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A POPULATION REGISTER FOR CANADA UNDER THE FRENCH REGIME: CONTEXT, SCOPE, CONTENT AND APPLICATIONS[1]

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Résumé – Cet article présente le registre de population du Programme de recherche en démographie historique dont l'objet est la reconstitution de la population canadienne sous le Régime français. Résultat d'un processus quasi complètement informatisé, de la collecte des données à l'analyse, ce registre permet la réalisation d'études dans une perspective longitudinale. Quelques exemples d'analyses illustrent ce fait: relations de parenté entre pionniers établis au Canada avant 1680, vie matrimoniale de ces pionniers, mortalité des adultes et orphelinage, conceptions prénuptiales et descendance différentielle.

Abstract – This paper presents the population register of the *Programme de recherche en démographie historique* which reconstitutes the Canadian population under the French regime. Resulting from an almost completely computerized series of operations, from data collection to data analysis, its individual and family files are eminently suited for longitudinal analysis. Various applications illustrate this fact: the kinship relationships between pioneers arriving in Canada before 1680, the conjugal lives of these pioneers, adult mortality and orphanhood, premarital conceptions and differential number of descendants.

Key Words – **population register, historical demography, longitudinal analysis**

Introduction

Above all, demography aims at explaining the mechanisms of the numerical growth of populations. However, progress in demographic analysis since World War II has clearly shown that demographic phenomena can be understood only through continuous observation. Thus, the various vital events experienced by an individual must not only be interrelated, but also seen in relation to those events in the lives of the people surrounding him, such as children, parents, brothers and sisters. This implies the matching of various administrative files and the assembly of nominal data banks. We can no longer make do with the snapshots obtained from censuses taken every five or ten years. We must have a moving picture of events so that our measurements and calculations may be restricted only by the extent of our ingenuity.

Broadly speaking, our research program can be divided into two main parts: *(1)* the assembly of a bank of demographic data which is as complete as possible; and *(2)* the search for precise answers to the many questions at the root of the data bank. Most of these questions are related to problems which cannot be solved or even attempted to be solved due to lack of information; such questions are closely connected with the mechanisms of population formation and renewal.

Context

Thus, it can be seen why we wish to reconstitute the French-Canadian population of the past, individual by individual. In other words, we will create a population register of our ancestors who lived in the seventeenth and eighteenth centuries. Our primary aim is all the more justified because, in dealing with the past, we avoid objections being made about infringements on personal freedom as happens when we use these kinds of tools to study contemporary populations.

The conditions allowing a register of an historical population to be made are rarely found. Thus, there are few registers in existence. One is presently being assembled in Chicoutimi under the direction of Gérard Bouchard (Bouchard *et al.*, 1980), another in Salt Lake City is being constructed by Mark Skolnick (Skolnick *et al.*, 1979), and a third register, on the French Jura, is familiar to us because of our close collaboration with Alain Bideau (Plauchu and Bideau, 1984).

In comparison with these population registers, the register for the Canadian population is unique in that it deals exhaustively with a nearly closed population, thus avoiding the observation problems brought about by migration.

We believe we can achieve unprecedented results because of the following very favourable conditions:

1) parish registers for Québec date from its European origins and are sufficiently well-kept and preserved so as to provide all the information required for a demographic register;
2) the wealth of nominal sources other than parish registers allows us to fill in the gaps and close the files on all nominally known persons by defining death or immigration date for all of them;
3) the population under consideration remained sufficiently small (15,000 inhabitants in 1700, 70,000 in 1765) so that we are not overwhelmed by the quantity of documents; and
4) we are able to carry out all the operations required for producing the register because of the powerful computer at the Université de Montréal and the collaboration of the experts from its Centre de calcul.

By producing the pertinent data on a complete population over a long period, we aim to study a "laboratory population," the envy of all demographers. This amounts to a reconstitution of the population individual by individual and, consequently, the retrospective creation of an exhaustive population register made up of biographical files on all those who settled in Québec during the period in question.

The significance of our project naturally lies in increasing our knowledge of the first two-thirds of Canadian demographic history. Despite recent progress, there is still much to be quantified and discovered concerning the demographic behaviour of our ancestors, especially relating to mortality, nuptiality, fertility and migration. The meticulous description of the expansion of a population in practically virgin territory necessarily has great scope, as evidenced by the fact that the United States cannot carry out similar projects. Since Canada and the United States, particularly New England, were populated in a somewhat similar fashion, our results are likely to interest demographers and all those studying the North American past.

