# HERBERT SPENCER: THE UNRECOGNIZED FATHER OF THE THEORY OF DEMOGRAPHIC TRANSITION

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*It is believed that the central idea of the theory of the demographic transition from an equilibrium of high to an equilibrium of low mortality and fertility was formed and became generally recognized in the middle of the twentieth century. The article shows that this idea was developed by Herbert Spencer a hundred years before, although modern demographic transition theorists never refer to him as their predecessor. The main task of the article is to bring Spencer's arguments to the current debate about the present and the future of fertility, based on the premise that these arguments not only are not outdated, but are even today largely ahead of our time. The article does not deny Spencer's misconceptions about the mechanism of fertility decline in human society, but as to the causes of this decline, the higher level of generalization inherent in Spencer's scientific worldview predetermined an understanding of these causes deeper than that developed by modern theoretical demographers.*

***Key words**: Spencer, demographic transition, mortality, fertility, ability to maintain life, ability to multiply, antagonism of reproduction and individualization, law of maintenance of races, equilibrium, causes of fertility decline, pro-natalist policy.*

As the famous Italian scientist and statesman Francesco Nitti claimed in the late nineteenth century, "Herbert Spencer only has the merit of being the first to formulate a broad sociological theory of the population, a theory which, though we do not accept it without completion and modification, is still, in the history of theories on population, a marvelous monument of the acumen and perspicacity of the great English sociologist "(Nitti 1894: 56-57).

Such a high estimation of Spencer's contribution to population theory contrasts sharply with the place that historians of demographic thought assign to him today. In a multi-volume compendium on demography, in a chapter on the history of demographic thought, out of 65 pages Spencer is given less than 6 lines - among other supporters of the disreputable "biological approach" (Vilquin 2006: 21).

Meanwhile, Spencer's views deserve much more attention from demographers, and not as a historical relic, but as a set of ideas far ahead of their time and capable of occupying an important place in modern demographic theory. This is especially true when it comes to the theoretical comprehension of what is almost the main problem of theoretical demography today - the problem of low fertility.

Spencer once remarked that "inquiring into the pedigree of an idea is not a bad means of evaluating its value" (Spencer 1891a: 108). The main explanatory construction on which the scientific interpretation of modern demographic processes rests has long been the theory of the "demographic revolution" or "demographic transition". It too has its own pedigree, of which, as I try to show in this article, Spencer's views are an important, but, unfortunately, undervalued part.

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The concept of demographic transition has grown, above all, from the desire to comprehend the nature of low fertility, a relatively new phenomenon that made itself felt for the first time in the nineteenth century, initially in France and later in other countries of European culture. The formation of this concept is usually dated to the first half of the twentieth century. Its pioneers are considered to be the Frenchman Adolph Landry and the American Warren Thompson, and its definitive formulation is associated with the name of Frank Notestein and his colleagues, who worked at Princeton in the 1940s-1950s. J. Caldwell believed that "modern demographic transition theory was born almost in mature form in a paper written by Frank Notestein in 1945" (Caldwell, 1976: 323). As for me, I think that the basic ideas of the concept of the demographic transition were formulated by Spencer a hundred years before Notestein and, most importantly, at a higher level of generalization. Meanwhile, the name of Spencer is not mentioned by theorists of the demographic transition, is never found even in thick books devoted to this important historical process (see, for example, Chesnais 1992, Caldwell 2006).

According to the views of the Princeton demographers, as formulated by F. Notestein in 1945, "the whole process of modernization in Europe and Europe overseas brought rising levels of living, new controls over disease, and reduced mortality," while fertility remained high, which led to rapid population growth. But by the end of the interwar period fertility in European countries had dropped even below the replacement level corresponding to the new level of mortality, while other countries had "scarcely begun their demographic transition" (Notestein 1945: 40-42), and "there is no reason that the writer knows for assuming that other regions can achieve their demographic transition without an analogous period of rapid population increase". Nevertheless, this period would be transient, because "the control of mortality without the control of fertility is impossible", and "fertility is to fall substantially to bring in sight the end of the epoch of growth." (Ibid.: 57).

