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HOUSEHOLD STRUCTURE IN GERMANY, 1933: INDICES OF HOUSEHOLD COMPLEXITY AND DETERMINANTS OF REGIONAL VARIATION*)

With 12 figures and 3 tables

FRANZ-JOSEF KEMPER

Zusammenfassung: Haushaltsstruktur in Deutschland 1933: Indizes der Haushaltskomplexität und Einflußfaktoren der regionalen Differenzierung

Der Beitrag ist im Rahmen eines Forschungsprojektes entstanden, das die Veränderung der Haushalts- und Familienstrukturen in Deutschland während der letzten hundert Jahre in regionaler Sicht analysiert. Im Vordergrund steht die Frage nach der Veränderung der Haushaltsformen in Abhängigkeit vom ökonomischen und sozialen Wandel seit der Industrialisierung unter Berücksichtigung kulturspezifischer Rahmenbedingungen. Die Abnahme der durchschnittlichen Haushaltsgröße war am stärksten in der Zwischenkriegszeit. Daher wurde auf der Grundlage der Volkszählung von 1933 eine eingehendere Analyse der regionalen Unterschiede im Haushaltsbildungsverhalten unternommen.

In einem ersten Untersuchungsschritt mußte versucht werden, Indikatoren für das Haushaltsbildungsverhalten zu finden, das sich aus der Art des Zusammenlebens erwachsener Personen in komplexen Haushalten, z. B. von drei oder mehr Generationen, in Kernfamilien oder in Einzelpersonenhaushalten ergibt. Dazu wurden ein Gesamtindex und mehrere Teilindizes der Haushaltskomplexität gebildet, die unabhängig von der demographischen Zusammensetzung der Bevölkerung sind. Als Gesamtindex wurde in Anlehnung an BURCH der Wert IOH (index of overall headship) konstruiert, der die Tendenz zur Bildung komplexer oder einfacher Haushalte über Haushaltsvorstandsquoten beschreibt. Dazu wird die Zahl der beobachteten Haushalte in Relation gesetzt zu einer Zahl von erwarteten Haushalten, die sich bei gegebener Alters-, Geschlechts- und Familienstandsgliederung der erwachsenen Wohnbevölkerung unter der Voraussetzung von Haushaltsvorstandsquoten einer Referenzbevölkerung ergeben müßte. Als Referenzbevölkerung mit geringer Komplexität wurde die Bevölkerung der Bundesrepublik am Ende des Untersuchungszeitraumes 1979 gewählt. Es wurde weiter davon ausgegangen, daß ein hoher Grad von Komplexität vor allem unter drei Bedingungen erreicht wird, die durch die Möglichkeiten, daß 1) verschiedene verheiratete Paare zusammenleben, 2) unverhei-

*) Erweiterte Fassung eines Referates, gehalten auf der "Conference on Historical Demography" des "Institute of British Geographers", Cambridge, 9.–11. September 1982.

ratete Erwachsene in einem Familienhaushalt von Verwandten integriert sind, 3) Haushaltsmitglieder nicht mit dem Vorstand verwandt sind, gekennzeichnet sind. Hierzu wurden die Indizes FAHH (Familien pro Haushalt), SI (Alleinstehendenquote der Unverheirateten) und UNR (Haushalte mit familienfremden Mitgliedern) gebildet. Die räumlichen Verteilungen der Indizes zeigen deutliche, voneinander klar unterscheidbare Muster, wobei beim Gesamtindex IOH und bei SI das ausgeprägte Ost-West-Gefälle hervorgehoben wird, das unabhängig vom Ausmaß der Industrialisierung und Urbanisierung ist.

Der zweite Untersuchungsschritt galt der Erklärung der regionalen Unterschiede in der Haushaltskomplexität durch operationalisierbare unabhängige Variable aus den Bereichen Wirtschafts- und Sozialstruktur, Erwerbstätigkeit, Wohnungsstruktur, Agrarstruktur und Kultur. Es wurde davon ausgegangen, daß die Haushaltsformen auf der einen Seite mit dem sozialen Wandel zusammenhängen, der in die Teilprozesse Industrialisierung, Urbanisierung und Modernisierung zerlegt wurde. Auf der anderen Seite wurde die Wirkkraft von persistenten traditionellen Strukturen angenommen, die regional unterschiedliche, wichtige Rahmenbedingungen des sozialen Wandels darstellen und aus denen Merkmale der Agrarverfassung und Agrarstruktur sowie der Konfession ausgewählt wurden. Ferner wurden Indikatoren aus den Bereichen Wohnungsstruktur und Erwerbstätigkeit der Frau gebildet. Für jeden Index wurde mit Hilfe von Regressionsanalysen ein Pfadmodell aufgestellt. Diese Modelle zeigen insgesamt stärker den Einfluß kultureller Faktoren einschließlich der Modernisierungsindikatoren als denjenigen ökonomischer Bedingungen, was nicht zuletzt durch das relativ hohe Aggregationsniveau der räumlichen Einheiten bedingt sein kann.

In most industrialized societies, the household or the family household is the basic unit of consumption, leisure spending and labour supply as well as a residential unit, and in some sections of the population it still represents a basic unit of production. Geographical studies very often deal with some of these aspects of human behaviour, and analyse data collected with regard to households. Obviously, regional variations in household and family structure, the elements of which are size and composition, are strongly connected with demand and supply in the housing sector of the economy, with demand for specific goods as well as with variations of spatial behaviour. Surprisingly, only few human geographers have considered such regional variations in detail and developed concepts for a better understanding of household structures, the most noteworthy exception being the concept of the family life-cycle and derived household groups in migration analyses. In these studies the family status dimension of urban populations and models of its intra-urban variation were set up, but little is known about regional differences on a larger scale. In Germany such large-scale variations in household structure do exist nowadays, as will be shown in another paper, and one can ask whether they are rooted in persistent traditions and a different socio-economic development.

