
CONFERENCE REPORTS

Techniques and methods in historical demography (17th-18th centuries)

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1. Recently in the field of the Social sciences historical demography — a young or rather a rejuvenated discipline — has enjoyed particular success thanks to the quantity and quality of the studies carried out and to the advanced research initiatives being undertaken practically everywhere.

Demographers, in increasing numbers, have realized that modern populations and certain contemporary demographic mechanisms cannot be fully understood without a thorough knowledge of the demography of the past. It is significant in this connection that Louis Henry, the father of the «new» demographic history, came to historical research only indirectly, as he himself writes, when — investigating as a «pure» demographer the biological problem of fertility — he began looking for data on the formation of families when birth control did not exist. Historians too can no longer do without a knowledge of demographic structures and trends when attempting to reconstruct social structures and the process of economic growth.

A point of maturation therefore seems to have been reached. The theoretical and methodological discussion started by historians and systematically developed by the group of the «Annales», of Marc Bloch and Lucien Febvre, seems to have reached a certain maturity; in the demographic field this trend was given momentum by the innovatory character of the methods and research perspectives of Louis Henry and his associates of the *Institut National d'Etudes Démographiques*.

In spite of this evident and recognized success, historical demography has for some time found itself in a blind alley or, more exactly, in a phase of revision. After the initial and justified enthusiasm, aroused by Fleury and Henry's method of family reconstruction a series of criticisms have been

levelled not so much at the method itself but at the results which have been attained or are attainable through its application at both the demographic and the historiographic level. Ten years' experience has clearly shown that what is known as nominative analysis — the reconstruction of families on the basis of the nominative records contained in the parish registers — is the most efficient means for reconstructing demographic evolution; yet it is equally certain that it provides results which, for various reasons, are not perfectly representative. Systematic and continuous demographic records, that is a statistical documentation which is not always available, is also required.

Most scholars have for a long time felt the need for a debate which would examine thoroughly the problems connected with these shortcomings and in which some of the leading specialists — historians and demographers — of different countries would participate. A warm welcome was therefore accorded the initiative taken by the team of demographers of the *Dipartimento Statistico-Matematico* of the University of Florence (who have been engaged for some years past in research on the demographic evolution of Tuscany) in organizing an international conference from which it might be expected that the comparison of different experiences would provide some valuable guidance for approaching the complex solution of the problems mentioned above.

Organized by the Department of Florence, assisted by a grant from the Italian National Research Council (assignment n. 70.02245.10 which covers the whole of the above-mentioned research), the International Conference « Techniques and Methods in Historical Demography (17th-18th Centuries) » was held in Florence on October 1, 2 and 3, 1971, with the active participation (there were 27 preliminary papers and a great many contributions from the floor)¹ of over fifty scholars, twenty-eight of whom were foreigners from

¹ Members' reports: R. ANDORKA (Hungary), *Low Marital Fertility in a Region of Hungary (Ormanság) at the End of the XVIIIth and the First Half of the XIXth Century: Birth Control or Artifact?*; J.-P. BARDET (France), *Les variantes des noms de personnes à Rouen aux XVII^e et XVIII^e siècles*; A. BELLETTINI (Italy), *Quelques considérations sur les problèmes qui concernent le caractère représentatif des recherches de démographie historique*; A. BELLETTINI, R. PREDI, A. SCHIAFFINO, F. TASSINARI (Italy), *Research Objectives and Problems on the Demographic Evolution of the Suburb of the City of Bologna from the XVIIIth Century to the XIXth Century*; Y. BLAYO (France), *Couplage des données d'état civil et des listes nominatives de recensement*; H. CHARBONNEAU, Y. LAVOYE, J. LEGARE (Canada), *Étude des caractéristiques nominatives dans l'état civil et les recensements canadiens du XVII^e siècle: prélude à l'utilisation des ordinateurs pour le jumelage des données*; C. M. CIPOLLA, D. ZANETTI (Italy), *Plagues and Differential Mortality*; C. A. CORSINI (Italy), *Outline of the Research in Historical Demography carried out in the Department of Statistics and Mathematics of the University of Florence*; D. DANYI (Hungary), *La migration et les méthodes nominatives*; C. DESAMA (Belgium), *Le couplage automatique des données démographiques à partir des listes nominatives*; P. DI RUSSO, F. BATTAGLINI (Italy), *Variation in Surnames in Nominative Studies*; J. DUPAQUIER (France), *Problèmes de représentativité dans les études fondées sur la*

countries in Europe (Belgium, France, the United Kingdom, Norway, the Netherlands, the German Democratic Republic, Spain and Hungary) and outside Europe (Brazil, Canada, Japan and the United States).