Scope

Theoretically, the population register is a nearly perfect demographic tool, especially when it is exhaustive and continuous. Yet, in practice, there are gaps because events have not been registered and documents have been lost.

Sometimes the imprecision of the information prevents identification of the individual concerned and thus any matching of data. Migration usually adds to the uncertainty: we do not know if a death certificate is missing or if the individual emigrated outside the field of observation.

Gaps such as these force researchers to make do with relative imprecision. They must resolve ambiguities by statistical methods based on maximum likelihoods. In most cases, however, incomplete or problematic biographies are simply discarded. Since the strict requirements of data analysis are fulfilled by a reasonable proportion of precise cases, the use of this method is acceptable when no selections are made.

However, the above concern does not apply in our case. The characteristics of our sources and of the population of colonial Québec open new doors for us. Unlike other researchers, we can claim almost complete accuracy for the population register we are developing. Our work in the first one hundred years of the period has confirmed that we can find the missing information and resolve all ambiguities by crosschecking all the information available (for example, witnesses mentioned, notarized certificates, etc.). By dealing with each case individually when necessary, we can fill in all bibliographies and determine all arrivals and departures.

But is it worth the effort? In cases of large-scale statistical analysis and global demographic studies, the answer is no. But there are two main reasons why we believe that the unique conditions involved call for the greatest possible accuracy for our register.

First, we believe that the effort invested in the register makes it a real information system usable now and in the future by several disciplines. We are not developing a body of data to be analyzed for a certain period of time and then forgotten, but are creating a tool which will remain useful after the present objectives of our team have been achieved. Moreover, the register can be continually expanded as it sustains different projects, and when returning the nominal history of an entire population to the people, we can hardly let statistical precision take precedence over genealogical precision: these are the expectations of the public.

Second, the potential of the register in itself calls for the greatest accuracy. Imprecise genealogical relationships can have a disastrous effect on any study involving hereditary or genetic elements. In a recent work on the founders of the country, which we will go into later in greater detail, we are establishing the descendants of the pioneers and the contribution of each of them to the reproduction of the population. Obviously, complete accuracy is necessary for this kind of work.

By choosing the longest and most demanding, but also most promising procedure, we create a tool with many uses; this in turn has a great influence on the definition of our project and of our research methods.

Content

Setting up the population register for colonial Québec involves three basic steps:

1) preparation of the baptismal, marriage and burial certificates and nominal censuses, that is, the basic data for the register; extraction, coding, recording on a magnetic medium, and validation;
2) record linking: joining all the appearances of an individual as the proband of a certificate or as the spouse or relative of the proband; identification of all separate individuals and all their filial and conjugal relationships; and
3) synthesis and presentation of the results of the former step in a functional and effective form allowing information to be related on inidividual, conjugal and genealogical bases.

Presently, the approximately 300,000 certificates dating from before 1766 have been verified after having been entered on the computer, and are reviewed for publication in the *Répertoire* (Charbonneau and Légaré, 1980-1987). Although not strictly necessary for the preparation of the register, this latter step does improve its quality, if only through the spelling of the names. The nominal censuses for the entire colony for 1666, 1667 and 1681 and for Québec City for 1716 and 1744 are already recorded on a magnetic medium and have been published. The preparation of the censuses of heads of households for the end of the French regime is expected for 1988-89, as well as the preparation of additional sources.

The linking of the 95,000 certificates and the four nominal censuses from before 1730 has already been done. The linking procedure used by the Programme de recherche en démographie historique (P.R.D.H.) centres on the constitution of the histories of couples. The advantage of this method is that the couples mentioned in the documents – whether they are made up of the proband and his/her spouse or the parents of the proband – furnish a good basis for identifying the individuals. The required matches are made so that the easiest cases are dealt with first and the most difficult last. This way, the

first cases solved aid in the solution of the subsequent cases. The efficacy of this method has been proven, and it is used by other researchers, in particular for the project on the Saguenay region. Furthermore, because of the particular context of the P.R.D.H., the most complex cases are done by hand so as to arrive at a virtually precise reconstitution.

With respect to the structure of the register, the best method is known to be the creation of two files, one for individuals and one for marriages, in which the variables used are synthesized at the levels of the individual and the marriage. The use of the information on both genealogical and conjugal bases is made possible by the functional representation of the filial and matrimonial relationships uniting individuals (Skolnick *et al.*, 1980). We have been able to use such a structure since the fall of 1983. It now contains approximately 72,500 individuals and 16,500 marriages identified from documents dating before 1730. This register corresponds very closely to the ideal historical data base as described by Sundin and Winchester (1982).