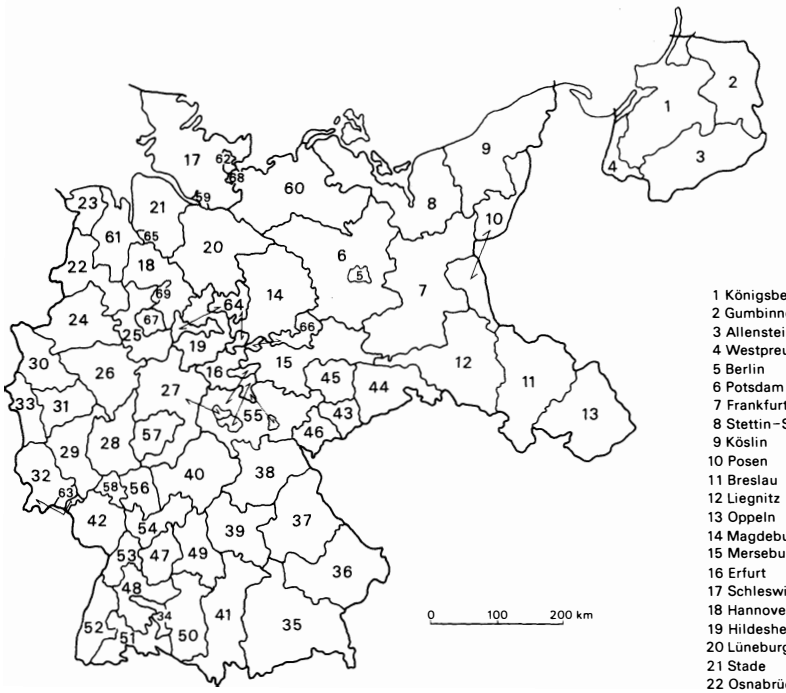
Therefore a research project was undertaken which explores the changes in regional household and family patterns in Germany since the beginning of the twentieth century – the German Reich before 1945 and the Federal Republic of Germany after 1945 – and which analyses the interrelations of persistent traditional structures with the evolution of new household structures. Above all it should be examined how the composition of households and families was influenced by the progressive industrialization and urbanization, taking into consideration the important variations in the cultural system, which have been so typical of Germany. Such an investigation seems all the more useful because the well known "hypothesis of contraction", set up by W. H. Riehl, F. Leplay and E. Durkheim, which states the nuclearization of the family, has proved too simplistic, even if a corresponding change of norms can be identified (Goode 1963, König 1976). As studies by historical demographers have shown, Western Europe in preindustrial times was characterized by the European marriage pattern (Hajnal 1965), with late marriage and a high proportion of persons never marrying, and by the predominance of the nuclear family particularly in the lower social classes (see especially Laslett, Wall 1972). Most parts of Germany seem to belong to the area of this marriage and family pattern, even if in some regions with impartible inheritance a fairly high proportion of the peasant population coresided in stem family households (Mitterauer 1977, Rosenbaum 1982). During early industrialization and with increasing life-expectancy the chance of coresiding in extended families rose. Therefore some industrialized rural areas record an increase of mean household size during the nineteenth century (Mitterauer 1977, 42).

Looking at the mean household sizes in Germany one can see no direct connection with the process of urbanization and industrialization. Table 1 shows only slight variations during the period of most intense industrialization from 1870 to 1910, whereas the strongest decrease can be observed

Table 1: Mean household size and percentage of one-person households in Germany, 1871–1980 (German Reich 1871–1939, West Germany 1950–80)

	Mean size of private households (1)	Percentage of one-person households (2)	Decrease of (1) per year (3)
1871	4.63	6.2	
			0.0033
1880	4.60	6.3	
			0.0050
1890	4.55	7.1	
			0.0060
1900	4.49	7.2	
			0.0090
1910	4.40	7.3	
			0.0280
1925	3.98	6.7	
			0.0463
1933	3.61	8.4	
			0.0567
1939	3.27	9.8	
			0.0255
1950	2.99	19.4	
			0.0100
1961	2.88	20.6	
			0.0156
1970	2.74	25.1	
			0.0260
1980	2.48	30.2	

Sources: Statistisches Bundesamt (Ed): Bevölkerung und Wirtschaft 1872–1972. Stuttgart 1972. Statistisches Jahrbuch Bundesrepublik Deutschland 1981.



1 Königsberg	24 Münster	47 Neckarkreis
2 Gumbinnen	25 Minden	48 Schwarzwaldkreis
3 Allenstein	26 Arnsberg	49 Jagstkreis
4 Westpreußen	27 Kassel	50 Donaukreis
5 Berlin	28 Wiesbaden	51 Konstanz
6 Potsdam	29 Koblenz	52 Freiburg
7 Frankfurt / O.	30 Düsseldorf	53 Karlsruhe
8 Stettin-Str.	31 Köln	54 Mannheim
9 Köslin	32 Trier	55 Thüringen
10 Posen	33 Aachen	56 Starkenburg
11 Breslau	34 Sigmaringen	57 Oberhessen
12 Liegnitz	35 Oberbayern	58 Rheinhessen
13 Oppeln	36 Niederbayern	59 Hamburg
14 Magdeburg	37 Oberpfalz	60 Mecklenburg
15 Merseburg	38 Oberfranken	61 H. Oldenburg
16 Erfurt	39 Mittelfranken	62 F. Lübeck
17 Schleswig-Hst.	40 Unterfranken	63 Birkenfeld
18 Hannover	41 Schwaben	64 Braunschweig
19 Hildesheim	42 Pfalz	65 Bremen
20 Lüneburg	43 Chemnitz	66 Anhalt
21 Stade	44 Dresden	67 Lippe
22 Osnabrück	45 Leipzig	68 Lübeck
23 Aurich	46 Zwickau	69 Schaumburg-Lippe

