



Away on Census Day Enumerating the Temporarily Present or Absent

GUNNAR THORVALDSEN
*Norwegian Historical Data Centre
University of Tromsø*

Abstract. The author discusses how census authorities have dealt with persons who were not at home on census day. In principle, the population could be enumerated either *de facto* (at the place where a person was present) or *de jure* (at the person's usual residence). In practice, some combination of the two methods has always been used. The author summarizes the census instructions for the late nineteenth century in the United States, France, and Great Britain, countries that used different enumeration techniques to handle the problems posed by the absence of persons on census day. The author then uses the 1900 census for Norway to describe the temporary residents more fully. This description is possible because the 1900 Norwegian census fully combined both the *de facto* and the *de jure* enumeration methods by separately counting individuals temporarily present and those temporarily living away from their more permanent address. The analysis of this census is facilitated because it is the only fully digitized national census implementing the combined enumeration methods. Finally, the author discusses the kinds of bias that may be introduced when analyses are made of censuses that employ different enumeration principles over time and in different countries.

Keywords: census, migration, underenumeration

In this article, I consider methods employed by census takers to deal with short-term geographical mobility, that is, either the enumeration of the resident population on the basis of *de jure* criteria or the enumeration of the population actually present on the basis of *de facto* criteria. I describe not only the different census procedures but also the substantive implications of these practices: a large number of people may well have been involved in such short-term movements. I shall restrict the concept of migration to the more permanent change of residence, while using the concept of geographic mobility to include temporary movements such as overnight absences from home (e.g., those that occur in connection with working and residing in different locations). As international sets of nominative census data and multinational statistical aggregates become more widely available (Mitchell 1998),¹ it becomes vital to understand how different enumeration methods over time and from country to country can affect research based on

the censuses. We shall see that a significant percentage of the population was away on census day in some types of localities. Those individuals would be enumerated differently in censuses that used different principles. Regional and national results were also affected to some degree.

Empirically, short-term absences may have had an impact both on a person's mental map and on his or her later permanent migration patterns (Hägerstrand 1967). Most studies of migration deal with permanent changes of residence in which the migrant crosses some administrative border, such as that of a parish (a subdivision of a county that often coincides with an original ecclesiastical parish and constitutes the unit of local government), province, or nation-state. In a qualitative sense, such movements may have been among the most important events in the life of a migrant, because the change of environment was both significant and lasting. Often, too, such movements had fundamental impacts on both the place of origin and of the new residence. Most nominative censuses handle migration by specifying the person's birthplace and current residence; only a few add previous "permanent" addresses through the use of retrospective variables. As will be clear from the section on Norway, the kind of temporary geographic mobility dealt with in this article could take place over both long and short distances, but the latter was more typical. Thus, in a study of migration in the central parts of Stockholm during the 1890s, 40 percent of the movements were inside the parish, whereas a little more than 30 percent involved a move out of the parish and into another part of the city. Just 10 percent of the population left the city for other municipalities, and only 1.5 percent emigrated from Sweden, even though this took place during the era of mass migration to the United States (Thorvaldsen 1995). The frequently updated longitudinal records, such as the detailed Stockholm city registration protocols or the Swedish catechismal parish records, allow us to monitor those different types of mobility.² In most places, however, we are only able to study more permanent migration over longer distances.

In principle, a census should be able to deal with all kinds of geographic mobility. As for the permanent migrants, there has been no particular problem; they should be enumerated at their new address if they moved before census day. Short-term movers are, however, more problematic and have been dealt with differently. According to the *de jure* principle, those away from home on census day, such as sailors, should be enumerated at their usual place of residence ashore. The alternative procedure, called the *de facto* principle, attempts to enumerate everyone at their current residence. Thus, fishermen staying for the season in a fishing village would be enumerated there rather than in their permanent places of residence. The third possibility is a combination of the *de facto* and the *de jure* principles, with people enumerated both where they normally reside and in their temporary residence.³ Thus, a sailor would be registered both with his family and on the ship he was aboard on census day. To avoid double counting, such entries should be clearly distinguished from each other in the census manuscripts and in any digital versions to prevent overenumeration during the compilation of aggregates. In practice, no country has practiced pure versions of either the *de jure* or the *de facto* methods. To account for individuals away from home, researchers have used some elements from both methods (Goyer and Draaijer 1992, 12). In a judicial context, the *de jure/de facto* concept is used in a wider sense, for example, to distinguish couples who are legally married from those who are just cohabiting *de facto*.⁴ Although these wider connotations may also be relevant for the census, let us restrict ourselves here to the more narrow definitions relating to temporary movers and enumeration methodology.

Different Countries, Different Practices

Digital microdata based on nominative, historical census manuscripts are becoming available for an increasing number of countries (Kelly Hall, McCaa, and Thorvaldsen 2000). As more projects and studies use census data from different nations and decades for comparative purposes, it would be reassuring to know to what degree the possible methodologies (outlined herein) that deal with temporary movers were applied consistently over time and between nations. Opportunities to harmonize the enumeration issues existed from the 1850s, when representatives from the national statistical agencies began to meet in informal congresses to standardize the contents of their censuses. However, as far as the *de facto/de jure* question was concerned, they failed. Table 1 shows the differences in enumeration methodology for temporary movers among a number of the census-taking nations and territories toward the end of the nineteenth century (Goyer and Domschke 1983; Domschke and Goyer 1986; Goyer and Draaijer 1992).⁵ Three countries—Canada, Sweden, and the United States—stuck to the *de jure* principle, counting their inhabitants where they legally belonged. Their population totals, then, cover only the legally resident population. Cana-

TABLE 1. Main Enumeration Principles Applied to Censuses Taken toward the End of the Nineteenth Century

De Jure	De Facto	Both
Canada	Argentina	Algeria
Sweden	Australia	Austria
United States	Bulgaria	Belgium
	Chile	Brazil
	Costa Rica	Cuba
	Cyprus	Denmark
	Egypt	France
	Germany	Greece
	Great Britain	Iceland
	Guatemala	Italy
	Hungary	Netherlands
	India	Norway
	Ireland	Romania
	Jamaica	Spain
	Luxembourg	Switzerland
	Mauritius	
	Mexico	
	New Zealand	
	Peru	
	Portugal	
	Russia	
	Sri Lanka	
	Uruguay	
	Venezuela	

Source. *The Handbooks of National Population Censuses* (see Goyer and Domschke 1983; Domschke and Goyer 1986; Goyer and Draaijer 1992).

da was the only part of the British Empire to use the *de jure* system as of its first dominion-wide census taken in 1871. This could have been due to both French and U.S. influences. The majority of countries, including those in both the British and the Russian empires, mainly used the *de facto* principle, noting the actual whereabouts of their populations and thus basing their aggregates on the population present on census day. A few countries, such as Brazil, Spain, and France (with their dependencies), tried to combine the two principles. Denmark exemplifies the group of countries that shifted back and forth between the three different methodologies. The joint enumeration system includes the post-1870 censuses for Norway, which meant that the Central Statistical Office could produce totals for both the permanently resident population and for the population present on census day (Thorvaldsen 1996). This is fortunate, especially in the case of the 1900 census, because that census has been completely digitized and encoded, allowing us to study the absent/present problem in more detail for Norway than for any other country.