It was then that the term "demographic transition" first appeared, in the title of an article whose author, K. Davis, had developed the same ideas as Notestein (Davis 1945). The industrial revolution and the changes that accompanied it had led to a rapid decline in mortality, followed by a decline in fertility and, ultimately, the establishment of a "new demographic balance." But as the decline in fertility lagged behind the decline in mortality, a gap appeared between them, which led to a huge increase in the European population. This stage turned out to be temporary, the decrease in fertility "catching up with" and sometimes even "overtaking" the decrease in mortality, so that the population in the countries of Western Europe again stabilized or began to decrease. But as the decline in mortality had now spread to countries of non-European culture, the demographic explosion shifted there too, due to the lag between declining mortality and fertility. However, here again this lag is a temporary phenomenon, and "it seems likely, then, that the next century will see the peak of the world's population growth reached and the new demographic balance spread throughout the world" (Davis 1945: 11).

All these ideas, generated by the attempt to understand the European and global demographic situation of the middle and second half of the twentieth century, seemed very new, yet here is what Herbert Spencer wrote almost a hundred years before, in the middle of the nineteenth century, when this situation did not exist, before even the word "Demography" had been coined.

“Evidently, so long as the fertility of the race is more than sufficient to balance the diminution by deaths, population must continue to increase... Hence, the change can never cease until the rate of multiplication is just equal to the rate of mortality; that is—can never cease until, on the average, each pair brings to maturity but two children” (Spencer 1852: 500). (In a later formulation: “until, on the average, each pair has as many children as are requisite to produce another generation of child-bearing adults, equal in number to the last generation” (Spencer 1891b: 504). In the very last formulation, it is a matter of “approaching an equilibrium between his nature and the ever-varying circumstances of his inorganic environment, and in approaching an equilibrium between his nature and all of the requirements of the social state, Man is at the same time approaching that lowest limit of fertility at which the equilibrium of population is maintained by the addition of as many infants as there are subtractions by death in old age” (Spencer 1910: 538)).

"Probably this involves that *each pair will rarely produce more than two offspring* (my emphasis, AV); seeing that with the greatly-increased ability to preserve life, which the hypothesis presupposes, the amount of infant and juvenile mortality must become very small” (Spencer 1852: 501). This conclusion of 1852 was also somewhat reformulated subsequently. “Though the number of premature deaths may ultimately become very small, it can never become so small as to allow the average number of offspring from each pair to fall so low as two. Some average number between two and three may be inferred as the limit—a number, however, which is not likely to be quite constant, but may be expected at one time to increase somewhat and afterwards to decrease somewhat, according as variations in physical and social conditions lower or raise the cost of self-preservation” (Spencer 1910: 535).

As we can see, Spencer's assessment of the level to which fertility may drop changed somewhat (although not fundamentally). But the general idea of the inevitability of a transition from an equilibrium of high mortality and high fertility to an equilibrium of low mortality and low fertility, that is, what is now understood as the "demographic transition", is expressed quite clearly.

This transition includes the most diverse aspects of changes in demographic reality, and, as a rule, quite important ones. They all draw the attention of theoretical demographers. But perhaps the most difficult have always been issues related to the understanding, interpretation and forecasting of fertility trends. In the most general form, they come down to two fundamental and interrelated issues, one concerning the *causes* of the decline in fertility, the other the *limits* of such a decline.

Spencer gave his own answers to both questions, but in this article only the first of them is considered – Spencer’s explanation of the *causes* of the decrease in fertility he predicted. His explanation, it seems to me, not only has not lost its significance, but can compete quite successfully with most of today's explanations of the decline in fertility in the process of demographic transition.

The second question is no less important, but requires separate consideration.

## THE CAUSE OF THE DECLINE IN FERTILITY ACCORDING TO SPENCER

As D. van de Kaa rightly noted, the assertion that modern demographic transitions (he speaks of two transitions – the "first" and the "second") should be viewed as the result of social changes is a truism. Obviously, “at the heart of the matter can be nothing else than changes in the structure, culture, and technology of the societies experiencing the transitions. But what, precisely, is it that generated the demographic changes? What were the crucial factors involved?” (van de Kaa 2010).

Van de Kaa tried to catalog the available answers to these questions and came to the conclusion that there is a huge number of "anchored narratives" explaining the transition from different positions and pointing to different "factors" and "determinants" of declining fertility which, while not contradicting reality, do not add up to a general explanation. In this regard, he recalls the famous film of Akiro Kurosawa, "Rashomon", in which different people set out different versions of the same event they had observed.

