

Population & Societies

Demography and its vocabulary over the centuries: a digital exploration

François Héran*

When did the vocabulary of demography first enter common usage? What are the most frequently cited indicators? How was concern about depopulation gradually replaced by fears of population explosion? How have perceptions of immigration evolved? We can now explore these questions thanks to *Ngram Viewer*, a tool that detects how frequently different words or phrases occur in the millions of books digitized by Google.

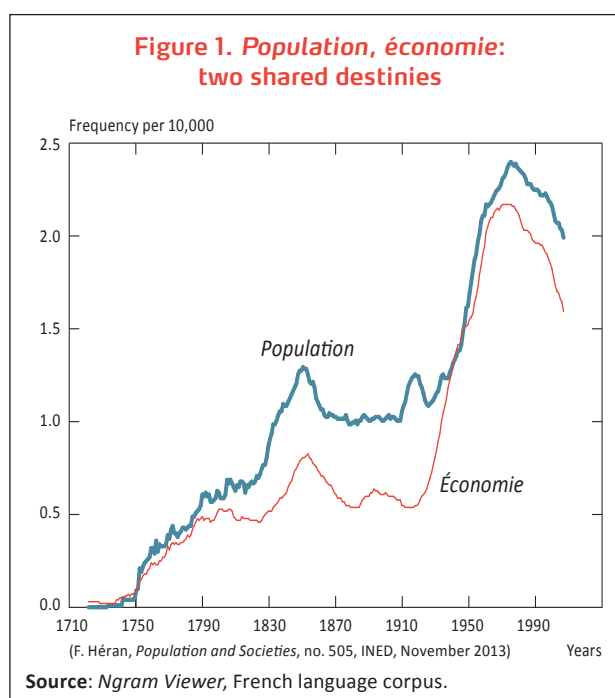
Some 20 million books printed over the last three centuries have been digitized by Google, and this gigantic database can now be explored using *Ngram Viewer* (Box), a highly versatile search tool. We have used it here to reveal the way in which ideas on population have evolved over time.

Démographie, a slow rise in popularity

As early as 1615, Montchrétien spoke about *oeconomie politique* [2] and the word *población* was already well-established in Spain.[3] But these first few swallows do not make a summer. *Ngram Viewer* shows that *population* and *économie* became visible simultaneously in French in around 1750, when the notion of government under general laws (Figure 1) was taking hold. The word “population” then spread to England. The term found renewed popularity in France during the Restoration, when Malthus became a topical issue, but then stagnated for a century. It was revived – both literally and metaphorically – with the baby boom.

First coined in 1850,[4] the word *démographie* gained vigour after the Franco-Prussian War of 1870 (Figure 2), but it was with the pro-birth movement of the inter-war years that its usage truly soared. The word *démographique* likewise.

These terms are less well anchored in English usage. “Population studies” has not really caught on, and the quest for visibility has followed a different route. Since 1990, the word “demography” has been overtaken in the United States by “demographics”, a marketing term whose popularity reflects the vast market for local population data.

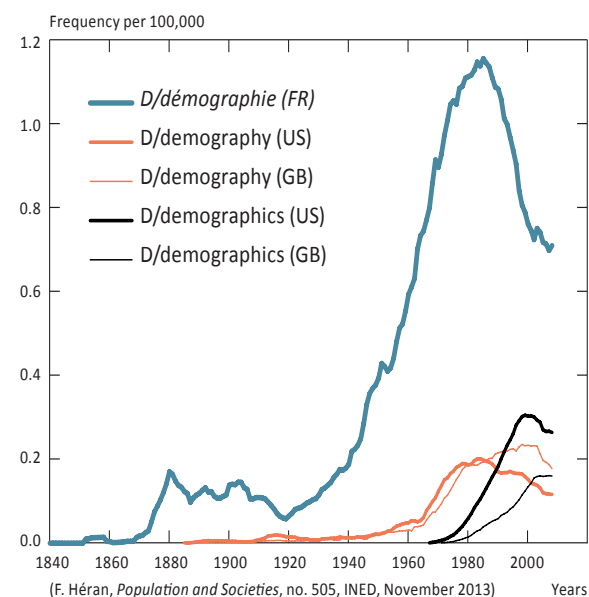


From depopulation to overpopulation

The history of population questions is a history of obsessions. In the mid-eighteenth century, critics of the French monarchy pointed up the dangers of *dépopulation* (very rarely *dépeuplement*), perceived as a sign of “poor government” (Figure 3). But the statistics of population