Why did countries choose different principles, and why were the international statistical conferences unable to standardize basic enumeration principles? The question is easiest to answer for the *de jure* countries. In North America, the

census is first and foremost an instrument for apportioning political representation (Anderson 1988). Elections called for a legal criterion, as people vote for candidates where they usually live, not where they temporarily work. By contrast, the Swedish census—as of its introduction in 1860 until 1945—adopted a *de jure* standard because it was an artifact, constructed by the vicar at his desk from his longitudinal parish registers (Sköld 2001). Because no new information was collected by means of house calls or letters, a count of people actually present on census day could not be undertaken. There was a box to be checked if the vicar knew that a person was absent, but this process was not carried out systematically. Later, French censuses were taken *de jure* for the purposes of taxation, as subsequently explained.

In the *de facto* nations, the rationale behind the census was more demographic than political. For example, the main function of the censuses in Great Britain and, by inference, the rest of its empire, was to find the size of the population and its constituent parts to calculate vital statistics in the form of rates of fertility, nuptiality, mortality, and other demographic phenomena (Woods 2000).⁶ Because people have children and die where they live, not where they legally belong, the denominator needed was the actual number of people residing within certain administrative borders, rather than the number of people formally belonging to the district. With important segments of the population spending years of their lives in other parts of the empire, enumerating them “back home” in Great Britain would introduce a bias into the vital statistics. In contrast, and this is an important point that will be subsequently discussed, temporary population segments enumerated *de facto* in institutions such as prisons, hospitals, barracks, and workhouses (providing employment for paupers and support for the infirm) would enlarge the denominator artificially. Another argument in favor of the *de facto* procedure may be simplicity, which was perhaps a decisive factor for administrators facing the task of counting people in vast territories spread across the whole world.

Administrative convenience and simplicity were, then, the reasons why the international statistical congresses failed to get more nations to introduce a combination of the two enumeration principles. The 1853 and 1860 congresses recommended the *de facto* principle as a basic system, with extra information about the *de jure* part of the population being added (Woollard n.d.). In 1863, it was recommended that enumerations should take account of both principles; in 1872, the details of such a recommendation were laid out in full. This conference, which took place in St. Petersburg, Russia, recommended drawing a distinction between (a) the present or *de facto* population; (b) the usually resident or domiciled population, in the ordinary sense of *residence*; and (c) the legal population (Chervin 1880).

By distinguishing between two types of *de jure* population, (b) and (c), this congress elevated the *de jure* principle above the *de facto* one (Woollard n.d.). The (b) category can be viewed as an attempt to draw a distinction between peo-

ple, such as students or army officers, and short-term mobile workers, such as seasonal fishermen in a fishing village. All these groups might be seen as formally belonging in another administrative district to which they intended to return: the first two of the three groups, after a few years' study or at the end of a posting; the short-term workers, after a matter of weeks or months. This rather complicated solution of the *de facto/de jure* problem might explain why internationally recognized guidelines were not adopted.

Another reason for the failure to introduce a combination of the two enumeration principles was that the statistical congresses stopped pressing the issue. The 1887 congress, by implication, recommended the *de facto* principle as the standard enumeration procedure by describing the Irish census as the most outstanding yet (Statistischen Institut 1887). What had happened? One development was a desire to extend the taking of population censuses to as large a part of the world as possible, a proposal made by the outstanding Hungarian statistician Josef Körösi, one of if not *the* most active of conference members (Kiær 1901). Hungary published only *de facto* results from its 1880 census. The buzzwords now were “*Projet d'un Recensement du monde.*” A global scope encouraged the simplification of enumeration procedures, an enormous task and one that has not yet been completely achieved. For instance, the difficulties could be seen in the case of India, where the 1880 census enumeration was very problematic, having met with strong opposition from the population to the extent that troops had to support the census takers (Statistischen Institut 1887). The other likely reason is that the main *de jure* nations were less well represented after Joseph Kennedy was ousted from his position as director of the U.S. census office in 1865. From 1851 and for the two decades that followed, he had been an eager corresponding member, with an important role in the international debate on census procedures (Anderson 1988, 46).

During the first half of the twentieth century, the *de facto*, the *de jure*, and the combined-count methods were used side by side in diverse countries around the world. In their recommendations for the 1960 round of censuses, the United Nations did not back any one of the methods but rather simply described their respective strengths and weaknesses, with some suggestions as to how the latter could be rectified. Some nations that adopted the *de facto* principle required their citizens to remain at home during census day and night; others enumerated travelers onboard ships and trains, or made a special note of absent persons and their likely whereabouts. The danger of overlooking persons was stressed, especially when the *de jure* method was applied, because some household members might have been absent for a long time. Therefore, it was again recommended that absent individuals be enumerated on special forms together with information about their actual temporary address so that this could be checked to guard against overenumeration. For the third method, that of the combined count, some countries used separate forms for

the present and absent persons, whereas others combined the information on the resident, absent, and temporarily present persons on the same enumeration form, assigning a special field to each group (United Nations 1958).

Examples of De Facto and De Jure Principles in Selected Countries

Because no agreement on an international standard has been reached, any statistical study that involves comparing census results across national borders must consider how the temporarily absent population has been dealt with in each country under observation. This is true no matter whether the comparative study is based on aggregates or on microdata, although it is more feasible to make adjustments in the latter instance, as it is easier to consider different groups separately. In addition to the census manuscripts, such considerations must be based on the census instructions, comments in the statistical aggregate publications, and the overviews given in the *Handbooks of National Population Censuses* (see Goyer and Domschke 1983; Domschke and Goyer 1986; Goyer and Draaijer 1992).⁷ They provide detailed examples of the de facto, de jure, and combined methods. The instructions point out the principles used in the different countries.

However, it should be emphasized that the degree to which the enumerators followed the instructions varied from place to place. Readers are warned that the handbooks are based on the printed aggregates, and the census manuscripts may contain information that was never tabulated. This is the case with the 1897 Russian census, which is classified as de facto but in which the instructions specified combined enumeration. The de jure enumeration was particularly difficult to implement in many places, and few Russian census manuscripts have survived (Cadiot 2004). In the countries for which microdata based on the census manuscripts are readily available—for instance, through the Integrated Public Use Microdata Series (IPUMS) projects—it will be more realistic to assess the practice of the principles in a source-critical manner in the future. The following discussions exemplify the main principles used to enumerate the temporarily absent population in the United States (de jure enumeration), Great Britain (de facto enumeration), and France (combined enumeration).

United States

The U.S. censuses have consistently been based on the de jure principle because the primary use of the census has been as an instrument for apportioning voters to their electoral districts, which must be their place of legal residence.⁸ Nevertheless, the procedures for deciding what to do with those persons not present in their ordinary family home on census day have varied over time. The first nominative cen-

sus in 1850 omitted both Native Americans who did not pay taxes and slaves, although the latter were reported by their owners in separate schedules, without their names; they were named in the 1860 census. All other persons were to be counted in their ordinary residence if possible, so the census takers were instructed to enter the names of any household member temporarily absent if he or she intended to return. There were, however, formulations allowing some students and sailors to be entered where they resided or worked on census day if they did not report a more permanent address. Accordingly, the authors of the instructions for the censuses of 1880 and 1890 admitted that “it is difficult, under the American system of a protracted enumeration, to afford administrative directions which will wholly obviate the danger that some persons will be reported in two places and others not reported at all.”