More general narratives break up into sub-narratives, so that "the quest for the determinants of fertility behavior and change during the last half-century can best be interpreted as the development of a series of sub-narratives from different disciplinary perspectives and orientations" (van de Kaa 1996: 389). Van de Kaa does not deny the utility of a large number of sub-narratives for understanding specific features of place and time, but believes that it "is unlikely to be so in the search for the 'true' or 'fundamental' driving forces behind the transition" (Ibid.).

Many narratives have a hierarchical structure, and there is a connection between their place in the hierarchy and the degree of generalization contained in them: the higher the place, the higher the potential of generalization. "The extremes obviously lie between a choice for a very general explanation of levels and changes of fertility in terms of technology / biology, structure and culture, and a very specific explanation for a particular occurrence in a small area, where the effects of path-dependency and institutional change may well dominate" (Ibid: 429).

As concerns the highest levels of generalization, those claiming a greater or lesser universality in the explanation of the transition to low fertility, modern theoretical demographers, for the most part, associate this transition with the universal processes of "modernization" or "westernization," with the industrial revolution, industrialization, urbanization, the growth of education (including of women), the spread of wage labor, "post-materialistic values," the growth of gender equality and so forth. The observed facts universally confirm the existence of such links, which, as the researchers believe, proves that the decline in fertility was caused by all the above-mentioned social and economic processes. But how could Spencer come to the conclusion that “each pair will rarely produce more than two offspring” at a time when the social processes just listed – and not all of them at that - had barely taken shape?

The answer lies in the fact that the level of generalization of Spencer's "narrative" was the highest of all possible ones, and the conclusion he obtained did not need any sub-narratives.

Spencer's article "A Theory of Population, deduced from the General Law of Animal Fertility" (Spencer 1852), which formulates this conclusion, indicates already by its name that it relies less on the experience of human society than on that of nature. The article was published seven years before the appearance of Darwin's *Origin of Species*, but it clearly expresses the idea of the evolution of life forms from the simplest to the human, and accordingly, the evolution of

two inseparable fundamental functions of any of these forms: the reproduction of the species and the development of the individual. These functions are always in inverse relationship. In Spencer's terms, this is the "antagonism between individuation and reproduction". "When, from lowness of organization, the ability to contend with external dangers is small, there must be great fertility to compensate for the consequent mortality; otherwise the race must die out. When, on the contrary, high endowments give much capacity to self-preservation, there needs a correspondingly low fertility" (Spencer 1852: 476).

In this coordinate system, Spencer considers the processes of reproduction not only in nature, but also in society. The basic idea is that in the simplest organisms the processes of vital activity and reproduction are not differentiated; reproduction is the goal of life activity, and with it life ends. As the forms of life become more complex, reproduction becomes a separate function and occupies an ever-decreasing place in life activity, making room for the development of other specialized functions, and hence for the improvement of individual organisms.

Building on these considerations, Spencer came to profound generalizations concerning the relationship and development of all living things, and formulated his "axiomatic" law of maintenance of races. "Whilst any race continues to exist, the forces destructive of it and the forces preservative of it must perpetually tend towards equilibrium. If the forces destructive of it decrease, the race must gradually become more numerous, until, either from lack of food or from increase of enemies, the destroying forces again balance the preserving forces. If, reversely, the forces destructive of it increase, then the race must diminish, until, either from its food becoming relatively more abundant, or from its enemies dying of hunger, the destroying forces sink to the level of the preserving forces. Should the destroying forces be of a kind that cannot be thus met (as great change of climate), the race, by becoming extinct, is removed out of the category. Hence this is necessarily the law of maintenance of all races; seeing that when they cease to conform to it they cease to be" (Ibid: 475).

Although social life for Spencer is not the same as biological, it too is subject to general "laws of organization" including the law of maintenance of races. This law, according to Spencer, holds true for man, too.

The logic of his reasoning, at first glance, resembles the logic of Malthus, but in fact is very different. The difference is already in the starting point. Malthus proceeded from the fact that throughout the entire period of human existence mortality had not changed. "It may be fairly doubted whether there is really the smallest perceptible advance in the natural duration of human life since first we have had any authentic history of man". "With regard to the duration of human life, there does not appear to have existed from the earliest ages of the world to the present moment the smallest permanent symptom or indication of increasing prolongation" (Malthus 1998: III.1.14, III.1.18).This gives the population law of Malthus an extra-historical character. The population always grows faster than the means of subsistence, which, in fact, makes high mortality inevitable. His calls for a decrease in fertility are not tied to any historical changes, but are a universal recipe for all times.