Fig. 1: Administrative areas of Germany

in the period between the two world wars. This change slowed down after the second war in the fifties, then accelerated again especially in the seventies. This second period of rapid change is characterized by the remarkable increase of one-person households, which had only minor importance in the first period. It can be assumed that regional differences are particularly marked in times of rapid change. Therefore in a first step of research, a cross-sectional analysis was undertaken on the basis of the census of 1933. As Lee (1981) remarked in his report about historical research on the German family, this time period has been neglected by historical demographers. Further he complained about the "continuing absence of regional analyses" (p. 29), which should be a rewarding task for geographical studies.

What factors are responsible for the decrease of the mean household size? Taking into consideration the direct demographic influences, one should bear in mind the changes in three different fields of behaviour:

1. changes in fertility,
2. changes in marriage behaviour including age at marriage, proportion married and the frequency of divorce, and
3. changes in household formation behaviour, i. e. in the forms of coresiding of adults in different family types or in households with non-family members or of residing in one-person households.

All these processes are influenced by the progressive industrialization and urbanization, the associated changes in the way of life and in housing conditions being of special importance. In this paper it is particularly the third process which will be analysed and which has to be distinguished from the other two processes.

Data

As opposed to most studies by historical demographers, which have used detailed surveys taken from household lists of a few, mostly rural, communities, this project had to rely on published census material. The spatial units are 69 middle level administrative areas of the German Reich, which contain the Prussian Regierungsbezirke, comparable areas of other states and smaller states in total (see fig. 1). On the basis of these areas, called "größere Verwaltungsbezirke", a remarkable amount of data concerning the household and family structure was published by the Statistisches Reichsamt (especially in "Statistik des Deutschen Reiches, Neue Folge, Vol. 452") which has hardly been analysed in detail so far.

The usefulness of these data for regional studies is limited by the large variations in population size, and by a certain heterogeneity within the areas, which results from the

complicated areal composition of the states of the German Reich. With a mean size of 945,000 inhabitants per area, the range extended from a minimum population of 48,000 in Fürstentum Lübeck (area 62) to a maximum of 4.2 million in Berlin. Apart from large and heterogeneous areas like Arnsberg, which joins important parts of the Ruhr mining district with rural regions of the Sauerland, there are independent cities (Berlin, Hamburg, Bremen, Lübeck) and minor states like Schaumburg-Lippe. For reducing the variation in size it would have been possible to aggregate small contiguous areas. But against that it can be argued that even small states during many centuries had developed their own identity as well as persistent traditions influencing the family and household structure. Therefore the possibility of aggregation was rejected. By and large the selected areal differentiation is in harmony with that of KNODEL (1974) and so we can compare his indices of fertility with the indices of household complexity. For some analyses it became necessary to reduce the number of areal units to 67 or 66 because of missing data. So the data concerning "families" have not been published for the parts of the state of Oldenburg.

It is well known that the term household has been defined differently in various countries or over subsequent time periods, thus marking the comparison over space and time difficult. The household concept of the German census changed only slightly from 1871 until 1939, the definition becoming more precise during that time (see details in SCHUBNELL 1959). The household figured as a unit of data collection and was seen as both a residential unit and an economic unit of consumption. The most crucial problem in household definition then, like today, is the question whether lodgers are considered to have households of their own or not. According to the household concept of the German census lodgers in general were integrated into the households of their hosts because they did not dispose of a housing unit of their own. In 1933 the following exceptions were allowed: A family of several persons living together as lodgers was regarded to constitute a separate household, whereas persons living alone as lodgers were included in the host households unless the furniture of their room or rooms was of their own and they made up an independent economic unit. It should be noted that the household definition of the census in the Federal Republic of Germany is different in so far as the internationally accepted "housekeeping unit concept" (cf. CLARKE 1972, 85) is used, according to which most lodgers have a separate household. Thus the comparison of pre-war with post-war figures in table 1 is possible only with some reservation, because the growth of one-person households and the decrease of the mean household size are inflated.

As usual the German census of 1933 distinguished private and institutional households. This study is primarily interested in the forms of private households and their regional variations, but often it is not possible to obtain data about the population in private households, for instance concerning the age, sex and marital status composition of the population. On the whole this will pose no severe problems for in 1933 only 1.95% of the total population lived in institutions and there were very few areas with figures over 3%, the maximum with 3.9% being reached in Upper Bavaria.

In the period between the two world wars in Germany, as in other European countries, there was a growing interest in the family regarding the discussion of the consequences of the fertility decline. This led to the notorious population and family policy of the Nazi government which in turn burdened the development of population studies in Germany after the war. Thus the censuses of 1925, 1933, and 1939 tried to gather data about the socio-biological unit of the family as part of a household. In 1933 a family as defined by the census consisted (i) of a couple with or without children or (ii) of a widowed/divorced person coresiding with family members, mostly children, or (iii) of related persons who were for themselves unrelated to the head of the household. Therefore a private household could be composed of one or several families with or without non-family members. For example, a stem family household would consist of two families, the older couple and the younger couple with their children.