The structure of our population register consists of four interrelated modules, managed by a system including consultation and updating functions for each of the basic units while allowing them to be utilized in conjunction with one another (Figure 1). The first module contains a file for each individual, giving his basic characteristics of surname, given name, and dates and places of birth and death, and the variables stated in baptismal and burial certificates for the individual and parents or spouse, where applicable.

The second module contains files for each marriage, giving the information relative to the marriage itself (date and place of marriage, date of dissolution) and the variables stated in the marriage certificate for the probands, their parents and the preceding spouse, where applicable. Although they must be determined beforehand, the variables relating to the individuals and marriages are entirely up to the user. Thus, space can be left to be filled in later with information from another source, for example. The new data can then be completely integrated into the system and become available with the other information.

Individuals and marriages are given separate reference numbers as a means of direct computer access to the information concerning them. The last two modules, made up of filial and matrimonial relationships between individuals, call upon this system of numbering. Thus, the module for filial relationships gives the numbers for the individual's father and mother and the conjugal relationship module indicates both partners' numbers. The whole system is headed by a dictionary containing the basic technical information ensuring the link between hardware and software.

Besides consultation at the unit level related to updating, whereby the user can have the variables for any file listed and modify them if he wishes, the

system presently includes several consultation functions based on the joining of information from all modules. At the individual level, one function provides birth and death dates and, if applicable, marriage dates and the given names and surnames of spouses. Another provides a list of events where the individual is the proband, parent or spouse of the proband, on a certificate. The purpose of this function is to specify the death interval, but it also represents an interesting element of biographical visualization. A third function produces the ancestors and descendants of the individual. At the level of the marriages, one function gives the date of marriage, names of the spouses and their par-

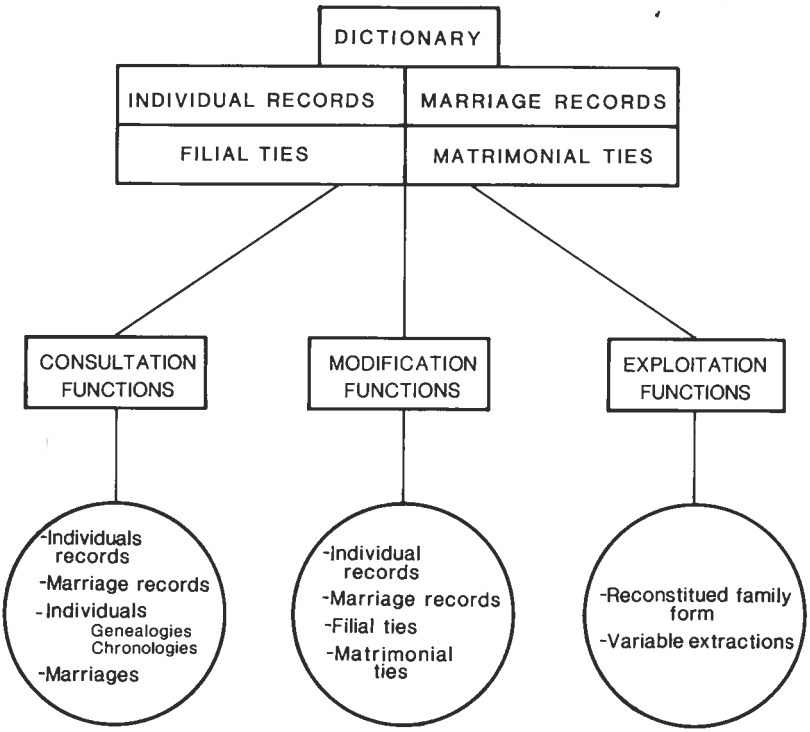

FIGURE 1. POPULATION REGISTER

ents, the spouses' birthdates, and the children born of the marriage along with information on their first marriages, if applicable. These functions can be used individually in the interactive mode or serially in batch processing. The output also includes the reference numbers for the individuals and marriages.

The system is extremely productive and has many possible uses. A good example of this is provided by the family form – regularly used in historical demography as a basis for many studies – which stores the information used directly in compilations and calculations. In order to produce a family form, the computer program accesses in turn:

(*a*) the relationship modules in order to identify the spouses, their parents, the preceding or following spouses and their children;

(*b*) individual files to find surnames, given names and characteristics; and

(*c*) the marriage file to find the information on the marriage.