From 1900 through 1930, the U.S. census procedures changed little, thus making problems of comparability relatively small. The 1900 census made a change with respect to the enumeration of nonfamily households because, from then on, all hospital patients in addition to other institutional inmates were to be enumerated as such, but with a marginal comment in case they had a more permanent address. The instructions for the 1940 and 1950 censuses made more explicit the partly de facto character of the U.S. census by using the individual census report (ICR) forms to include in the census more of those absent from their usual residence on census day, such as hotel guests or lodgers in boardinghouses. Citizens working more permanently for the U.S. government abroad, including military personnel, were to be enumerated only de facto.

The 1960 census introduced the system of self-enumeration and presented the rules in a simpler language than had been used in previous twentieth-century censuses, thus serving as a detailed summary of the intended practice to list the following:

1. Everyone who usually lives here, whether related to you or not.
2. All persons staying here who have no other home.

PLEASE BE SURE TO LIST –

All members of your family living with you, including babies.

All other relatives living here.

Lodgers and boarders living here.

Servants, hired hands, others not related to you who are living here.

Any one else staying here but who has no other home.

ALSO LIST –

Persons who usually live here but who are away temporarily on business, on vacation, or in a general hospital.

DO NOT LIST –

College students who are away at college (or who are here only on vacation).

Persons stationed away from here in the Armed Forces.

Persons away in institutions, such as a sanatorium, nursing home, home for the aged, mental hospital.

They will be counted there.

In 1970, 1980, and 1990, the changes to rules about whom to include were relatively insignificant; but, in 2000, the authorities tellingly used the expression “it is quick and easy” to describe the census form, simplifying enumeration procedures, for instance, by again leaving out the clause about listing de jure children in boarding schools below college level.⁹

Even if the U.S. census has, since its start in 1790, consistently been enumerated according to the de jure principle, census takers have included elements of the de facto principle to count people temporarily away from or without a home. These measures to reduce underenumeration have probably reduced the undercount somewhat, although to what degree remains a contested issue because of the lack of independent data from vital statistics or ongoing population registers. Figures for underenumeration based on demographic estimates, however, indicate that although around 7 percent of the eligible population was missed in the period from 1880 to 1920, the proportion declined gradually thereafter toward 3.3 percent in 1960 and 1.8 percent in 1990. However, these numbers just indicate the net undercount. The gross-error estimates suggest that as much as 10 percent of the total population is counted erroneously when undercounts, overcounts, and other enumeration errors are summed (Magnuson 1995; Anderson and Fienberg 1999).

France

The French censuses mainly followed the de jure principle from 1801 through 1872, combined the de facto and the de jure principles from 1881 through 1946, and then reverted to the de jure principle after 1954 (Goyer and Draaijer 1992). The de jure definition was based on usual residence, not formal address. The French censuses were nominative beginning in 1836, and until 1841 only the legal resident population was, in principle, to be enumerated. From then on, a special extra count was taken of the *population comptée à part* (population counted separately) on a specific date. The logic behind this separate enumeration was that groups such as prisoners, soldiers in military quarters, and the like should not be taxed by the municipality (Haug 1979). In 1872, anyone working in a municipality was to be enumerated there, regardless of formal place of residence, thus introducing a stronger de facto component into the census. A further development in this direction came in the 1900 census, when naval crews, most sailors, and incurables in hospitals were to be enumerated separately. Coastal fishermen

were still to be enumerated de jure, as were most hospital patients, together with the households to which they were expected to return (Ministère du commerce 1904).

After France reverted to more consistent de jure enumeration in the 1950s, a specially designed form was created for the enumeration of persons living in the two different types of group accommodation, the relevant addresses being sent in advance to the census takers by the local administrators of the census. On the one hand, the instructions distinguished between persons living in establishments where the population was to be counted separately and earlier than the rest of the population (*comptée à part*)—such as hospital patients undergoing long-term treatment, military personnel, or pupils in boarding schools—and, on the other hand, persons living in the other type of collective housing (*ménage collectif*), such as homes for the elderly or students living on a university campus, and some other types of lodging, as for foster children, lodgers (*gens de maison*), or students staying in a hostel or rooming house during term time. Short-term patients, however, who were hospitalized only temporarily for an operation or in a maternity ward, for example, were to be enumerated on the ordinary form A, presumably in their usual domicile. The principles for distinguishing the two different types of group accommodation may have been quite difficult to grasp for the census takers and were abandoned in the 1990 census, which mentioned only one type of group accommodation: *les communautés* (Institut National de la Statistique et des Etudes Economiques 1990).

In summary, France has based its censuses primarily on the de jure principle to use them as the basis for distributing tax revenue between the municipalities. This procedure has given priority to a person’s actual rather than legal residential address, and it is also the rationale for the distinction between two different kinds of group accommodation, with those enumerated separately not included in the taxable population. From 1881 to 1946, more-systematic attempts were made to enumerate the population also de facto, whereas the rest of the censuses tried only to include those absent people who might otherwise not have been enumerated elsewhere.

England and Wales

“Each individual householder was furnished with a schedule in which himself to enter the required particulars as to his household, and the particulars which he was called on to supply related to all persons sleeping or present in his house on a certain fixed night, an alteration which greatly diminished the chance of omission or of double entry” (British Parliamentary Papers 1883). In this way, the British census administrators expressed their satisfaction with the self-enumerated, decennial, nominative census introduced in 1841 and based on the de facto enumeration method (“by the population of a place is meant in this country its *actual* and not its *resident* population”).

A more pessimistic view of the application of the *de facto* principle is held by Edward Higgs (1988), the historian of the English census. The assumption that most people lived in ordinary households was not realistic, and increasingly complex arrangements had to be constructed for the enumeration of institutional inmates, ships' crews, the military, itinerants, and night workers. The definition of *group accommodation* was unclear from the start and changed over time. For instance, it was not until 1891 that the personnel on foreign fishing boats were, in principle, to be counted if they regularly landed fish in Great Britain, and cases can be found where fishermen were enumerated both at home and on their boats (Woollard 1997). Until 1931, the population size of some places could be artificially inflated when sailors onboard ship were added to the aggregates for the closest parish (Burton 1996). In addition, if a census was taken at midsummer, temporary guests in rooming houses inflated the number of entries at holiday resorts (Whyman 1996).