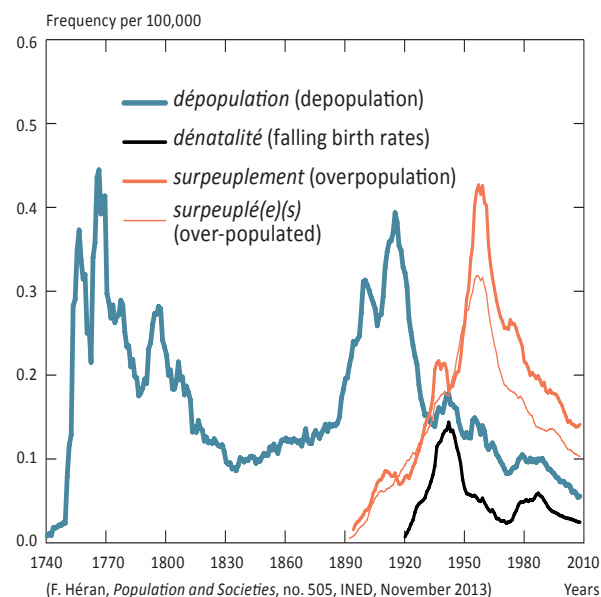
*Institut national d'études démographiques.

Figure 2. Démographie: a French product of the interwar years



Source: Ngram Viewer, French and English language corpora.

Figure 3. Dépopulation, dénatalité, surpeuplement: shifting anxieties



Source: Ngram Viewer, French language corpus.

Box. Ngram Viewer, a free web tool

Developed by the mathematicians Jean-Baptiste Michel and Erez Aiden, [1] *Ngram Viewer* is freely available at <http://books.google.com/ngrams>. It can be used to search eight corpora of books: British English, American English, French, German, Spanish, Italian, Russian, Hebrew and Chinese.

To use *Ngram Viewer*, you simply enter the word or phrase that interests you (five words at most) and select the period, from the sixteenth century to the present day. A graph then appears, showing how frequently the phrase occurred, among phrases of the same length, in each year of the period. A very useful grammatical code is associated with each term to distinguish between different forms of a word: "forecast", for example, can be searched as a noun or as a verb.

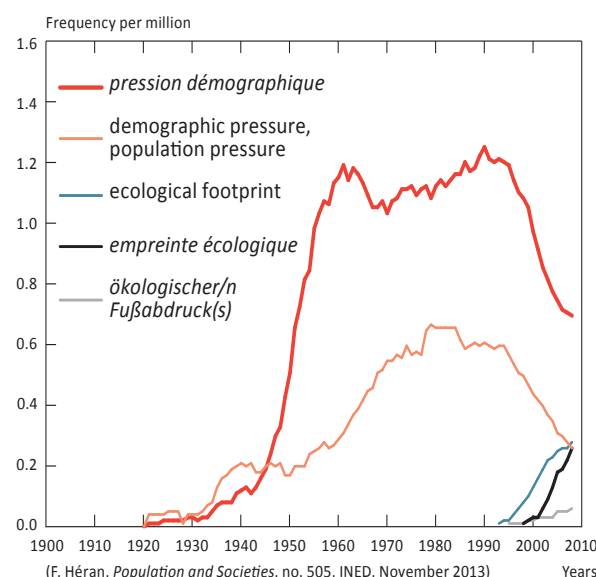
Ngram Viewer is also case-sensitive (upper/lower case), and can search for inflections such as plurals and declensions. An upgraded version became available in mid-October, making it possible to merge all these options in a single request and to explore the words preceding or following the initial phrase.