It then prints out all this information in the appropriate places, adding the results of various calculations of age and duration (Figure 2). Thus, for the P.R.D.H., the family form is merely a preferred form used, due to its status in the field of demography, for representing the biographical information kept in a data base structure.

Applications

If the population register as defined by the P.R.D.H. greatly facilitates the construction of the traditional family form and the deduction of various types of information from it, its individual and family files are eminently suited for longitudinal analysis of the individual life course and family lifecycle.

Although the register is now completed and ready for use with respect to the period up to 1730, the longitudinal perspective emphasized in historical demography calls for observation over an extensive period of time. Since most of the files in the population register are still incomplete, we first selected 3,380 individuals born outside of Canada who formed families in the St. Lawrence Valley before 1680. This population is made up of all the French pioneers who founded the Canadian population and is presently the subject of many different analyses being carried out by our P.R.D.H. researchers. The summary of some of our results which follow demonstrates the great richness of our data base.

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AR-EM * PERE LABE, FRANCOIS (42688)                                PRECEDENT CONJOINT   BESNARD, CATHERINE (7397)
1665  1 MERE FORET, MARIE (42689)                                  FICHE 59977  (F)
        FICHE 60048 (P)
                                                                                                                  CATEGORIE  MF1
MEUSNIER, MARGUERITE (32704)

        PERE MEUSNIER, MATHURIN (47178)
        MERE FAFART, FRANCOISE (26363)
        FICHE 66863 (F)                                                                                           CAT.: FAMILLE PIONNIERE

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42862	2	M	08-10-676	1	383	1							07-11-676	1	383	C	C	30J	29J	1	JACQUES
42863	3	F	13-12-677	1	383	1							19-12-677	1	383	C	C	06J	15J	1	MARIE
673	4	F	16-07-679	1	387	1	03-11-694 (891)	1	387	015		1	1719/		4						ANNE ALLAIRE, FRANCOIS (614)
42864	5	M	10-09-681	1	387	1							14-08-688	1	387	C	C	006	006	0	FRANCOIS
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42756	8	M	10-05-687	1	387	1	25-11-709 (60001)	1	383	022	022	1	1727/		4						JACQUES DEBLOIS, FRANCOISE (16807)
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42808	12	M	19-04-699	1	387	1	10-01-724 (60140)	1	387	024		1	1728/		4						JEAN LEPAGE, MARIE (42809)
42867	13	F	17-02-701	1	387	1	26-04-718 (80687)	1	387	017		1	1728/		4						GENEVIEVE MARTINEAU, PIERRE (55856)

FIGURE 2. FAMILY FORM OF PIERRE LABBÉ AND MARGUERITE MEUSNIER

TABLE 1. PIONEERS ACCORDING TO THEIR DATE OF ARRIVAL IN CANADA, SEX AND KINSHIP, 1608-1679

	1608-1659		1660-1679		1608-1679	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
RELATED INDIVIDUALS						
- Spouses	17.1	31.8	8.3	11.3	11.6	17.6
- Single children	12.5	23.3	1.9	5.9	5.9	11.3
- Others adults	13.8	11.0	4.5	6.6	8.0	7.9
Total	43.4	66.1	14.7	23.8	25.5	36.8
UNRELATED INDIVIDUALS	56.6	33.9	85.3	76.2	74.5	63.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Guillemette and Légaré, unpublished data

Kinship Relationships Between Pioneers Arriving in Canada before 1680

We were certainly not the first researchers to study seventeenth century immigration to New France. We already knew that most of the immigrants were young, that they came primarily from northern and western France and that there were more men than women. But we had no way of knowing the full extent of kinship relationships between individuals. Not all the pioneers who immigrated to Canada were unrelated individuals. Besides those who arrived as a family, there were also pioneers who made the voyage alone, but were related to at least one other pioneer. This kind of distinction indicates that between 1608 and 1659, 43.4 per cent of the men and 66.1 per cent of the women came to Canada at the same time, before, or after at least one relative (Table 1). From 1660 to 1679, the percentages dropped considerably to 14.7 per cent of the men and 23.8 per cent of the women, still a considerable number. Pioneer immigration during the first period thus differs greatly from the second period because of the smaller numbers, the preponderance of men and, above all, because of the greater number of related pioneers.