These problems and the various attempts to solve them should suffice to show that the groups of persons away from home or not living in ordinary residences on census day will cause problems no matter what enumeration principle is chosen. Special cases will always arise; the best solution is to modify the *de facto* or *de jure* principles somewhat. The census authorities tried to get a *de jure*-oriented grip on the number of British citizens abroad by totaling their numbers in the colonies, dependencies, and in other census-taking nations (British Parliamentary Papers 1883, 74). But this was admittedly only a partial overview. With the whole empire as the ultimate target for the census authorities' decadal censuses, the *de facto* principle may have been the only realistic solution. That other cultures meant extra challenges for census takers can be seen from the following curiosity from the Punjab, where a magistrate entered a man as a *de facto* resident of a pond. The entry concerned a fakir whose intention it was to stand in the water until the census was finished.¹⁰

The Combined Use of the De Facto and De Jure Principles: The 1900 Census of Norway

The first completely nominative census of Norway was taken in 1801, but even if it was *de jure* in principle, the instructions about the whole issue of geographic mobility were unclear. There were no fields in which to enter either information about birthplace or place of temporary residence. After several decades of purely aggregate censuses, the nominative method was reintroduced for the 1865 census, which also included birthplace data. No Norwegian representative was present at the first international statistical congress, which may at least in part explain why the *de jure* principle was used. The 1865 instructions go into some, but not much, detail. Thus, according to the Central Statistical Office (1868–69),

[I]n the next (4th) field enter the names of all the persons who permanently reside at the farm or in the house. If someone usually sleeps in one place, but does business elsewhere, e.g., as artisan, factory worker or suchlike, he should be enumerated where he sleeps and not where he does his business. Anyone who is absent temporarily, e.g., at sea or on other journeys, either domestic or abroad, is to be counted with the family from which he is absent. Anyone residing temporarily in a place, e.g., a traveller, should not be enumerated. On the other hand if he has his home in the kingdom, he is to be enumerated there. Thus, no one is listed unless he resides permanently at that location. The mentally ill who reside in mental institutions, should nevertheless be listed among the residents of the mental institutions, and not on their native soil.

It has been suggested that neglecting to register all the absent sailors and other travelers may have brought about a somewhat higher underenumeration in the 1865 census than in later ones (Thorvaldsen 1996). On the face of it, the method looks straightforward enough, but the seeming afterthought about mental patients indicates that census takers might have run into problems. It is unclear what should have been done with other kinds of patients hospitalized for extended periods of time, for servants between short-term jobs, or students in the capital of Kristiania (Oslo) who were 500 miles from home.

Such problems, together with the reorganization of the Norwegian statistical services, may explain why combined *de jure* and *de facto* enumeration was introduced into the 1875 census. This census was prepared by Anders Kiær, a man of immense drive, who a year later became the first director of the new Central Statistical Office (Lie and Roll-Hansen 2001). He was an eager participant in the international statistical conferences and a proponent of Nordic cooperation. The 1875 census forms contained a special field for visitors in which was to be entered the "usual residence of those, who on the 31st of December temporarily stayed overnight in the house." In addition, a special section for those temporarily absent was included on the bottom part of the forms so that data about their whereabouts could be included.¹¹ This last instruction created new problems, however, because it split up families by separating all information about absent members of the household, including the head, from that for the other family members. The horizontally split questionnaire was not used in later censuses and, in the digital version of the 1875 enumeration forms, absent persons have been moved into the place in the household to which they belonged, to facilitate family and household studies based on the microdata.

The 1891 census used one form for each individual, thus making its digitization impractical. The 1900 census reintroduced the domicile-based census form, with fields for recording the temporary residence of those absent, the permanent residence of those visiting, and the visitors' status as ordinary residents, visitors, or absentees (Central Statistical Office 1906). Emphasis was placed on the importance of noting a person's status on census day rather than when the census

taker came along, sometimes a few days later. Moving the census day back from December 31 to December 3 reduced the influence of the Christmas vacation on the census, with more persons (mostly male) away at temporary work sites and fewer people visiting relatives to celebrate the holidays.

The 1900 instructions also included more detailed definitions of temporary residence or absence. Lodgers were to be entered as temporarily absent, even if they had ended their lodging agreement, as long as they intended to return. Students were to be recorded where they stayed in order to study, or as temporarily present if they were on a visit home, on December 3. Likewise, servants were to be entered as ordinary residents of the households where they were employed, an instruction that also applied to hospital patients. Nomadic Sami (an indigenous people of northern Scandinavia, Finland, and the Kola Peninsula of northern Russia) were to be entered as permanent residents of the place where they happened to be on December 3. An exception was made for prison inmates. For unspecified reasons, they were considered only temporarily present where they were serving their sentences.

On the same day the census was taken on land, one was taken of sailors onboard Norwegian ships. Special forms for this were provided abroad through the consular services and in domestic harbors by customs officers. These sailors were considered to be temporarily absent even if they had no permanent home ashore, in which case they were to be entered as absent from their last residence in Norway. For international comparison, it is noteworthy that this did not apply to sailors regularly aboard foreign ships or residing abroad permanently. Those sailors were considered to have a permanent address outside the country and were to be excluded from the Norwegian censuses.

The broad definition of temporary absence or presence, limited to only a small extent by time or space, alerts us to the fact that a considerable proportion of the population was included in the two relevant categories. A salesman traveling the northern provinces, a sailor ashore for a while in Buenos Aires, and a youngster visiting his girlfriend on a neighboring farm or in the next parish could all have been enumerated *de jure* as temporary *absentees*, the first and the last also *de facto* as temporarily *present* in Norway. The Central Statistical Office tabulated these different categories in their publications. The summary results are presented in table 2.

Table 2 shows that increasing numbers of the population were enumerated as temporarily absent or present in the censuses from 1875 to 1910, with proportions increasing from about 2 to 4 percent. Because most of those individuals temporarily present in Norway were also counted as absent, we cannot sum their numbers. In 1910, some 125,000 persons, or more than 5 percent of those resident in the country, were temporarily absent. Because of the well-known importance of the country's shipping, it comes as no surprise that there were more Norwegians temporarily abroad than foreigners staying for awhile in Norway, which also explains why the *de jure* population was consistently somewhat larger than the *de facto* one. The discrepancy between the number of absentees and the number of temporary residents inside the country points to a certain degree of overestimation or underenumeration. The decreasing surplus of those visiting over absentees from 1875 to 1900 indicates that the quality of the censuses improved; the absentees seem to have been overenumerated in 1910. Contemporary statisticians did not have the resources to explore these discrepancies at the individual level, but researchers

TABLE 2. De Jure and De Facto Population as Well as Persons Temporarily Present and Absent in Norway and Abroad, according to Published Census Statistics, 1875-1910

Enumeration group	Census			
	1875	1891	1900	1910
De jure population	1,813,494	2,000,917	2,240,032	2,391,782
De facto population	1,806,900	1,988,674	2,221,477	2,357,790
Temporarily present in Norway	42,809	60,613	71,156	88,835
Present as % of de facto	2.4	3.0	3.2	3.8
Temporarily absent in Norway	36,346	55,235	70,328	92,339
Absent as % of de jure	2.0	2.8	3.1	3.9
Norwegians abroad	14,189	20,567	23,201	34,782
Abroad as % of de jure	0.8	1.0	1.0	1.5
Foreign citizens in Norway	1,551	2,518	3,149	4,270
Foreign as % of de facto	0.1	0.1	0.1	0.2

Note. Absolute and relative numbers are shown.

might be able to carry this out in the near future by using record-linkage software. Because 1910 was the first census giving dates of birth for all entries, record linkage will be much simpler. In addition, it has an extra subsidiary form on which special information was to be recorded about another type of temporary mover, namely, the emigrant who had returned home.¹²

The digital version of the entire 1900 census gives us a further chance to explore the enumeration of the *de jure* and the *de facto* populations. In this census, some 2.1 million individuals are noted as permanently present at their ordinary address on census day, December 3. In addition, 92,676 persons were recorded as temporarily absent from their permanent residence on the night before census day. The number of temporary visitors was 91,230, according to the digital version. The number of absentees and the number of visitors are significantly higher than those taken from the published aggregates in table 2 because the latter do not include the many sailors aboard Norwegian ships. If we filter ship values out of the table, the number of absentees is reduced by only 4 persons, and the number of the temporarily present by about 25,000, showing that the *de facto* principle was used consistently on shipboard. This is reassuring, because unclear distinctions between those ships more or less permanently laid up, those used as domiciles, and those in seasonal domestic traffic might have caused enumeration problems.