Two limitations should be mentioned however. First, the number of pre-eighteenth century books is small, so findings for this period are unreliable. Second, and above all, little information is available about the genre of the works. Apart from fiction in English, the type of book (thesis, essay, novel, etc.) is not coded.

change, instituted in 1772 and followed in 1778 by the publication of Moheau's population counts, prove this accusation to be unfounded. The population was in fact growing at that time. [6]

Fear of depopulation reared its head again under the Third Republic, when the demographic vitality of Germany was seen as a threat to France. So why did the

Figure 4. Population-environment: a change of focus

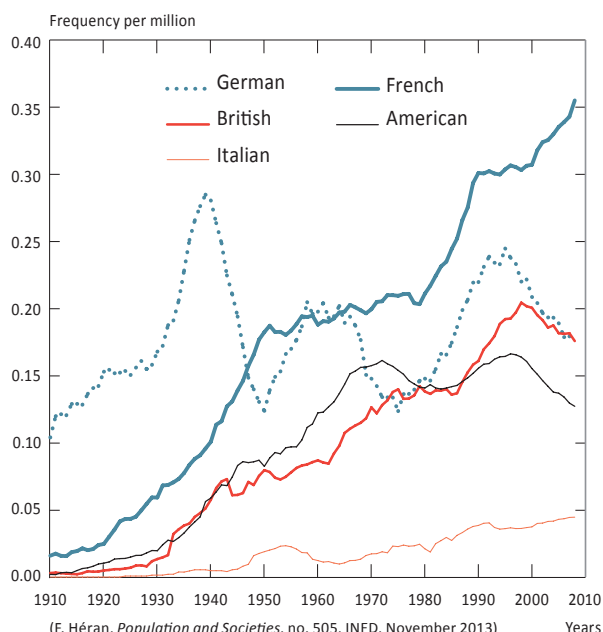


Source: Ngram Viewer, French, English and German language corpora.

occurrences of *dépopulation* fall in number between the wars? Because the word was overtaken by *dénatalité*, a more scholarly term that served to bolster the arguments of the pro-birth movement. Its use peaked with Vichy, then waned as the baby boom took hold.

But *idées fixes* are themselves subject to change. With the persistence of the baby boom (a journalistic term that was slow to appear in the scholarly literature) and, above all, exponential growth in the Third World, the population question was cast in a whole new light. In

Figure 5. Mass immigration: a recurring theme with a wider echo in France



Source: Ngram Viewer, corpus in 5 languages.

Expressions:

immigration en/de masse / massive [France],
mass/massive immigration [Great-Britain],
mass/massive immigration [United States],
massive/ Masseneinwanderung [Germany],
immigrazione massiva / di massa [Italy].

1957, to the stupefaction of all, the United Nations forecast a world population of 6 billion by 2000. First coined in the United Kingdom and the United States in 1913, “birth control” became a buzzword in the 1950s, followed by family planning and *planning familial* in 1958. It was not until 1965 that *contraceptif* and *contraception* made their entry into the French language.

However, the key concept in English, whose occurrence enjoyed steady growth from 1920 to 1975, was far and away that of “population growth”. Its French equivalent *croissance de la population* followed a parallel trajectory, but with a frequency three times lower. Both fell out of favour after 1975, and *optimum de population* suffered a similar fate. The quest for an optimum population reached its height in the 1950s, as did the renown of its promoter, Alfred Sauvy. The word *optimum* has now disappeared from the French demographic vocabulary.

Emerging themes now concern the environment, with terms such as “population pressure” and “ecological footprint” (Figure 4). However, like Ansley Coale in his rebuttal of Paul Ehrlich, [7] demographers are wary of environmentalists who give too much weight to population numbers and not enough to modes of consumption. Shifting from a demographic standpoint in the 1960 and 1970s, the vocabulary of overpopulation now has an environmental ring.