Conjugal Life of Pioneers Arriving in Canada before 1680

Figure 3 shows the overall timing of the conjugal life of individuals according to sex and number of marriages. This graph reveals the complexity of individual life courses and the resulting difficulty of accounting for them.

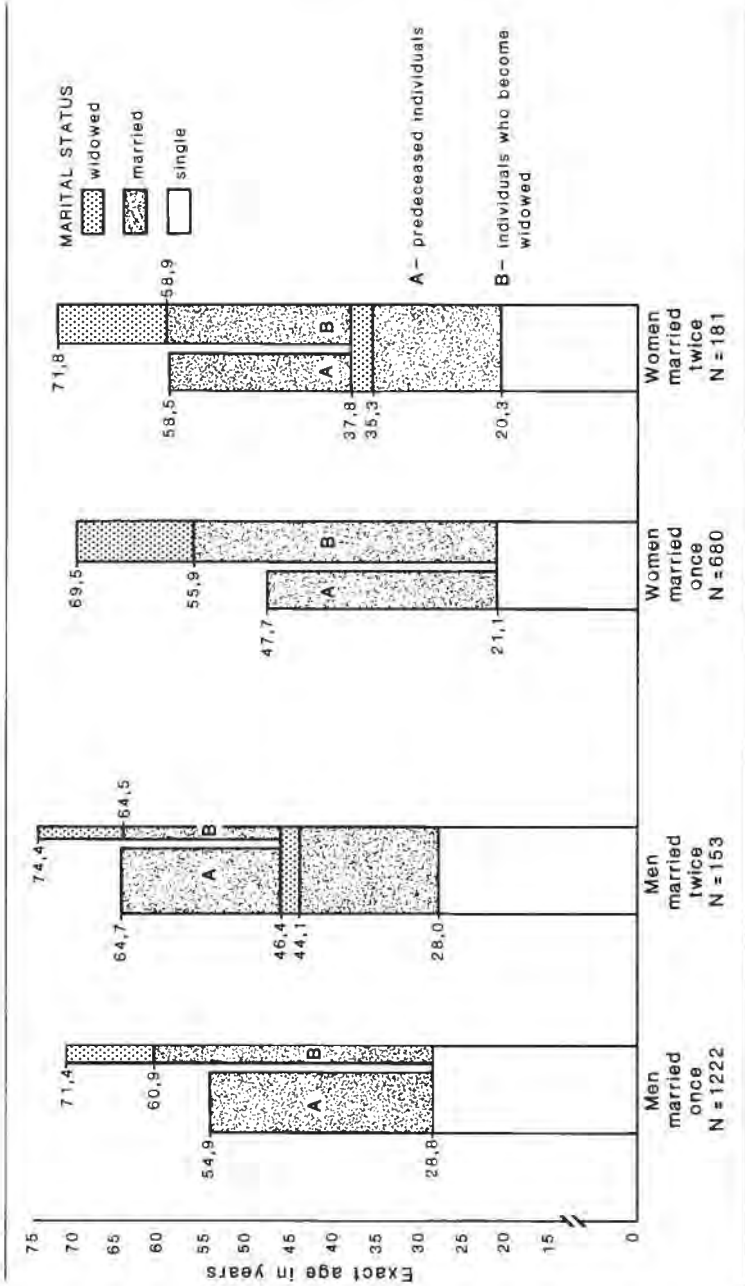

FIGURE 3. TIMING OF THE CONJUGAL LIFE OF IMMIGRANTS MARRYING FOR THE FIRST TIME BEFORE 1680 IN CANADA ACCORDING TO SEX AND NUMBER OF MARRIAGES (1 OR 2) (N=2236)

However, we can point out certain patterns in the relationships between nuptiality and mortality among immigrants who settled in Canada before 1680. It seems clear that for those individuals who married in Canada, most of their adult life – considered as the period between the end of celibacy and death – took place within marriage. The proportion of adult life spent with a spouse (see shaded area) was 92 per cent for men and 81 per cent for women. The significant portion of women's lives spent in widowhood is due not so much to the average length of widowhood between two marriages or at the end of life, but to the frequency of widowhood, which is more than twice as frequent as that for men. The length of individuals' lives seems closely related to the number of marriages; longevity encouraged remarriage. Dissolution of the marriage occurred at all ages and was more frequently followed by remarriage of the surviving spouse if the dissolution occurred at an early age. The period of widowhood (see dotted area), when not followed by remarriage, lasted an average of 13.5 years for widows and 10 years for widowers, who then died at a respectable age of over 70. When we establish the age at death according to sex by calculating the weighted average of the ages at death (seen in Figure 3) of those people who either survived their spouses or not and married once or twice, we find that, on the average, women died at a slightly older age than men: 60.7 years compared to 59.3 years.