Because so many individuals in these groups were working away from home, especially as sailors, men dominate both groups. Either group can be expected to have included some fishermen, but that number would have been much higher during the seasonal fisheries, especially those in the late winter months. There were relatively more married persons among the absent and visiting, and they were on average about 3 years older than the permanent residents. Such differences are to be expected, as it is unusual for children to be among the temporarily absent or temporarily present population.

Table 3 also shows that there were about three times as many men as women among those temporarily absent or visiting, a product of men's higher degree of workforce participation outside the home at that time. Women's somewhat higher relative share among those visiting than those

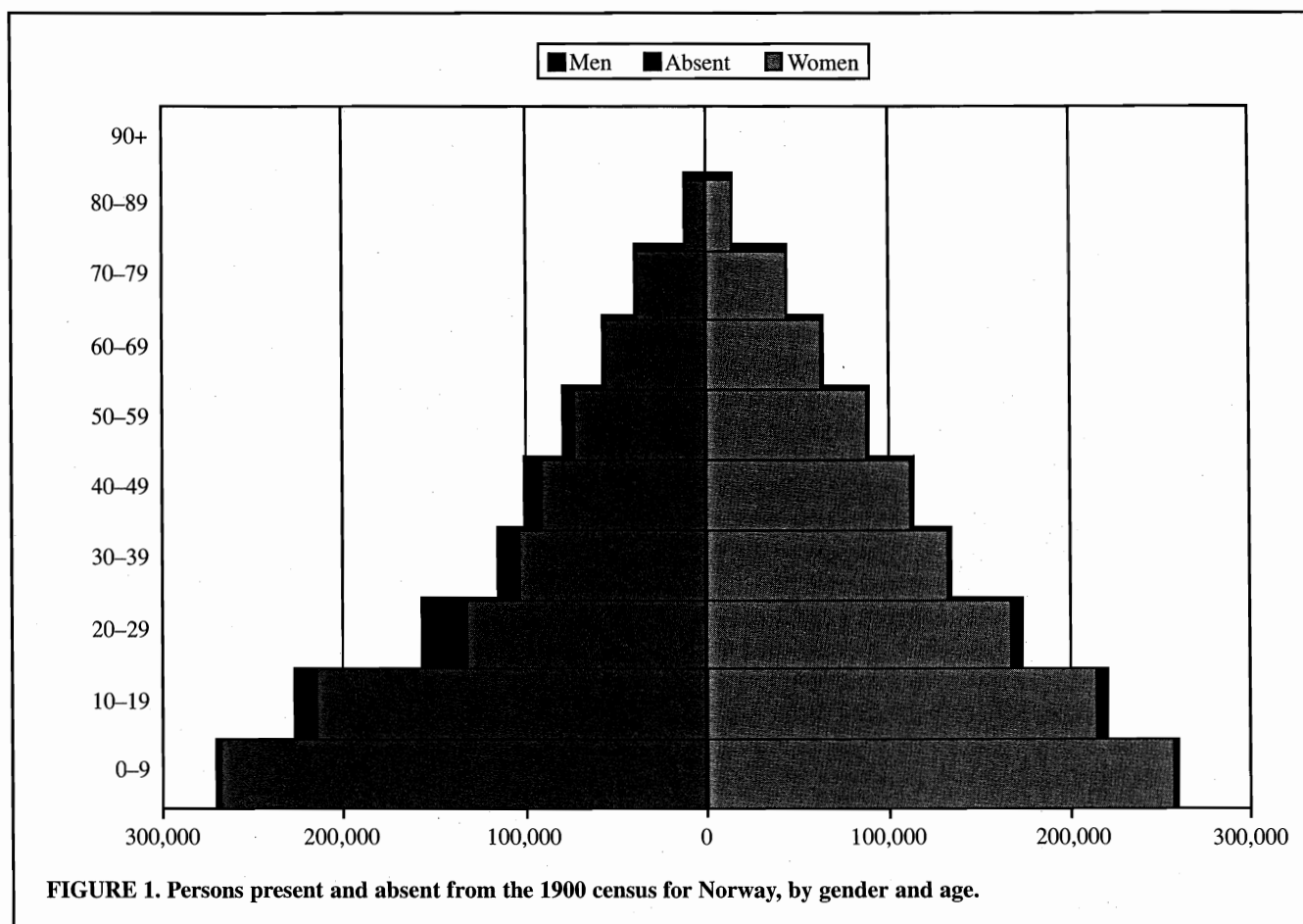
absent may be explained by the small female element among temporary emigrants. That is also true for the relatively low proportion of ever-married individuals among those temporarily visiting. The population pyramid in figure 1 illustrates how men in their twenties were overrepresented among those who were temporarily absent, whereas among women the 10-to-19-year-old age group was as large as the 20-to-29-year-old one.

Where do we find the absentees and the temporarily present people? They were not evenly distributed across the country, as the absentees were especially concentrated in certain municipalities. As we can see from the map in figure 2, many of them were on the coast. Households with persons absent were especially overrepresented on the western side of the Oslo fjord and farther south along the coast, as well as in northern Norway. These municipalities were known for their heavy involvement in shipping and fishing. Nearly 8 percent of the population was temporarily present in the northernmost province of Finnmark, whereas over 8 percent was absent from the southern province of East-Agder. Farther southwest, we find that the municipality with the highest proportion of the population absent on census day was Spind, with nearly 23 percent of its people away from home.

The highest proportion of people temporarily present, at 25 percent, was to be found in the country's northernmost municipality, Nordkapp (North Cape). More than one-tenth of the *de facto* population was visiting in 15 municipalities, only 2 of which were south of the main mountain range in mid-Norway. More than one-tenth of the *de jure* population was absent from 28 municipalities, most of these lying in the two southernmost provinces. The records for temporary visitors tend to be found less frequently in places close to the sea, in terms of their relative share of the population. A special case are the mobile workers from the less-affluent coastal areas west of the country's southern tip, who went to work in the areas eastward. We should remember, however, that the census may not be representative at other times of the year. For instance, many Swedes came during the summer months to work as agricultural laborers, especially around the Oslo fjord, but they had returned home several months before census day, and so their movement across the national border was not picked up.

TABLE 3. Gender Distribution and Average Age of the Temporarily Absent, the Visiting, and the Rest of the Population in Norway, according to the 1900 Census Microdata

Residence	Male	Relative (%)	Female	Relative (%)	Sum	Relative (%)	Average age	% ever married
At home	999,604	88.00	1,111,093	95.90	2,110,697	92.00	27.6	38.1
Temporarily absent	69,487	6.10	23,189	2.00	92,676	4.00	30.6	39.9
Temporarily visiting	66,322	5.80	24,908	2.10	91,230	4.00	30.7	35.5
Sum	1,135,413	100.00	1,159,190	100.00	2,294,603	100.00	27.8	38.0



More information about the whereabouts of temporary movers can be found from the special field in which the permanent addresses of visitors and the temporary addresses of absentees were recorded. The variety of place-names where people stayed temporarily or really belonged is unexpectedly high. Some 55,000 different names had to be grouped and encoded, including spelling differences. On average, there were only three persons per place-name variant! Because most kinds of absence were accounted for, the field includes everything from local farm names to ships' names to foreign metropolises. The names have been encoded in a three-layer hierarchical system, namely, foreign countries, provinces, and municipalities within Norway. Other countries are encoded with the system devised by the IPUMS projects for classifying birthplaces, which also assigns a special code to those at sea.¹³ Inside Norway, the system is the same as that used for Norwegian birthplaces, where the 18 provinces are further subdivided into 600 rural and urban municipalities.