Construction of complexity indices

It was necessary to obtain from the mentioned data satisfactory measures of structure and type of the households. The most frequently used indicator, mean household size, is a poor measure because it depends both on the number of children, and on the complexity of the household, represented by the number of cohabitating generations and the number and composition of relatives and other persons. Therefore KUZNETS (1978) suggested to allocate the difference in the size of households to two separated factors, the NIC factor (natural increase – children) and the JAA factor (jointness or apartness of adults). He measured these factors by the average number of children and of adults per household. But the second index depends on the age and marital status of the adult population, for a high percentage of elderly or widowed people often implies low household sizes. Hence it seems useful to consider a measure developed by BURCH (1980). His "index of overall household headship" is an age-sex standardized measure of household complexity, defined as the tendency of adult unmarried persons and of married couples to coreside. If they head their own households the complexity is low. The construction of the index is similar to that of COALE's fertility measures (cf. COALE 1969) because it compares the observed number of households in a population with an expected number computed by the given age and sex structure of the population, and the age-sex specific household headship rates of a reference population. As reference population with maximum fertility rates, COALE could take the Hutterites, but what about a population with maximum headship rates? After discussing this problem and rejecting the construction of fictitious rates BURCH used a composite set of maximum rates in each age-sex group, selected from all over the world.

But this solution appears to be problematic, for the headship rates of different age and sex groups in a fixed population are not independent. For example, if the gender roles in a society suggest that the husband and not the wife is the head in a household of a couple, high headship rates of unseparated married men necessarily imply low rates for married women. Hence we chose an empirical population with high rates, viz. the population of the Federal Republic of Germany at the end of the study period, 1979. In extension of the original measure we additionally controlled for the marital status which is crucial in the process of household formation.

Thus the modified index of overall headship (IOH) is defined as

$$IOH = H_o / H_e \qquad (1)$$

where H_o is the number of observed, H_e the number of expected private households:

$$H_e = \sum_{i,j,k} h_{ijk} P_{ijk} \qquad (2)$$

with i as running index of age groups, j as index of the two sexes and k as index of marital status groups. P_{ijk} denotes the observed population in the specific age-sex-marital status group and h_{ijk} the headship rate of the reference population. These rates are shown in table 2. As for the calculation of this index for 1933, the number H_e will be slightly inflated, hence IOH slightly underrated, because the P_{ijk} contain the institutionalised population.

It can be seem from table 2 that the difference between married and widowed or divorced persons is more important than the age-specific differences within these groups, whereas those who never married are chracterized by a marked heterogeneity of age groups. So 9.9% of all celibate young males head an own household, but 76.3% of all old males never married, with slightly higher rates of the respective females. These headship rates of the reference

Table 2: Household headship rates by age, sex and marital status, Federal Republic of Germany, 1979

	Never married	Married	Widowed/ divorced
Male:			
15–25	0.099	0.923	0.500
25–45	0.496	0.982	0.833
45–65	0.713	0.993	0.903
65 +	0.763	0.969	0.819
Female:			
15–25	0.115	0.024	0.727
25–45	0.572	0.020	0.902
45–65	0.739	0.015	0.932
65+	0.778	0.019	0.849

Source: Calculated from: Statistisches Bundesamt (Ed.): Bevölkerung und Erwerbstätigkeit. Haushalte und Familien 1979.

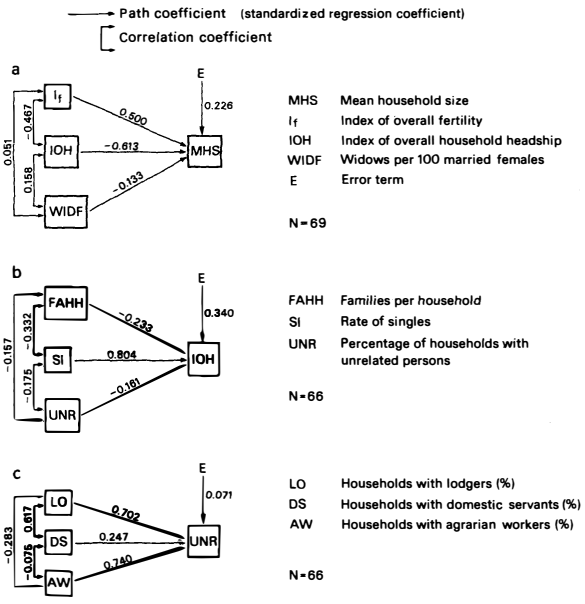


Fig. 2: Regression analysis:
a: Mean household size (MHS)
b: Index of overall household headship (IOH)
c: Households with unrelated persons (UNR)

population mirror a life-cycle characterized by changing household sizes with a maximum in the phase of a consolidated family, a minimum in old age and partly with young adults.

In 1933 the highest values of IOH can be found in Anhalt (area 66) with 0.811 and in the state of Saxony with values about 0.800, whereas the index reaches its minimum in the peripheral region of Trier/Rhineland with 0.689. Fig. 2a shows how the mean household size is influenced by two behavioural parameters and one structural parameter. The former concern the fertility, measured by COALE's index I_f of overall fertility, and household complexity measured by IOH. The latter characterizes the marital status composition of the population by the number of widows per 100 married females. The variation of the mean household size is primarily determined by the household complexity even if the fertility index lags behind only a little. Both influencing factors described by the indices are only moderately correlated so that it is important to separate their effects.