Adult Mortality and Orphanhood

Our data base allows us to verify empirically the results of applying Henry's and Brass-Hill's procedures to measure adult mortality using orphan proportions at marriage by comparing them with direct measures of mortality.

Specifically, we can see to what extent the interdependence of the parents' mortality with their fertility and their children's mortality and nuptiality affects the indirect measure. By choosing a specific group of parents, we can achieve the required precision of data and, at the same time, ensure that the parents' mortality remained constant. This way, we counteract the effect of two factors and can determine the effect of a third factor. In addition, by comparing direct and indirect methods, we can evaluate and raise questions about the mechanisms underlying the methods.

Linking Social Control and the Prevalence of Premarital Conception

Various monographs in historical demography have measured the frequency of premarital conception in earlier societies and found it to increase with age

TABLE 2. PREMARITAL CONCEPTIONS (%) IN CANADA BEFORE 1725 ACCORDING THE SURVIVAL OF THE FATHER OF THE BRIDE AND HER AGE AT MARRIAGE

Survival of the Father of the Bride at marriage	Marital Status of the Bride at Marriage					
	Widow	Single				
		Age at Marriage				
		Under 20	20-24	25-29	30 and over	Total
Father alive	7.8	4.5	5.4	7.5	6.5	5.1
Father dead	11.2	5.9	7.3	8.3	11.5	7.0
Total	9.6	4.9	6.5	7.8	9.2	5.8

Source: Bates 1986

and to be much greater in widows than single women. This is also true for the period presently covered by our register in Canada, with a frequency of 9.6 per cent for widows and 5.8 per cent for unmarried women. The differences can easily be explained. In a society forbidding sexual relations outside marriage, the degree of social control exerted on individuals is the main factor accounting for observance of this norm. Young, unmarried girls were undoubtedly under stricter parental control than older women or widows. Determining whether the parents survived until the daughter's marriage provides a more solid basis for this theory.

For single women, and even moreso for widows, the frequency of premarital conception is all the greater when the father is dead (Table 2). Age is undoubtedly also a factor, but this can be isolated, at least for the single women, where the numbers permit separation into age groups. Regardless of age, premarital conception occurred more frequently when the woman's father had died by the time of her marriage, which supports our hypothesis.

Differential Number of Descendants

One last example of the register's possibilities pertains to the study of the mechanisms underlying population reproduction. It is possible through com-

plete genealogical mapping of the population to identify each individual's total contribution to the expansion of the population, and to analyze the factors causing differences between individuals. Thus, preliminary results show that representing 55 per cent of immigrants marrying before 1730, the pioneers who married before 1680 furnished, in probabilistic terms, 84 per cent of the genes of the population living in 1730, their importance carrying right up to this day. On the individual level, 10 per cent of those pioneers are responsible for over 35 per cent of their group's contribution. Research along those veins is limitless, and nowhere else can it be done in such a way.

Conclusion

Our population register – the result of an almost completely computerized series of operations from data collection to data analysis – is a dynamic one as opposed to the more static registers generally found in historical demography, especially in Europe. Each time we extend the period of time covered, the individual and marriage files become richer; in addition, in our register the successive generations are interrelated. Its completion will have taken years of labour. The results with respect to both the development of fundamental research and greater knowledge of our ancestors' behaviour should match the efforts put into it, as has been demonstrated by the various applications we have mentioned.

Footnotes

1. This is an abridged and revised version of a paper presented at a colloquim of the Centre for Canadian Population Studies and the Population Studies Centre of the University of Western Ontario, April 18, 1986, summarizing in English recent publications by members of our research team (Programme de recherche en démographie historique - P.R.D.H.): (Légaré, 1981; P.R.D.H., 1985; Desjardins, 1985; Bates, 1986; Nault, Boleda et Légaré, 1986; Landry et Légaré, 1987; Charbonneau *et al.*, 1987). Its preparation was made possible by the financial support of the Social Sciences and Humanities Research Council of Canada, the FCAR Fund and the Université de Montréal.

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