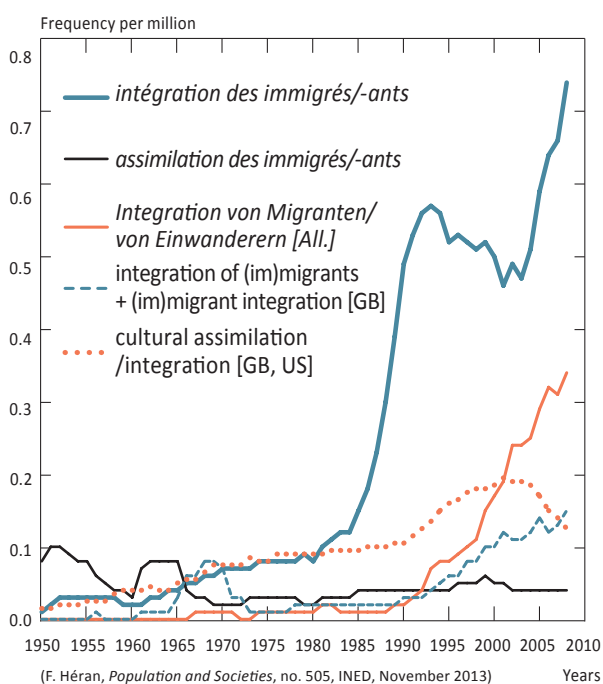
Immigration: inventing integration

Occurrences of the terms *immigration* and *solde migratoire* (net migration) have increased steadily in French publications, quadrupling in frequency since 1960 while their equivalents in other languages have merely doubled. Every country appears convinced that inflows have reached unprecedented levels, with the terms “mass immigration” then “mass” and “massive immigration” progressing in all corpora since 1930, but in France more than elsewhere, and quite independently of actual migration flows (Figure 5).

France had no equivalent for “cultural integration” or “cultural assimilation”, used moderately by the English-speaking world from the 1920s and considered as synonymous (Figure 6). *Assimilation des immigrés* made a tentative incursion after the war but had fallen out of favour by 1966. *Integration des immigrés*, for its part, emerged in the 1980s and was taken up discreetly by the English-speaking world. It was mainly in Germany that the French idea of integration gained popularity from the 1990s.

The 1980s in France were a pivotal period, marked by the emergence of the far-right Front National. *Droit du sol* (jus soli), *droit du sang* (jus sanguinis), *demande d’asile* (asylum seeking), *immigration clandestine* (illegal immigration) and more, all entered common parlance

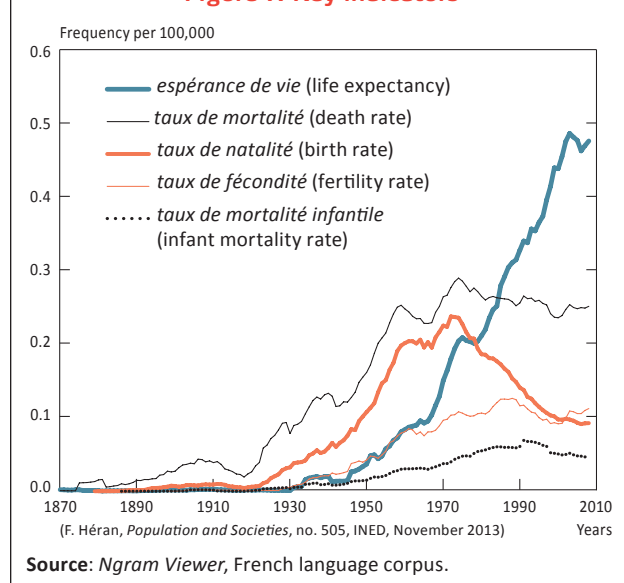
Figure 6. Immigrant integration: a very French concept that finds an echo in Germany



Source: Ngram Viewer, French, English and German language corpora.

Note: The curves of “cultural assimilation” and “cultural integration” are very similar and have been merged.