We shall here attempt to give a brief but comprehensive picture of the topics discussed, referring also to the three general reports and to some of the communications, the names of whose authors are given in brackets. The texts of these communications, together with a summary of the addresses delivered during the three days will appear in the 1972 issue of « *Annales de démographie historique* » which will be published early in 1973 by the *Société de Démographie Historique* and by the *Dipartimento Statistico-Matematico* of Florence.

2. The title of the Conference may have led some readers to think that the problems discussed were examined from a purely technical point of view. In fact the organizers' intention was to examine the demographic and historiographic implications of the techniques and methods used in historical demography research, and this was the general line in fact followed. The topics proposed were discussed by the experts in a context then in which method formed the basis but not the objective of argument.

The first topic was provided by the paper of Thomas H. Hollingsworth of Glasgow University, devoted to the following: « Problems of representativity of nominative studies. Choice of populations and significance of results. Extension of these studies to larger communities. Choice of zones and groups to be studied. Sampling problems ».

reconstitution des familles; A. HAYAMI (Japan), *Problems of the Representativity of Nominative Studies*; E. HELIN (Belgium), *Variables démographiques en rapport avec la profession. Notes en marge du rapport du Professeur M. Livi Bacci: « Some Problems in Nominal Record Linkage in Tuscany »*; L. HENRY (France), *Variations des noms de famille, changements de prénom et problèmes qui en résultent pour le couplage automatique des données*. (General report on topic III). *Simulation d'une réconstitution de familles par ordinateur*; T. H. HOLLINGSWORTH (U.K.), *Problems of the Representativity of Nominative Studies*. (General report on topic I). *Migration and Temporary Absences in Nominative Demographic Research*; J.-P. KINTZ (France), *Anthroponomie en pays de langue germanique. Le cas de l'Alsace. XVII^e-XVIII^e siècles*; J. KOVACSICS (Hungary), *Quelques problèmes principales dans les recherches de démographie historique en Hongrie: les toponymies, les noms de personnes, problèmes d'échantillonnage*; P. LASLETT (U.K.), *International Comparison of the Size and Structure of the Household over Time*; M. LIVI BACCI (Italy), *Some Problems in Nominal Record Linkage in Tuscany, XVIIth-XVIIIth Century*; M. L. MARCILIO (Brazil), *Variations des noms et des prénoms au Brésil ancien*; J. NADAL, A. SAEZ (Spain), *La fécondité à St. Joan de Palamos (Catalogne) de 1700 à 1859*; S. SCHIFINI (Italy), *Vérification des données: erreurs et omissions dans la reconstitution des familles et dans l'exploitation des listes nominatives de population*; R. S. SCHOFIELD (U.K.), *The Standardization of Names and the Automatic Linking of Historical Records. Representativeness and Family Reconstruction*; E. SONNINO (Italy), *Problèmes de recherche en démographie historique dans une grande ville: le case de Rome (XVII^e siècle)*; E. VAN DE WALLE (U.S.A.), *L'emploi des modèles en démographie historique*. (General report on topic II).

The problems of the representativity of nominative studies² are various; some derive from particular connotations related to the specific countries, zones and periods studied — to the continuity of the records, errors or omissions made by the parishes, the quantity and quality of information contained in the entries, and so on — while others are of a more general nature. Among the latter there are two of particular importance and complexity, which permit only a highly approximative solution, that of the representativity of the populations or localities chosen, and that of the representativity of the families reconstructed.