To obtain a more detailed insight into the household formation it was necessary to divide the household complexity into separate components. A high degree of complexity is expected if (i) several married couples coreside, (ii) if unmarried adults are integrated into a family households of relatives, (iii) if a household contains members unrelated to the head. For representing these components the following three measures were developed:

1. Number of families as defined by the German census per private household of two or more persons. If this index FAHH equals 1, a region is characterized by nuclear families. The more FAHH exceeds the value 1, the more the population contains extended families such as stem or joint families. As proxy variable one can use the better-known measure MUH of marital units per household, i. e. the number of married couples and widowed or divorced persons per household.
2. The second component is defined by the number of one-person households per 100 unmarried adults and is called "rate of singles" (index SI). All widowed and divorced persons and all individuals who never married, aged 25 and over, were counted as unmarried adults. The threshold of 25 was chosen because of the assumption that only few celibate persons below 25 headed a household in 1933. The second and more crucial assumption underlying the construction of the index is that there was only a negligible proportion of married and separated adults living in one-person households. This assumption is confirmed, for in 1933 a minority of 1.4% of all married persons did not coreside which corresponds to 3.3 separated spouses per 100 unmarried adults.
3. The third component ist the percentage of households with unrelated members in all private households with two and more persons (index UNR). This index could only be computed for 1939, since the relevant information was not collected in 1933. It can be assumed that the spatial variations of this measure did not essentially change in the six years after the census of 1933. A division into three categories of non-family household members was possible, distinguishing households with lodgers, with domestic servants and with agrarian or – to a far lesser extent – industrial workers. With progressive modernization and industrialization the proportion of domestic servants and helpers decreased, yet in 1939 8% all two-and-more-person households still had servants or workers.

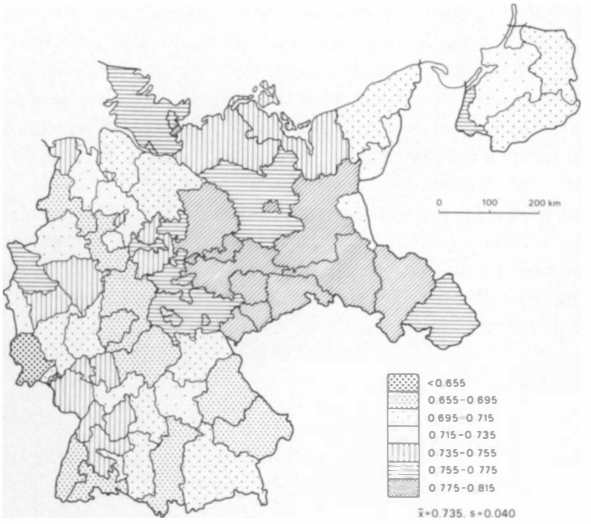


Fig. 3: Index of overall household headship, 1933

Regional patterns of complexity indices

The following maps show the regional patterns of the selected indices of household complexity. In fig. 3 the index of overall headship is plotted. There is a striking cluster of high values in the Prussian areas surrounding Berlin, in Saxony (areas 43–46) and Silesia (11–13). These regions differ considerably with respect to industrial structure and urbanization. As an example of these structures, fig. 4 shows the percentage of persons gainfully employed in manufacturing. It can be seen that heavily industrialized areas characterize the state of Saxony, the Rhine-Ruhr-agglomeration and parts of the South-west. In contrast to this, rural areas like Frankfurt/Oder (7) or Liegnitz (12) with high headship rates are only moderately industrialized.

The next map (fig. 5) demonstrates a quite different regional pattern of the index "families per household". The mean of 1.042 is remarkably low, indicating a minor proportion of extended families. Relatively high values are clustered in predominantly rural areas of the North-west and some central parts of Germany. The spatial pattern of the rate of singles in fig. 6 is similar to that of the index of overall headship, the east-west differences becoming clearer. The maxima (areas 66, 12, 14) do not appear in the largest cities, but in moderately urbanized areas. The proportion of households with unrelated persons (fig. 7) is particularly