Figure 7. Key indicators



within a short few years. In parallel, between 1975 and 2005, changes in French law that affected the status of migrants brought new terms into the limelight: mention of the *principe d'égalité* (principle of equality) increased three-fold, and that of *droits de l'homme* (human rights) four-fold, while *lien social* (social cohesion) overtook *contrat social* and *pacte social*. In the 2000s the French corpus remains haunted by Islam, as testified by the rapid rise of *voile islamique* (Islamic headscarf), *burka* and *halal*.

Life expectancy shoots up

Finally, let us look at the various demographic indicators. In France as in the UK, “rates” appear between 1875 and 1930, but do not become truly established before the 1920s (Figure 7). “Death rate” hovers slightly above “birth rate”, and the same is true for their French equivalents, *taux de mortalité* and *taux de natalité*. Since 2000, the latter has been overtaken by *taux de fécondité* (fertility rate) appreciated by demographers for its precision. Likewise, *espérance de vie* (life expectancy) has replaced *taux de mortalité* (death rate) as the most cited demographic indicator. But this shift is hardly a surprise – an expectancy sounds so much better than a rate! *Vieillesse démographique* (population ageing) emerged in France after WWII, but did not really take off until 1975. As for *retraités* (retirees), their presence in French publications has quadrupled since the War. Another sign of the times, the Anglicism *intergénérationnel* has overtaken *entre générations* (between generations) and *entre les générations* (between the generations) since 2005.

However powerful it may be, Ngram Viewer is to history what an aerial photograph is to archaeology: a

superficial detection tool that identifies landmarks for further exploration. The history of concepts cannot dispense with in-depth study of the texts. [3, 8] Lexicometry gives pointers, but cannot replace scholarly analysis. Applied on this scale, it nonetheless serves to broaden our horizons. Applied to population questions, it challenges our propensity to assume that commonly accepted notions and realities have always existed, when in fact the history of our representations is one of change and discontinuity.

References

- [1] Michel J.-B. et al., the Google Books Team, 2011, Quantitative analysis of culture using millions of digitized books, *Science*, 14 Jan., vol. 331, no. 6014, pp. 176-182.
- [2] Perrot J.-C. 1992, *Une histoire intellectuelle de l'économie politique*, Paris, EHESS, 496 p.
- [3] Théré C., Rohrbasser J.-M., 2011, L'entrée en usage du mot « population » au milieu du XVIIIe siècle, in L. Charles, F. Lefebvre et C. Théré (eds.), *Le cercle de Vincent de Gournay*, Paris, INED, pp. 133-160.
- [4] Guillard A., 2013 [1855], *Éléments de statistique humaine ou démographie comparée*, presented by J. M. Rohrbasser and J. Véron, Paris, INED, 376 p.
- [5] Rosental P.-A., 2003, *L'Intelligence démographique : sciences et politiques des populations en France (1930-1960)*, Paris, Odile Jacob, 368 p.
- [6] Moheau, 1994 [1778], *Recherches et considérations sur la population de la France*, new edition, É. Vilquin, Paris, INED, 563 p.
- [7] Véron J., 2013, *Démographie et écologie*, Paris, La Découverte, coll. Repères, 115 p.
- [8] Dufoix S., 2012, *La Dispersion : une histoire des usages du mot diaspora*, Paris, Éd. Amsterdam, 576 p.

Abstract

Our ideas about population have varied continuously over the centuries, as illustrated in the vocabulary changes detected by Ngram Viewer in the vast corpus of books digitized by Google. For example, the French word *démographie*, first coined in 1855, did not take off until after the Great War, in response to falling birth rates, as expressed by the term *dénatalité*. The 1960s were haunted by the threat of *surpeuplement* (overpopulation). *Assimilation des immigrés* (immigrant assimilation) has never really been a central concept in France, unlike *intégration des immigrés* (immigrant integration), which gained popularity in the 1980s. *Espérance de vie* (life expectancy) is gaining ground and has overtaken *taux de fécondité* (fertility rate). Far from being certain and unchanging, our vision of population questions is marked by frequent discontinuities, the most recent dating from the 1980s.