The exceptional weight of work and time required by the nominative method of family reconstruction obliges the researcher — usually a single person with a few rare exceptions, or small teams — to confine his field of inquiry to a comparatively small population, to a parish or a small group of parishes or a village. This constitutes the great obstacle to extending the field of study indefinitely, which makes it necessary to generalize the results obtained for the population of the parish or village to larger populations and territories. But at the same time one cannot doubt the value of generalizations of this kind and questioning their meaning and limitations.

Obviously the deduction of the demographic behaviour of very large populations and territories — up to the national level — by extrapolating the results obtained from local or parish studies would have no scientific value: a parish cannot be representative of any thing more than the smallish geographical region in which it is placed. This, therefore, is clearly not the path to be followed.

In fact, the problem of representativity of these terms is essentially that of the choice of populations and zones. So far, save for rare exceptions — which refer in any case to recent projects — such choices seem to have been based not so much on scientific requirements as on convenience (such as the proximity of the locality studied to the habitual residence of the researcher) or of a practical nature (easy access to archives). This has happened everywhere, even in France where parish monographs have increased rapidly in the last ten years, reaching astonishing figures — 300 it is said — but having no particular relationship with one another (Dupaquier). Parish micro-demography fails to be representative mainly due to this lack of method, to the arbitrary choice of populations and zones to be studied.

If these local studies — which are indispensable for the substantiation and development of any research thesis — are to retain any value, they must be

² The term *nominative studies* refers in general to the reconstruction of families based on the nominative christening, marriage and burial records. It is well to recall however — as the Conference did not fail to do — that this is not a correct convention: other nominative sources than those just mentioned exist, which can be «nominatively» studied with methodological approaches other than Fleury and Henry's.

integrated in a comprehensive plan so as to avoid the choice of zones and populations *au petit bonheur* (Dupaquier) and to ensure that they conform to a general framework of research targets. It seems most important to make sure that the localities to be studied are given a certain typological definition which reflect the « differential » features on the wider zone in which they are situated (Schofield). Given the present stage of knowledge of historical demography, the study of the degree of the variations in demographic behaviour between zones with different characteristics is likely to be far more rewarding than a laborious extension of the field of inquiry on the territorial level.

The choice of the zones therefore demands a previous analysis of the geographical, economic, social and cultural environment which is at least sufficient to identify some basic parameters on which to form a general stratification. Clearly, however, such an analysis is at once faced by a series of difficulties and problems owing to the insufficiency, if not the total absence, of the information needed to characterize the zones in a period such as the 17th and 18th centuries, a considerable part of the history of which has still to be written.

In theory the problem of representativity could be fully solved by a sample survey extended to the whole of the national or regional territory: this is what the *Institut National d'Etudes Démographiques* has been doing in France for over ten years. Concepts of the method to be followed are as yet unclear and far from unanimous. Is it preferable to take a sample survey at territorial level, extracting a sample of families — all those, for instance, whose surname starts with a given letter of the alphabet — from the several parish records, or to extract a sample of parishes in which to reconstruct all the families? In the latter case how is the sample to be formed? Since the parishes in a national territory or in any large region cannot form equal sampling units owing to their differentiated geographical, socio-economic and dimensional characteristics, simple random sampling is out of the question. And so one is once more faced by the problem of stratification with all the difficulties we have mentioned.

This brings us to the second aspect of the problem: that of the representativity of the reconstructed families.

The reconstruction of families on the basis of Fleury and Henry's method, despite its technical perfection and the detail of the information which it provides covers only a part of the parish or village population. It has been calculated, from some of the most important studies so far carried out,³ that

³ See M. LIVI BACCI, *Una disciplina in rapido sviluppo: la demografia storica*, in «Quaderni storici», May-June 1971, p. 290. (Livi Bacci's calculation refers to fifteen demographic groups and precisely: Crulai, Maulan, Tourouvre-au-Perche, Bas-Quercy, three villages of the Ile-de-France, Sainghin, Boulay, Saint Agnan, Ingouville, Sotteville, Empoli, Fiesole, Colyton, Coloumniens and Villedieu-les-Poëles).

on an average the number of families reconstructed is equivalent to barely one fourth of the total number of weddings celebrated in the period observed. In fact — and Louis Henry drew attention to this a long time ago — the method of family reconstruction only provides a knowledge of the sedentary part of the population — all the family groups that transfer their residence outside the parish boundaries fail to be considered and are therefore excluded from reconstruction. But it is not only the migrant families that escape observation; all marriages celebrated outside the parish boundaries are excluded too, and even if the couple return to live in the place of origin, information of fundamental importance such as the date of the wedding and the age of the bride on her wedding day is lacking.