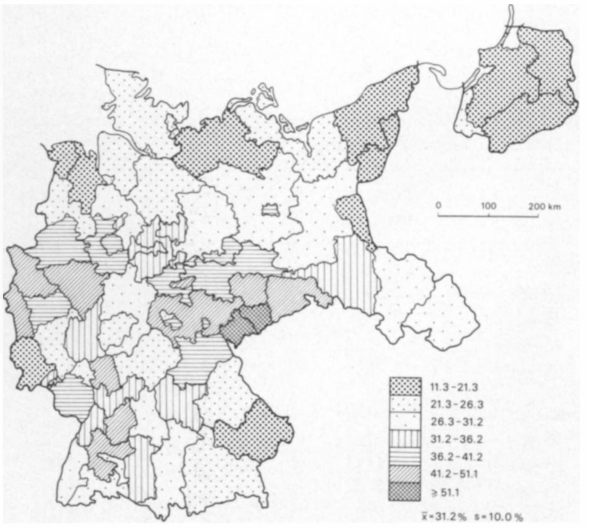


Fig. 4: Percentage of persons gainfully employed in manufacturing, 1933

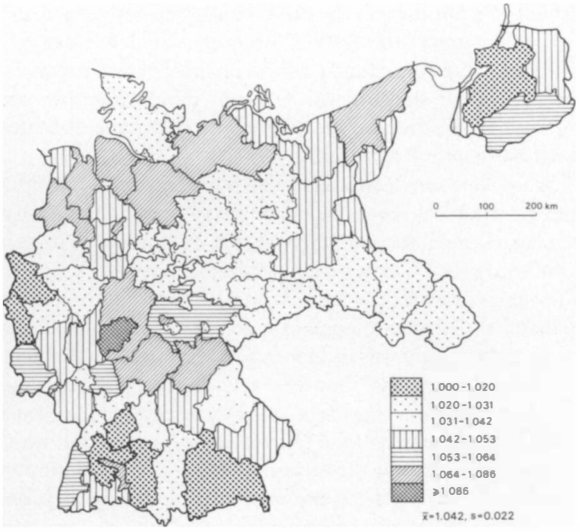


Fig. 5: Families per household, 1933

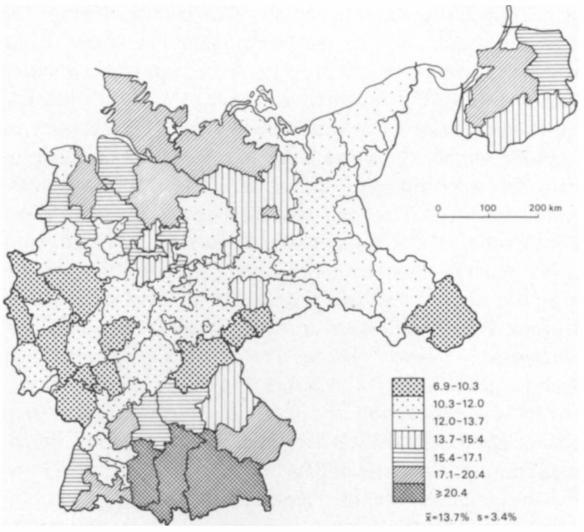


Fig. 7: Percentage of two-and-more-person-households with unrelated members, 1939

high in South Germany, both in urbanized and in rural regions, with a maximum of 23% in Upper Bavaria (35). Moreover, high rates can be found in western parts of North Germany and in East Prussia, whereas low values characterize the mining districts of the Ruhr (Arnsberg, area 26) and of Upper Silesia (13) as well as rural regions (for example area 29). Altogether the maps show distinct regional contrasts which are only weakly associated with differences in economic structure.

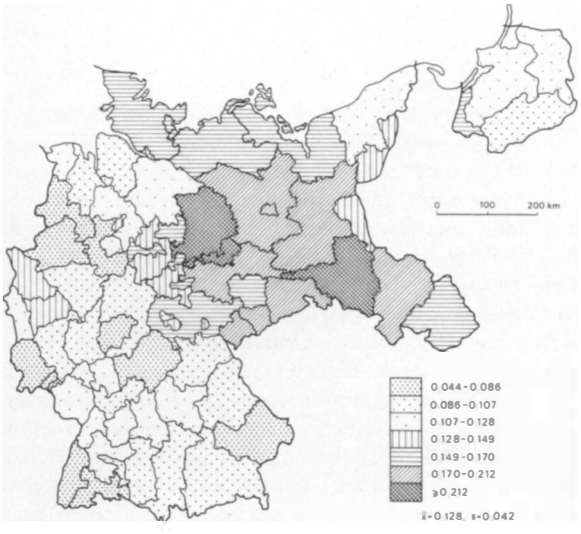


Fig. 6: Rate of singles, 1933

As can be expected from the maps and as shown in fig. 2b, the variation in the index of household complexity is especially connected with the variation in the rate of singles. Likewise, the other regression coefficients are significant. Hence for the most parts of Germany in 1933 the forms of the extended family are of minor importance and nuclear families predominate. Even if the proportion of one-person households is relatively low in contrast to the situation after world war II, and even if on average only 13% of all unmarried adults live alone, the variations of household complexity are strongly determined by the rate of singles, i. e. by a process of household formation which is typical of the recent development of household structures in industrial societies.

Indicators for the explanation of regional household patterns

Regarding the different components of household complexity, the question must be asked, which structures and processes one should refer to for explaining the regional variations. In this article it is only possible to hint at some relationships which can be measured by means of statistical methods.

As a basis for the analyses the processes of social and economic change are considered, namely industrialization, urbanization and modernization, on the one hand, persistent structures which determine the starting points of change on the other. The classical sociological theories of the family state that with industrialization and urbanization, the family loses its production and other functions, and concentrates on the inner relationships of a few members leading to a reduction of the complexity of the household. The degree of industrialization of a region was measured by the percentage

of economically active population in manufacturing, the level of urbanization by the percentage in activities of the tertiary sector and by the proportion of population in cities with over 100.000 inhabitants. Beyond this rather narrow meaning of the processes mentioned, it seemed necessary to consider further the more behavioural aspects of modernization, like loosening traditions, secularization and increasing rationality. The behavioural consequences concern among others the attitudes towards the family, the position of women and the elder generation. As an indicator of this complex we selected the proportion of persons without denominational membership. Even if on average this percentage only slightly exceeds 1%, in some large cities like Berlin and Hamburg it amounts to 15%. So it can be interpreted as the reflection of an important aspect of modernization. Because of the superior function of the capital Berlin as an innovation centre and its influence on nearby regions, a second indicator was developed: The distance from Berlin reflects the diffusion of attitudes and ideas from the capital city.

The regional variation of social change is strongly influenced by the different original situations of social and economic structure, two aspects of which are considered in detail. The first concerns the traditional agrarian structure which already affected the extent of proto-industrialization. In Germany three different regions of agrarian structure are distinguished, which are expected to bear implications for the household and the family as well. The first region comprises the provinces east of the river Elbe with large estates and with a high percentage of the agrarian population being in a dependent economic position as farm labourers. As a suitable measure, the percentage of labourers among the active population in agriculture was chosen. In the western and southern parts of Germany peasant families who owned their farms dominated. This area was subdivided into two regions according to the inheritance system, to which many authors have assigned importance for the family types, stem families and larger households being connected with the practice of impartible inheritance (e. g. Berkner 1976). A dummy variable was constructed, opposing areas with prevailing partible and undivided inheritance (after Huppertz 1939, see also Pfeifer 1956). Moreover, the percentage of small farms with less than 5 hectares was formed, because it is hypothesized that smallholdings do not offer the economic base to support large and complex households with servants. These variables of the agrarian structure concern primarily the agrarian population. In 1933, still 29% of the labour force were engaged in agriculture, and in more than 10 of the areal units this figure exceeds 50% with a maximum value of 68% in Lower Bavaria (area 36). Beyond that, persons in other branches of activity may be affected by old rural traditions, even if they migrated to the cities.