For Spencer, this is not right, or in any case not quite right. For him the law of maintenance of races is a historical law because in society as well as in nature the ability to multiply is antagonistic to the ability to maintain individual life, and with the development of society, these

abilities vary inversely, so that due to the universality of laws of organization the contradiction between the reproduction of the species and the development of the individual at each new stage of evolution is resolved in an increasingly effective way (i.e., increasingly in favor of the *development* of the individual). “On the whole, civilization increases the ability to maintain life”, and “increased ability to maintain life in this case, as in all others, necessarily involves decreased ability to multiply” (Spencer 1852: 496) – and in the long run a decline in fertility.

What is important is that Spencer needs no "narratives" to explain the decline in fertility, no reference to *specific determinants or factors* of this decline. It is simply a manifestation of the *a priori* "law of maintenance of races", which initially assumes a dynamic equilibrium of "destructive" and "preservative" forces to which any living being is exposed. Spencer derived this law by generalizing the facts known to him about the evolution of life on Earth, and if we agree with this generalization, then we cannot ask *why* life is arranged just so, just as we cannot ask *why* two times two is always four. The existence of this objective law is the only *cause* of the decline in fertility. The antagonism of reproduction and individualization not only fully corresponds to the *a priori* law of maintenance of races, which is true for all "from monad to man", but, constantly evolving and taking on new forms, ultimately “ensures the final attainment of the highest form of this maintenance—a form in which the amount of life shall be the greatest possible, and the births and deaths the fewest possible” (Ibid: 475).

## THE MECHANISM OF FERTILITY DECLINE ACCORDING TO SPENCER

If anything needs an explanation, it is not the *cause* of the decline in fertility, but its *mechanism*. Not *why*, but *how* there is a decrease in fertility, when it is required to maintain the necessary balance - that is the question Spencer is also trying to answer. What happens to a human being’s ability to reproduce when his ability to preserve life increases?

The chain of reasoning Spencer traces is as follows. A decline in mortality makes the former fertility excessive, and "excess of fertility entails a constant pressure of population upon the means of subsistence" (Ibid: 498). The growing pressure of the surplus population creates incentives for the development of production, education and science, generates "an increasing demand for skill, intelligence, and self-control" (Ibid.). “The contrast between a Pacific Islander, all whose wants are supplied by Nature, and an Englishman, who, generation after generation, has had to bring to the satisfaction of his wants ever-increasing knowledge and skill, illustrates at once the need for, and the effects of, such discipline. And this being admitted, it cannot be denied that a further continuance of such discipline, possibly under a yet more intense form, must produce a further progress in the same direction—a further enlargement of the nervous centres, and a further decline of fertility” (Ibid.: 499). Spencer understands "enlargement of the nervous centers" *ad litteram*, in the physiological sense, and to prove his idea even makes a comparison of brain sizes in representatives of "more civilized" and "less civilized" races. All of Spencer's arguments are essentially a continuation of his reflections on the fact that "throughout the vertebrate tribes the degree of fertility varies inversely as the development of the nervous system" (Ibid.: 493), "the ability to maintain individual life *is in all cases measured by the development of the nervous system”,* so that "if the nervous system varies directly as the ability to maintain life, it *must* vary inversely as the ability to multiply"( Ibid.: 496).

Today, hardly anyone thinks that the now widespread low fertility is explained by people's lowered physiological fecundity and an appeal to the capabilities of the nervous system of the human body suggests exactly this explanation. Perhaps this is why Spencer is labelled "a representative of the biological approach" and pushed to a distant shelf of the museum of the history of demographic thought.

But while one can agree that Spencer's explanation of the *mechanism* of the fertility decline does not stand up to criticism and has been forgotten for good reason[1], his explanation for the *causes* of this decline is another matter. It's too early to send him off to the museum.

## "SPENCER'S LINE" IN MODERN DEMOGRAPHIC THEORY

According to Spencer, a decrease in fertility is a legitimate response to an "increased ability to maintain life", i.e. to reduce mortality. Now the connection between decreasing fertility and decreasing mortality is obvious, but it was not realized right away, just like the very fact of a steady decline in mortality - a phenomenon that only manifested itself in the nineteenth century. According to Chesnais, already in the mid-nineteenth century this connection drew the attention of the inventor of the word "demography", Achille Guillard, so that even then "the idea of the mechanism of the transition was thus already germinating" (Chesnais 1992: 3). Curiously, Chesnais does not mention Spencer, who had expressed this very idea with great clarity. But on the whole, ideas about fertility and mortality trends and their connection with each other remained for a long time quite vague.