Most names of countries and municipalities can be encoded consistently and without problems. When only a common farm name is reported, it is encoded as being within the municipality where the census was taken. Some names that denote two or three different municipalities must be encoded as Norway, and some district names can be

given only a province code. Whereas the census takers in the countryside were generally teachers and well educated, the townspeople were self-enumerated, leading to many strange spelling variations. We cannot, therefore, allow for small differences in spelling when assigning the codes.

The domestic results from the classification of the temporary and residential address fields mainly corroborate the results we found by simply using the name of the municipality where the records originated. In addition, we can see that nearly half the recorded temporary geographic mobility was local or within the home municipality. This field also tells us about the persons absent overseas and visiting from other countries. From this, we find that the persons temporarily moving out mainly went to the United States (to work) and to Great Britain (as sailors). Individuals temporarily coming to Norway had chiefly left Sweden, the United States, Denmark, Finland, and Germany (table 4).

I have repeatedly touched on the importance of work as the underlying reason that an individual would be listed as temporarily absent or visiting. This topic deserves to be explored in depth. In this methodology-oriented article, however, it must suffice to give basic information about the main economic sectors and to what extent the individuals employed therein were listed as away from home or visiting

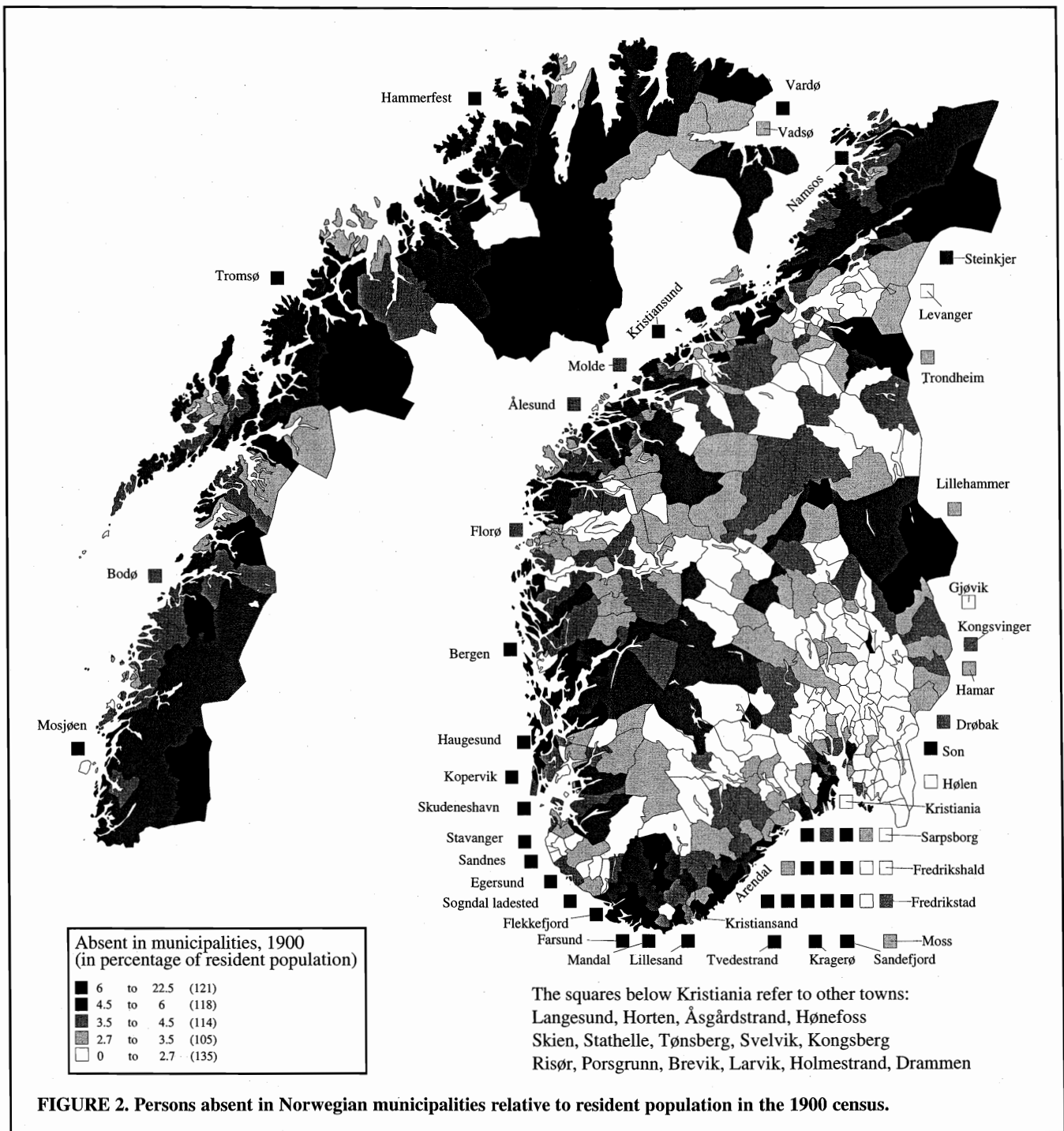


FIGURE 2. Persons absent in Norwegian municipalities relative to resident population in the 1900 census.

outside the home on census day. Table 5 corroborates our expectations about the high incidence of absentees in shipping; only a minority of persons with shipping-related tasks ashore (such as ownership) are included in this category. The low proportion of absentees and those temporarily present within farming households is also to be expected, because most would have had tasks related to the daily care of the farm and its animals. The comparably low proportion among those in industry, at the sawmills, and in land transport is

more unexpected, but it may be explained by the need to follow predetermined work schedules strictly. The lower incidence of permanent residence in mining may result from the tradition of itinerant labor in this sector; the same phenomenon in forestry and fishing hardly requires further discussion. We should, however, keep in mind that table 5 is based only on the persons' primary occupation, and further analysis made on the basis of dual occupations could alter the results significantly. The low percentage of absentees and

those temporarily present with unknown occupations is simply due to the high proportion of children in this category.

We can further analyze the 1900 census by downloading the whole or parts of the data set from the Web pages of the North Atlantic Population Project at <http://www.nappdata.org> (Roberts et al. 2003).

TABLE 4. Movement of Temporary Migrants

Place	Traveling to	Visiting from
Local	43,783	
United States	4,078	1,164
Denmark	496	601
Finland	49	496
Sweden	773	2,751
England	2,785	367
Scotland	174	45
France	270	30
Spain	175	14
Germany	697	419
Australia	318	18

Source. 1900 Census Microdata for Norway.