From the field of traditional cultural structure, the marked regional differences in denominational affiliation have proved significant to the generative behaviour and the attitudes to the family. The percentage of Roman catholics was supposed to correlate with high fertility of married couples on the one hand, high celibacy and the integration of celibates in families on the other hand. Certainly, there are other elements of the cultural structure which characterize the deep-rooted social and political identity of many regions, provinces and states of the German Reich, but they are difficult to operationalize, and bear no clear relationships with household structures.

Moreover, some variables were selected which are influenced by the socio-economic change as well as by traditional structures. An important direct effect on household formation is exercised by the given housing structure of a region, although vice versa the household structure determines the demand for new dwellings of a certain size. The housing stock in Germany was influenced by urbanization, but also by different regional housing acts and regulations, and building traditions. So there was a clear east-west contrast with large blocks of flats *(Mietskasernen)* and small units being concentrated in the eastern provinces. This distinction arose particularly during the period of rapid urbanization, i. e. 1870 to 1910, and can be explained by different regional realty laws and the extent of restrictions which were practised by the urban authorities through building regulations (cf. Böhm 1980). The variables of the housing structure, e. g. rooms per dwelling and dwellings per residential building, had to be taken from the housing census of 1927. Due to the relatively large size of the areas and the small amount of new buildings erected between 1927 and 1933, the regional variations in 1927 must essentially be the same as in 1933.

Another variable with an impact on families and households is the employment status of women. Unfortunately, it was not possible to find data about the different employment sectors. Instead a measure was formed relating the employed women to the female population between 15 and 65 years of age. This measure depends on the agricultural basis of a region with female employment in family holdings, but also on the degree of urbanization, because many jobs for women are concentrated in the service sector of urban areas.

Path models

Table 3 shows the correlation coefficients of the described independent variables with the different indices of household complexity. Although many coefficients are statistically significant, their absolute sizes are often not very high, indicating that no single universal relationships exist. An exception is the index AW, the percentage of households with agrarian or industrial workers, which evidently is correlated positively with agriculture and negatively with urbanization and industrialization. It can be seen that the rate of singles has the highest correlation coefficients with the variables of modernization and the cultural system, whereas the relationships with the economic situation are less significant. The strongest, though only moderate relationships of the index "families per household" are those with employment in agriculture and population in large cities. Altogether the presence of intercorrelations of the independent variables in such a table of correlations must be

Table 3: Product-moment correlation coefficients of indices of household complexity with selected variables

	SI	FAHH	DS	AW	LO
N	69	67	66	66	66
Industrialization:					
Percent employed in manufacturing	0.303*	−0.318**	−0.012	−0.678***	0.094
Urbanization:					
Percent employed in trade and transportation	0.363***	−0.385***	0.223*	−0.584***	0.612***
Percent employed in public and private service	0.366***	−0.429***	0.302**	−0.536***	0.649***
Percent of population in cities of 100,000 inhabitants and over	0.222*	−0.456***	0.302**	−0.540***	0.623***
Modernization:					
Percent without denominational membership (log)	0.625***	−0.341**	0.003	−0.542***	0.502***
Distance to Berlin	−0.688***	−0.032	0.350**	0.122	−0.168
Agrarian structure:					
Percent employed in agriculture	−0.433***	0.464***	−0.162	0.792***	−0.468***
Percent agrarian labourers	−0.232*	−0.253*	−0.246*	−0.144	0.250*
Percent of smallholdings (< 5 hectare)	−0.126	0.008	0.177	−0.615***	0.039
Partible inheritance	−0.286**	−0.060	0.173	−0.407***	−0.060
Cultural structure:					
Percent catholic population	−0.546***	−0.109	0.231*	0.131	−0.187
Housing structure:					
Percent dwellings with one room (log)	0.211*	−0.167	−0.384***	0.209*	−0.290**
Percent medium-sized residential buildings with 3–4 dwellings	−0.270*	0.234*	0.001	0.029	−0.348**
Percent residential buildings with 11 dwellings or more (log)	0.410***	−0.303**	−0.144	−0.007	0.279*
Employment of women:					
Employed women per female population 15–65	−0.443***	0.316**	0.170	0.557***	−0.200

Note: * significant at $\alpha = 0.05$, ** significant at $\alpha = 0.01$, *** significant at $\alpha = 0.001$
SI = rate of singles, FAHH = Families per household (log), LO = Households with lodgers, DS = Households with domestic servants, AW = Households with agrarian workers

considered, which sometimes renders interpretation difficult. Therefore for each household index a recursive path model was constructed by ordinary regression analyses. In the following path diagrams possible links between exogeneous and endogeneous variables which are missing have succesfully been tested and proved to be zero. All correlations between exogeneous variables are shown which habe an absolute value greater than 0.3.

Fig. 8 shows the path model for the rate of singles explaining 63% of the variance of this index. Most important is the percentage of population without denominational membership with a positive influence on the probability of forming a one-person household, as can be seen by the path coefficient of 0.45. This indicator of modernization itself is negatively associated with the agrarian sector and with religious ties to catholicism. The effect of the second indicator of modernization states that, with increasing distance from the capital city, the rate of singles declines. The third direct effect shows a positive relationship with the supply of small dwellings, but this effect stands back against the others. The rate of singles being the most important component of overall household complexity, it is remarkable that there are no direct effects of the region's economic structure.