As, for example, Nitti wrote at the end of the nineteenth century, "The increase of the German birth-rate has assumed the form and dimensions of real overpopulation (Übervölkerung) during the last past century, but still more so during the last twenty years. <…> The masses of people have become improvident, and have abandoned themselves by reason of an inevitable and fatal necessity to an abundant and disordered multiplication" (Nitti 1894: 40-41). Nitti was referring to German authors. Meanwhile, there was no growth in the birth rate in Germany in the second half of the nineteenth century. On the contrary, the birth rate was decreasing, but the mortality rate was decreasing even faster, which caused the acceleration of population growth (Figure 1). In the early twentieth century, when there was greater awareness of the demographic changes, "authors such as Wolf (Wolf 1912), analysing possible causes of the decline in German fertility, focused, in the first place, on improved trends in mortality" (Chesnais 1992: 3).

[1]However, here too it is necessary to make serious qualifications, in a certain sense rehabilitating Spencer. Although the main mechanism for reducing fertility in all developed countries has undoubtedly become a socially determined "birth control", researchers also note a significant decrease in physiological fertility in all countries that have made the demographic transition. In particular, recently a group of researchers from different countries, having carried out a meta-analysis of several thousand English-language publications from 1981–2013, concluded that the number of spermatozoa in the male sperm was systematically declining: It «declined significantly among men from North America, Europe and Australia during 1973–2011, with a 50–60% decline among men unselected by fertility, with no evidence of a 'leveling off' in recent years» [Levine et al. 2017: 654].