De Facto/De Jure Enumeration Differences

We have already seen that the number of absentees in Norway did not match the number of people temporarily present within the country—which, theoretically, ought to have been the case. Although combining the de facto and de jure methods of census taking could not eliminate the problems, the discrepancy tells us that using either one or the other will generally result in enumeration errors. The group under consideration is volatile, and we must assume that we increase the likelihood of enumerating its members significantly if they are counted both as absentees and visitors. In contrast, the combined method will increase the chances of overenumeration if the procedure for marking the records is neither clear nor implemented strictly. How else can the de facto/de jure issue introduce enumeration errors?

As we have seen, the definitions of persons temporarily present or absent were more detailed for the 1900 census than for that of 1875. Because of such revisions, the criteria for methods of dealing with certain groups were inevitably changed. Students are an obvious example. In 1900, they were considered permanent residents in the municipality in which they studied; later in the twentieth century, they were considered permanent residents in their municipality of ori-

TABLE 5. Occupational Sector Groups, by Type of Residence

Primary occupation	At home %	Temporarily absent %	Temporarily present %	<i>N</i>
Unknown	96.3	1.6	2.1	1,013,482
Farming	92.7	4.6	2.7	342,501
Forestry	72.0	11.0	17.0	18,568
Fishing	78.0	11.8	10.1	52,687
Mining	74.2	16.9	8.9	3,391
Other primary	73.2	16.7	10.0	669
Other secondary	86.5	5.9	7.7	6,874
Handicrafts	85.5	6.9	7.6	138,496
Female handicrafts	92.6	3.6	3.8	11,927
Quarries, etc.	82.7	7.3	10.0	12,978
Industry	92.7	3.8	3.5	46,243
Construction	75.4	11.6	13.0	7,757
Sawmills	92.1	4.5	3.5	12,423
Other tertiary	89.1	4.8	6.1	24,498
Trade	89.4	4.7	5.8	45,981
Shipping	27.9	37.4	34.7	56,161
Land transport	91.0	3.9	5.1	24,037
Public transport	79.5	12.2	8.3	15,405
Civil service	87.2	6.3	6.5	25,081
Clerical	76.5	9.2	14.3	2,388
Military	83.0	9.4	7.6	5,027
Health	82.0	8.1	9.9	5,683
Household work	96.6	1.7	1.6	407,054
Not active	96.6	1.6	1.9	15,292
Sum	92.0	4.0	4.0	2,294,603

Source. 1900 Census Microdata for Norway.

Note. Absolute and relative numbers are shown.

gin. They would then also be entered as temporarily absent from the latter place, but temporarily present where they studied, whereas, in 1900, most students would simply be counted once: where they studied. As the number of students increased after 1960, the authorities in the university cities successfully lobbied for a change in the *de jure* rules in order to receive certain state funds that are distributed according to population size. Thus, for the 2001 census, Statistics Norway again enumerated students where they were living when studying, which meant a considerable formal increase in the number of inhabitants of a few cities, while many municipalities lost accordingly. If combined *de facto/de jure* enumeration is performed, it would be easier to adjust for such changes in definitions over time when comparing a series of census microdata. This is also true for comparing results based on microdata from different nations. It would also be easier to adjust for temporal differences in census instructions when both the *de facto* and the *de jure* population segments are specified. If big groups such as soldiers, sailors, fishermen, or students are treated differently, it will affect not only occupational aggregates but also statistics on family size, urban-rural differentials, and so on. If the 1900 census for Norway is representative, nearly 4 percent of a country's population can be affected, but the proportion will be significantly higher in localities with a mobile workforce—up to one-fourth of the persons in some municipalities.

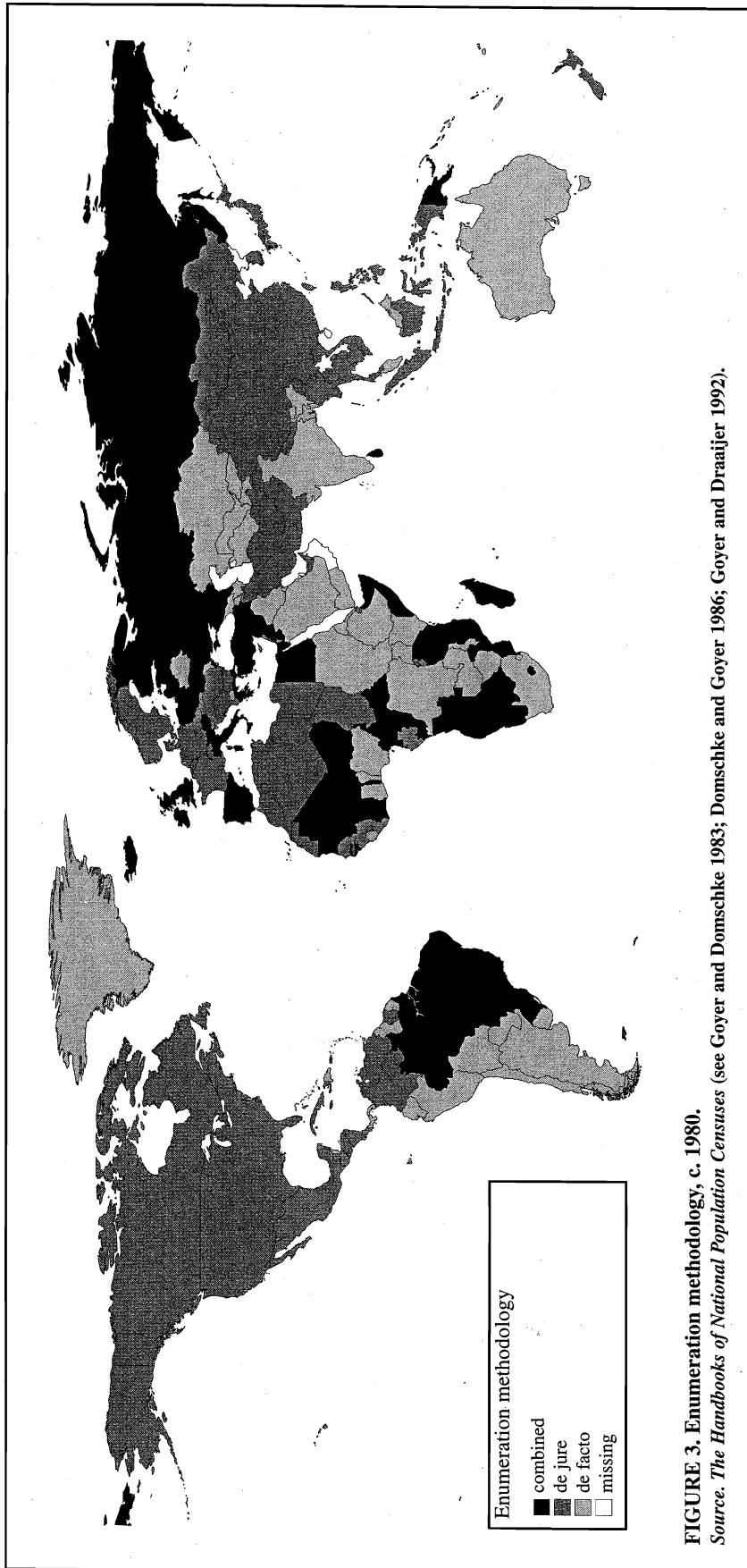
Temporary movers between countries make up a special category. For instance, from around 1900, thousands of people went to work for part of the year in the United States. If the instructions were followed correctly, they were unlikely to have been entered into any *de jure* U.S. census, but they should be noted as temporarily absent from their normal residence in Norway. Swedes doing the same would be noted as ordinary citizens in Sweden only. However, again according to instructions, such "swallows" from countries such as Great Britain, which followed the *de facto* system of census taking, should not be noted in any census if they were working in the United States on census day. The situation would have been more straightforward if the statistical congresses had achieved their aim of synchronizing the taking of censuses in different countries. As we know, they failed even in regard to the timing of censuses: the British and Commonwealth countries stuck to the first year of each decade (1901, 1911, 1921, etc.), whereas most other nations took censuses in years ending with round numbers (1900, 1910, 1920, etc.). The considerable time difference between census days makes it more likely for a British temporary visitor to the United States to be entered into some census than for a visitor coming from a *de facto* nation that took its census in years ending with a zero. Furthermore, it is likely that a Norwegian working in Great Britain or on a ship in a British harbor in 1901 would have been entered in the UK census, as well as in the Norwegian census the previous year, without there being any note about temporary absence.