In fig. 9 it can be seen that the traditional agrarian structure influences the index "families per household". This index is high in rural regions, but only where agricul-

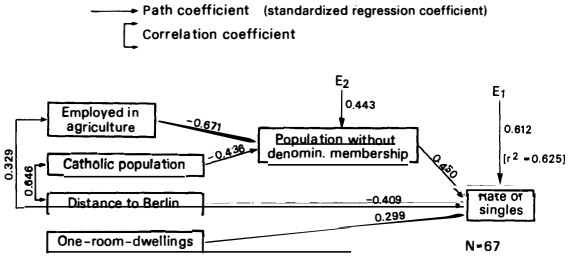


Fig. 8: Path model: Rate of singles

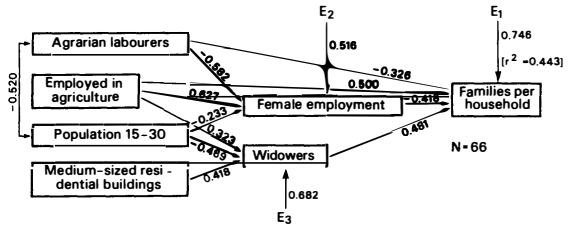


Fig. 9: Path model: Families per household

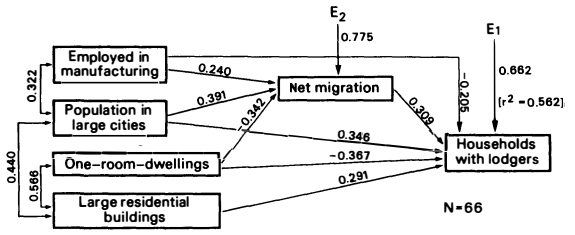


Fig. 10: Path model: Households with lodgers

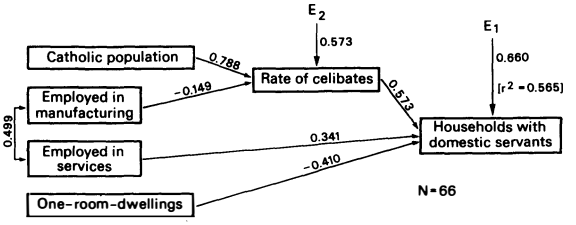


Fig. 11: Path model: Households with domestic servants

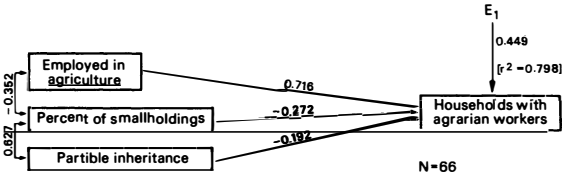


Fig. 12: Path model: Households with agrarian or industrial workers

ture is based on family holdings. The hypothesis of associations with the inheritance system could not be confirmed. Only in the north-western areas of impartible inheritance did large families exist, in contrast to the southern areas, where the custom of the „Ausgedinge" with a separate house or dwelling for the elder generation beside the farmhouse prevailed. Independently of agriculture female employment reduces the presence of complex traditional family households. A fourth direct effect is obtained by an element of the population structure, namely the percentage of widowers in the population who traditionally coreside with family members, whereas many widows are expected to care for themselves. The proportion of widowers is high in rural areas, especially in small towns with medium-sized residential buildings, and in areas with a low proportion of young adults who may have out-migrated. Although the path model is rather complicated, and although all path coefficients are statistically significant, the model explains only 44% of the variation of the household index. The residuals show remarkable clusterings referring to the above mentioned cultural patterns of regions which could not be operationalized into generalizing variables. It must be admitted that by this autocorrelation of residuals one assumption of the regression model is violated. Hence the significance tests may be of limited reliability only.

The path models for the households with non-family members are presented in fig. 10 to 12. The largest component of the index UNR is the index LO, for 6% of all private households with two or more persons contained lodgers, while 4% included domestic servants and also 4% agrarian workers. Lodgers are associated with urbanized areas, particularly with those regions characterized by net in-migration. Although the correlation of this household type with employment in manufacturing is positive but not significantly different from zero (see table 3), the path diagram shows a direct negative effect: In the thirties the proportion of lodgers in heavily industrialized areas tended to be relatively low, especially if these regions suffered from net out-migration in the period from 1925 to 1933, such as in the Ruhr district, in Thuringia (area 55) or in Upper Silesia. Furthermore, many subtenants can be found in those regions where few one-room dwellings are available, i. e. which could not afford a sufficient proportion of small dwellings suitable for establishing separate households.

The percentage of households with domestic servants (fig. 11) is high in urbanized areas characterized by the service sector, and is low if small dwellings prevail by which households are prevented from including domestic servants. The most important influence is exercised by the rate of celibates, i. e. the proportion of celibates in the population aged 30 and over, which is particularly high in catholic regions with continuing predominance of the traditional marriage pattern, and tends to be low in heavily industrialized areas where early and universal marriage had become possible. This influence exists because the majority of domestic servants are celibates, but also because servants were mainly recruited from the celibate adults. Not surprisingly, the percentage of households with unrelated agrarian workers (fig. 12) will increase in a rural area if the percentage of smallholdings decreases, especially in regions with undivided inheritance.

If one considers the results of the path analyses, it becomes evident that apart from the variables describing the economic and housing structure, the cultural differences in Germany including the dimensions of modernization are

very important for the spatial variations in household structure. Structural economic effects could not be emphasized to such an extent. Certainly, this can partly be atrributed to the level of aggregation, for the relatively large areas of this study tend to mirror more directly the regional differences of the cultural structure in Germany than smaller homogeneous areas. Nevertheless, as the interactions between economic and cultural structures and processes hold an intriguing interest, further investigations will try to analyse such relationships. Fortunately, this is made possible by the German census of 1933 with data about the family structure of some 30 occupational groups, and of the agricultural population differentiated by the size of their holdings, these data being published on the basis of the presented areal level.

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