Are the stationary and geographically endogamous families representative of the whole of the parish or village population? There is no proof that their demographic behaviour is the same as that of the mobile families, of those families it has not been possible to reconstruct. Experience seems to show, on the contrary, that mobility is characterized by marked differences at the socio-economic level and the same is true for exogamy though with different modalities. For the latter kind of mobility the difficulties might be partly solved by extending the research to the registers of the neighbouring parishes since it may be logically assumed that the radius in which those who marry outside their place of residence moved was fairly narrow. The analysis could then be extended to cover a group of parishes, although the extension of the field of observation could obviously not exceed certain limits owing to the work involved in examining the records and reconstructing the families. In the case of definite changes of residence, there is no real possibility of retracing. What still remains to be done however — and is of outstanding importance in this respect — is to study migratory movements together with socio-economic differentials. The fact that migrations are (or may be) a specific phenomenon related to age groups and civil status (Schofield) may prove of great importance in determining to what extent and within what limits the stationary families are not representative. Nor must it be forgotten too that the representativity of the reconstructed families has always been seen in relation to factors such as fertility, *i. e.* to a process which requires the « presence » under observation of the union for at least 25-30 years, whereas for the analysis of their phenomena, such infant mortality, it is only necessary for the family to be observable for one year after the birth of the child. This means that the importance of permanence or of migration varies according to the problems studied, and not all require the same period of « permanence » an dthe same amount of information.

3. The topic proposed for discussion by the experts on the second day of the conference was the « Non-nominative analysis of all types of written sources: methodology, relations with nominative studies ». The general

report was given by Etienne van de Walle of the Princeton *Office of Population Research*.

Non-nominative analysis makes use in general of any source containing information of a demographic nature or in any way relating to the population, whether enumerative (records of situations) or providing data concerning movements; primary sources (registers of births, marriages and deaths, nominative lists drawn from censuses, etc.) or secondary documents, *i. e.* studies based on the research of others. Most of the primary documents can be used in both a nominative and non-nominative way; only the secondary documents, the original sources for which have very often been lost, require non-nominative and therefore aggregate analysis. In substance the difference and criteria of choice between the two forms of approach, the nominative and the non-nominative, derive only partly from the characteristics of the sources; they derive more essentially from the nature of the study undertaken.

As far as methods are concerned, it must be stated at once that the methodological problems of what we shall call aggregate analysis do not — as was the case for nominative analysis — concern the analysis as such, nor the techniques used, as they do not belong specifically to historical demography, but to demography in general.

The sources available however give rise to particular problems of analysis: the registers of births, marriages and deaths, the parish records, the national or regional censuses, local censuses and nominative lists, tax lists and other fiscal documents and «status animarum» all provide information which varies greatly in quality and in quantity, and consequently offers different possibilities utilization. In this respect it is a particular characteristic of statistical information that for the 17th and 18th centuries it is impaired by serious gaps which have to be critically examined before it can be used. Perhaps it is the insufficient reliability of registrations and enumerations — one thinks in particular of age attributions — together with the relatively intuitive character of certain demographic assessments obtained with the aggregate method, that caused the almost complete abandonment of this type of analysis, which, nevertheless, in the past provided the basis for studies that were often of considerable value.