The cases of underestimation or overenumeration because of temporary mobility across national borders are probably too few to cause significant problems. More serious errors may arise from underenumeration within each country, for temporary movers were not noted because they should be counted according to either the *de jure* principle only or the *de facto* principle only. As we saw in the 1900 census for Norway, significant parts of the population in some municipalities could have been away from home or temporarily present on census day. When nations or regions with many temporary movers are compared, it will be crucial to have access to documentation giving a clear picture of what groups were to be included, where they stayed, or where they had come from temporarily, and to compensate for this by reclassification. With combined *de facto* and *de jure* enumeration, we can also more easily see to what extent the enumeration rules were followed.

Conclusion

The statistical congresses from the mid-nineteenth century onward attempted to standardize census enumeration procedures in a number of ways, but when it came to choosing between *de facto* and *de jure* methodology, they failed. This was partly due to the different aims of census taking in different countries. Where elections or taxation were the primary rationale behind census taking, the *de jure* methods had to be applied. Another reason was the changing attitudes of those attending the statistical congresses, as certain individuals first recommended combined enumeration methods and then later favored censuses based on the *de facto* principle, which was considered to be the simplest method at the time. The *de facto* method may have given better population estimates to be used as denominators in demographic studies, but it may also have minimized the number of extended kin because of temporary absence. From the middle of the nineteenth until the second half of the twentieth centuries, the *de facto* method was the most popular alternative; one reason for this popularity was its widespread use in the British and Russian empires. In addition, until the 1990s, most Latin American countries used the *de facto* principle (Chackiel 2001). Roughly speaking, the *de jure* principle might be linked to democracy, and the *de facto* method to colonial subjugation, an exception being the French colony of Algeria, which used combined enumeration as of 1881 (Domschke and Goyer 1986, 36).

Toward the end of the millennium, the *de jure* principle began gaining ground. Nowadays, with the large number of mobile individuals, such as tourists, the *de facto* method will include large temporary population segments that disturb the population estimates and make them less useful in demographic analyses. In particular, household studies and geographic-mobility studies can be performed with a higher degree of precision when they are based on *de jure* enumeration methodology. Furthermore, the shift is facilitated



because more nations have introduced registry-based censuses (Singapore Department of Statistics 2001). Just as with the Swedish censuses made on the basis of the catechismal records from 1860 to 1945, the usual residence necessarily had to be the point of reference when there was no census day on which forms were completed at a particular location to show the whereabouts of every individual. Several countries have, therefore, changed from the extended de facto methodology to the so-called resident population method, thus attempting to include persons belonging to the area for several (usually three) months while omitting more temporary and casual visitors (Hong Kong Demographic Statistics Section 2001). In a country such as New Zealand, the shift from a de facto to the resident-population type of de jure enumeration led to higher population estimates and smoothed the seasonal changes in population size, but otherwise left the main characteristics of the population relatively unchanged (Ryan 1999). The exact implementation of the de jure principle still varies somewhat from nation to nation. Because most nations using the de jure enumeration method can estimate the de facto population size by including additional information from surveys, for example, whereas others only have resources to count their populations with de facto methods, the latter methodology should usually be preferred in current international comparisons. Methods for comparing census figures, especially from neighboring countries using different enumeration principles, are certainly needed; in the round of censuses in Latin America during the 1990s, 11 countries employed the de jure principle, whereas 9 used the de facto methodology (CELADE 1999, 84). As is illustrated in the world map in figure 3,¹⁴ merely a couple of decades before the turn of the millennium we were still far from a standardized methodology with respect to how the populations in the countries around the world were enumerated.

NOTES

I am grateful to Michael Drake, the Open University, Milton Keynes, UK, and to Matthew Woollard, at the UK Data Archive, the University of Essex, for their comments on a draft version of this article.

1. One meaning of *nominative* is "bearing a person's name" and is used here to denote censuses in which the manuscripts list each person; this procedure contrasts with statistical censuses, which report only the number of persons with certain characteristics in each residence or administrative area.

2. Compare http://www.ddb.umu.se/ddbmaterial/kyrkmat_eng.htm.

3. I have avoided using the double-count concept because it could result in overenumeration rather than combined enumeration.

4. See the *Glossary of Legal Terms*, at http://www.pinian.com/pinian_legal_terms_glossary.html.

5. The information in the handbooks is sometimes based on printed aggregates only.

6. In Sweden, detailed vital statistics were derived from church records. However, most of the United States lacked such source material to generate systematic vital statistics.

7. The three handbooks provide summary tables listing the de jure or de facto methods used in postwar censuses.

8. For further details and references, compare the census instructions available at <http://www.ipums.org/usa/voliii/tEnumInstr.html>.

9. The 1990 census instructions told respondents to include children in

boarding schools below college level.

10. I am grateful to Matthew Woollard (n.d.) for his most useful information about the rulings of the statistical congresses; and also for the example from the 1881 census for the Punjab, *Report on the Census of British India, taken on the 17th February 1881*, vol. 1, London, Her Majesty's Stationery Office, 1883. Compare <http://www.chaf.lib.latrobe.edu.au/dcd/census1881.htm>; click "browse" and go to page 5.

11. Further information is available at <http://www.rhd.uit.no/census/ft1875instruks.htm#Schema%20A>.

12. The complete 1910 census for Norway is being digitized to be released no later than 2010.

13. See also <http://www.rhd.uit.no/dok/kommuner.html> and <http://ipums.org/usa/pethnicity/bpldb.html>.

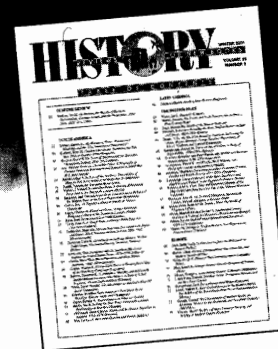
14. The map is based on the *Handbooks of National Population Censuses* (see Goyer and Domschke 1983; Domschke and Goyer 1986; Goyer and Draaijer 1992), and it may therefore sometimes represent enumeration methodology in the published aggregates rather than in the microdata. For Latin America, see CELADE (1999), available online at <http://www.eclac.cl/publicaciones/DocumentosPublicaciones/4/lcl1204/lcl1204a.pdf>.

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