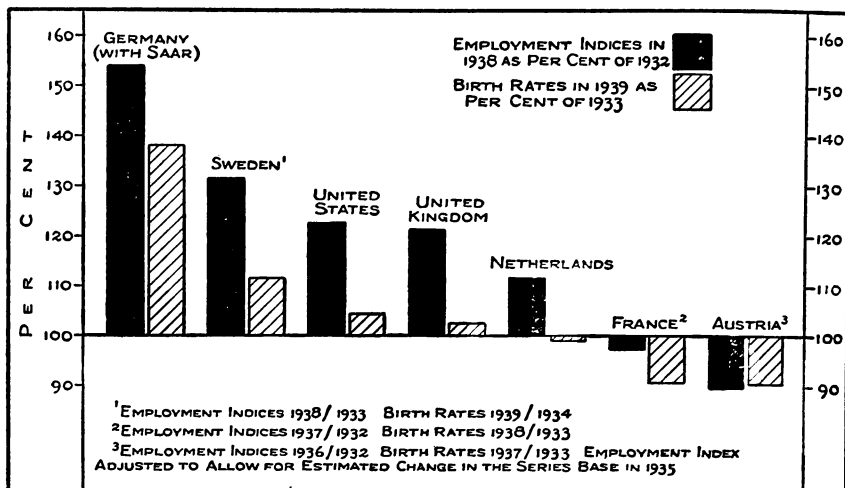


Fig. 6. Changes in employment indices and birth rates.

and to a lesser extent the United States and Great Britain, also achieved considerable reemployment with some recovery in births. In The Netherlands, where reemployment amounted to only 12 per cent, the birth rate remained about constant, and in France and Austria employment and births both declined in the period.

In every country except Austria the position of employment in the later year relative to the earlier was better than that of births. This fact tends to confirm the frequently expressed opinion that the checking and even reversal of birth rate declines in the late 'thirties does not represent a true deviation from the downward secular trend but a temporary reaction to improved economic conditions. Among the countries considered a certain increase of employment was necessary to hold the birth rate constant, and barring such increase, birth rates tended to pursue their downward course. In Sweden, for instance, a 32 per cent increase in employment produced a rise of only 12 per cent in the birth rate; in the United States a 23 per cent employment rise brought a birth rate increase of only 4 per cent; and in The Netherlands a 12 per cent rise in employment was not quite sufficient to hold the birth rate at its former

level. In France and Austria, where employment conditions worsened, the downward trend of births continued.

In so far as Germany is concerned, it seems certain that on the basis of comparative experience an important rise in the birth rate could have been predicted from reemployment alone. At least a third of the birth increase may be assumed to be a function of re-employment, since in Sweden, with far less

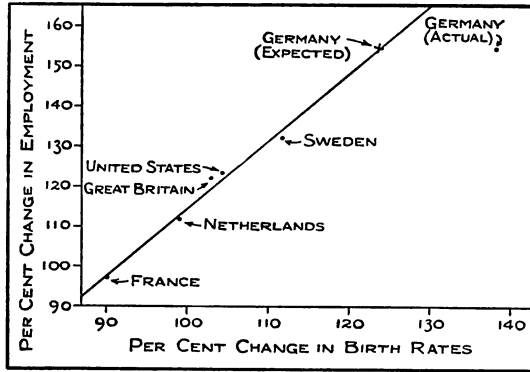


Fig. 7. Changes in birth rates relative to changes in employment indices.

increase in employment, the birth rate rose almost one-third as much as it did in Germany. On the other hand, if the rise in births followed the rise in employment at the same distance as it did in Sweden (*i.e.* 20 per cent), almost all of the rise in German births would have to be assigned to the improved employment situation.

The experience of other countries demonstrates that the latter interpretation is unlikely. There is clear evidence that, at least among the countries considered, successive improvements in employment conditions did not bring about a proportionate rise in births. The spread between changes in employment and in birth rates broadened as the employment ratio rose. Thus the spread was only 7 per cent in France, 13 per cent in The Netherlands, 19 per cent in Britain, 18.5 per cent in the United States, and 20 per cent in Sweden.

The graphic presentation of the relationship between changes in employment and birth rates in these five countries (Figure 7) reveals a striking regularity in the diminishing influence of employment on births as the employment ratio goes up. This is indicated by the relatively small deviations of the plotted points from the

computed line of regression. With employment changes known, the change in the birth rate in any one of these countries could have been estimated with reasonable accuracy from the experience of the other four. The experience of these typical countries suggests a high degree of predictability in the association between employment and birth rates in Western industrial nations generally.

Assuming that Germany reacted to changing employment conditions as did these other Western countries, a 23 per cent rise in the birth rate could have been expected from reemployment alone.⁶ The actual increase was 38 per cent. On this basis almost three-fifths of the actual increase may be explained by reemployment, leaving only two-fifths to be allocated to other changed conditions in the Reich, including all direct population measures.

Most will agree that, behind the Nazi façade of collective expressions that are so objectionable and so dangerous, the Germans are human beings with hopes and fears and with reactions to stimuli not unlike our own. If this is true, a major part of the Nazi successes on the demographic front must have been the result of reemployment, as opposed to the more spectacular appeals of race and "folk" on the one hand, and specific inducements to childbearing on the other.

⁶ This percentage may be obtained by reading the expected increase in the birth rate at the actual employment ratio from the extrapolated line of regression in Figure 7.