How is it possible to test the validity of the sources and information to be used aggregately, what checks can be made, how can the material be best exploited, beyond certain elementary measures and certain not very helpful techniques, in order to gain a greater knowledge of demographic mechanism? Leaving aside — as this would take too long to discuss — individual replies for each (or each type) of different documentary source, a broad approach to a general solution might be provided by a wider use in historical demography of population models, because they permit a wider exploitation which is not limited to the study of only a static but also

of a dynamic characteristics of the population — of the censuses⁴ which are in fact the most common, and often the only, documentary material available for certain periods and certain zones.

The possibilities offered by census records have so far been underrated in historical demography. Nominative population lists have generally been used as a means and a valuable one, on which to base family reconstruction or, more simply and more often, as a source from which to draw the number of population to be used as the denominator in demographic rates. But census records can be exploited more rewardingly by concentrating on the most interesting aspect which they reveal: the structure of the population. And since this structure at any given moment is the result of demographic movements of the past, indirect information concerning the population dynamic can be obtained from the census records; a possibility which obviously proves most useful when data concerning those movements are lacking or incomplete. In this sense the use of models enables the drawing of maximum information.

There are in addition different kinds of models. The standard death rate tables are, for instance, a model that has already been widely used in historical demography to « level out » the mortality functions obtained on small-scale aggregates. Here however we shall examine more closely the models for the stable populations. Their use in demographic analysis is based on the hypothesis of a relative constancy of the laws of fecundity and mortality in the recent past of the populations studied. Experience has shown that such conditions have sometimes obtained for certain populations in the 19th century, but is it possible to transfer this hypothesis to the populations of the 17th and 18th centuries? At first sight the answer seems to be no, crises being too frequent and demographic fluctuations too intense in those periods. It is nevertheless a fact that no attempt has so far been made to test empirically the acceptability of the hypothesis of constancy and the influence of short-run fluctuations. It is in this direction, therefore, that research must be oriented before passing a final judgement. The application of the « stable population » concept may serve, for instance, to calculate birth rates, using the distribution by age brackets and the rate of growth between two censuses and, more generally, to arrive at a definition of hitherto unknown characteristics of a population on the basis of the knowledge of other characteristics. It also allows us to test the consistency of a series of data to see, for example, whether a birth or death rate based on registry office statistics is compatible with the distribution of the population by age groups as shown by a census taken in the same period and vice versa, a pos-

⁴ To avoid cumbersome repetitions, unless otherwise specified the term census will be used to refer to all documents supplying data by age, sex and/or civil status: local and national censuses, « status animarum », etc.

sibility which is of exceptional importance if one thinks of the gaps and imperfections existing in the documentary material.

Mention must now be made of the relationship between nominative and aggregate analysis, which was also on the Conference's agenda. This is certainly one of the most complex problems of historical research in demography, for which as yet scholars have few answers. It consists not so much of the relation between two methods — which in this sense would fit into the wider frame-work of the problem of the relationship between vertical and horizontal analysis in «pure demography» — as of the relation between the results obtained with the two different methodological approaches. This means that the search for a solution — the very definition of the problem in fact — is conditioned by the deficiencies inherent in family reconstruction (the fact that it is only possible to reconstruct a portion of the population and that this portion is not necessarily representative of the whole) and in non-nominative observation (errors, omissions, interruptions in registrations) which were discussed at some length.

4. On the third and last day of the Conference the topic discussed was: «Changes in surnames and in Christian names and the problems deriving there from in relation to the automatic linkage of data». The general relator and animator of the debate was Louis Henry of the Paris *Institut National d'Etudes Démographiques*.

Why do demographers and historians devote attention to problems of this kind, which appear to be half way between anthroponymy and mechnography?

In the preceding pages I have spoken at length of the need, now felt by practically all scholars to extend family reconstruction to larger groups of population and of the difficulties this entails particularly as regards time. Jacques Dupaquier has estimated that to reconstruct the whole population of a town of 80.000 inhabitants during a century or of a group of 100 villages during two or three centuries it would be necessary to consult 700.000 or 800.000 documents, equivalent to some 20.000 hours of actual work and more than eight years. The labouriousness and complexity of family reconstruction carried out on very large demographic aggregates consequently calls first of all for speedier means than the safe but slow manual method.

In some countries (England, Canada, Belgium) attempts have been made for some time to use computers for reconstruction operations, linking automatically the nominative data contained in the birth, marriage and burial deeds. *Nominal record linkage*, the linking of data starting from the surnames and Christian names of individuals, has already been used in other disciplines and, in demography, for modern populations. Can it be adapted to historical demography?

Since family reconstruction consists in following individuals — Henry

spoke in this connection of *observation suivie* — recording through the whole of their existence the demographic events in their lives, the risks and uncertainties in a mechanographic solution derive almost exclusively from the changes taking place over a period of time in the surnames and Christian names of the persons studied.

A change in phonetics and therefore in the spelling of the surname would be equivalent, in a computer-made reconstruction, to emigration, to the definitive loss of a family. In fact — as Henry pointed out in his general report — the computer, unlike the human brain, cannot have a general reaction to a surname, it cannot, that is to say, identify it until it has decomposed it and read all the letters. It ensues — Henry continues — that for a computer Jean Basire is not the same person as Jean Bazire unless the programmer has ordered it to make no distinction between *s* and *z* or to consider them equivalent in certain cases.

Hence the necessity of knowing if, when and how these changes take place, hence the need for a preliminary study of the spelling of surnames and Christian names over periods of time. In this case anthroponymy, a science ancillary to history, assists and at the same time conditions technique.

I shall not enter here into the technicalities of the codification of surnames and Christian names for the purposes of *nominal record linkage*; these were in any case not the topics the scholars were called upon to discuss on the third day of the Conference. Nor is it possible to attempt to tackle in any way except summarily and partially the vast range of problems which arise when confronting any empirical situation, where each nation, each ethnic or linguistic group, each region, each zone even, presents particular and distinctive anthronomyc features.

To give the reader a general idea of the nature of the discussion it will be sufficient to mention some of the problems with which historians and demographers are more directly concerned, having acquired, through the reading and study of documents from the past and through manual family reconstruction, a unique experience of changes in surnames and Christian names following changes in pronunciation, mistakes in reading and so on. These are the first three points put forward by Henry in initiating the debate.

For the « rules and uses concerning the names of persons in different countries » the first point of importance is to know when surnames appear for the first time and how they are transmitted: in particular whether the surname is transmitted by the father to all his children without exception, or whether it passes in some instances from the mother to her children, especially her daughters. For periods or areas in which surnames are lacking, however, other solutions have to be sought, looking for example to the place of residence as a substitutive identification characteristic when the settlement

of families in the territories is considerably fragmented and there is little migration.

The information that has to be collected for « Christian names » is even more numerous: how many Christian names are given at the beginning of the period considered; when does the habit of giving more than one name appear; how are these names used, are they grouped together as in the registration of birth or used separately in various circumstances; is it customary to give the same name to several brothers or sisters alive at the same time or is the same name only given if the child who first bore it has died; which names are the most frequent and do typical names exist in certain zones?

Concerning the « surnames of married women » the problems concern the usage followed in compiling official records. It is therefore interesting to know whether the records of birth or burial (in the case of premature death) of legitimate children indicate also Christian and/or surname of the mother and whether the surname, if given, is her maiden name or her husband's name. Similarly, in records relating to the burial of married women and widows, it is important to know whether they are made out in the woman's maiden name or in her married name and, in the former case, whether the surname is her father's or her mother's.

I will not spend any more time on this necessarily bald list of arguments, would like to close this paper by stressing the complete success of the Conference.

As I said in the beginning, its object was to start a debate, to prepare the ground for a solution of some « critical » points of historical research in the demographic field. This has made it essential to point out the differences in approach and experience, which are due above all to the diversity of the sources. The comparison of these different experiences were fully described in a way that was often analytic, and always stimulating: the « concrete » results to be expected in, it is hoped, the very near future will certainly not be disappointing. This is made certain by the keenness of all the participants to coordinate their researches in order to exploit better the available sources, in keeping with common modalities, and examine with the aid of a more articulate methodological preparation, having a series of common and integrated objectives but naturally adapted and applied to particular local requirements, the problems which were discussed during these days at Florence.