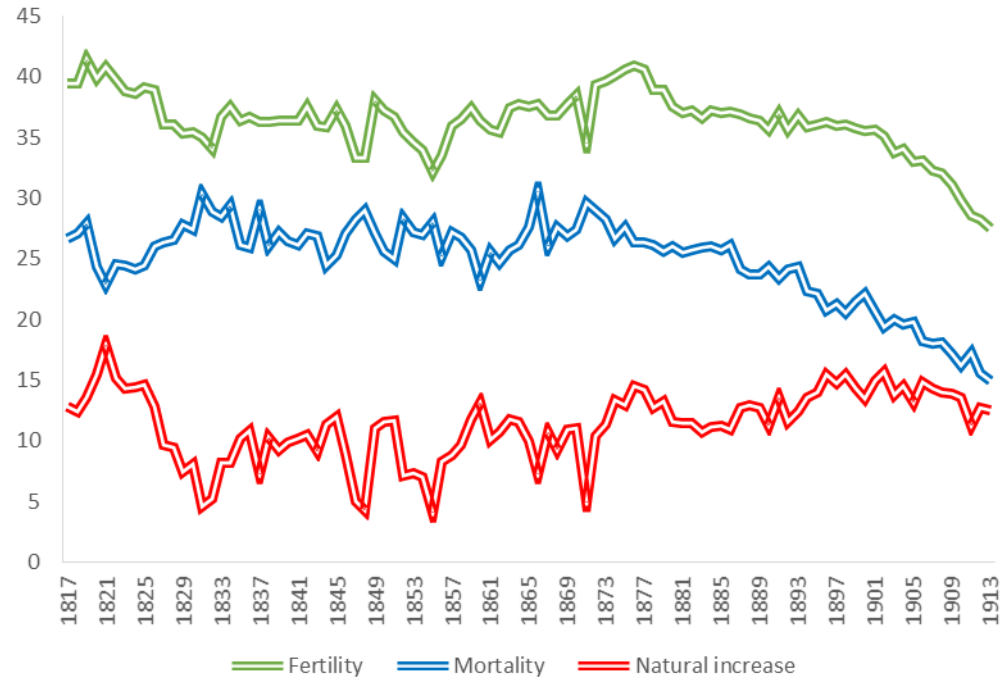


**Figure 1. Fertility, mortality and natural population increase in Germany, 1817-1913, ‰**

*Source: (Chesnais 1992, Appendices 1, 3).*

By the middle of the twentieth century, the dependence of the decline in fertility on the decline in mortality had become widely recognized. The transition from an equilibrium of high mortality and high fertility to an equilibrium with a low level of both is the main postulate of the concept of the demographic transition (demographic revolution), which ever since has been central to theoretical demography. This transition was recognized as an essential element of progress, because the new balance between fertility and mortality, "a balance less wasteful than the old" (Davis 1945: 1), had led to a sharp increase in the effectiveness of demographic and therefore all social reproduction. “The new type of demographic balance released a great amount of energy from the eternal chain of reproduction – energy that could be spent on other aspects of life” and thus signified an “astounding gain in human efficiency” (Ibid: 5). I do not know whether Kingsley Davis was familiar with Spencer's ideas, but the quoted words fully correspond to the latter's ideas about the historical development of the antagonism between reproduction and individualization and a change in their balance in favor of individualization.

## DEVIATION FROM "SPENCER'S LINE" IN MODERN DEMOGRAPHIC THEORY

It would seem that the issue of lower mortality as the cause of the huge decline in fertility – from the traditional 6-8 or even more births per woman to the current 1-3 – is absolutely clear. Nonetheless, since the times of Landry there has existed – and it is much more widespread today – another approach, whose supporters, while not denying the significance of the decline in mortality, still consider it insufficient to explain the decline in fertility. "In the past, <...> births in the family could be numerous: so many children died that large families were far from frequent; today, with such fertility, large families would become the rule. But can this explain the decline in

fertility? Is it enough to argue that unfettered reproduction has now spawned not only a relatively low risk of greater family spending, but the probability of such a great strain that it would result in reproductive restraint? This appears not to be the case" (Landry 1982: 37-38). "Another explanation must therefore be sought" (Ibid: 39). Landry insistently stressed the insignificance of the effect of declining mortality. "It is commonly believed that it is possible to compensate for the effects of declining fertility with reductions in mortality. This idea is incorrect… What we can gain through mortality decline for reproduction – the most fundamental demographic factor – is limited, and quite severely so" (Landry 1987: 739-740).

It cannot be said that Landry's line of reasoning looks convincingly grounded, but more than one generation of demographers have followed precisely his logic, which in itself seems strange. Demographers are well aware of a decline in mortality as a prerequisite for a decline in fertility. But while most of them share the idea of a demographic revolution as a transition from one type of equilibrium to another, at the same time they consider the objective necessity of a new demographic balance to be an insufficient basis for the establishment of this equilibrium in all modern societies. Following Landry's advice, they are looking for "another explanation" of the fall in fertility, for causes not directly related to a decrease in mortality. As D. Kirk points out, "while mortality decline is usually cited as the *raison d'être* for fertility decline, it is not often accorded a primary place as a cause of fertility decline" (Kirk 1996: 368). Apparently, he considers this to be justified, as much of his article is devoted to discussing various lines of the "search for causality" of decreasing fertility. Van de Kaa, recognizing that "mortality decline plays a central role in explaining the FDT (first demographic transition)", immediately notes that "mortality is not the sole causal agent of fertility decline. Both mortality and fertility decline are likely to be responses to broad changes in society, such as improvements in standard of living, increased urbanization, rising aspirations and so on" (van de Kaa 2010).

In the hierarchical scheme of explanatory narratives proposed by van de Kaa, the narrative of declining mortality, paradoxically, not only does not hold a central place, but is among the many narratives of the lowest, third level, while at the upper level are found technological, structural and cultural determinants of fertility and its changes associated with social changes, modernization or westernization (van de Kaa 1996: 401).

This paradox may be due to the inertia of the scientific thinking of demographers who have so far failed to free themselves from the ideological burden of the eighteenth and nineteenth centuries, when questions about population size and growth were discussed mainly in economic literature and viewed, for the most part, through the prism of economic relations and interests. The entire nineteenth century was spent in disputes between supporters and opponents of Malthus, conducted in terms of the ratio of the number of people and the quantity of the means of subsistence. To explain the processes that we now call "demographic" meant, first of all, to link them with some non-demographic, most often economic, determinants.

As Hodgson assumes, by 1900 the causal relationships between fertility and socio-economic factors, in particular those such as the standard of living, social class and urban residence, were considered empirically established (Hodgson 1983: 5). These relationships have always been understood in the same way: such factors were assigned an active role, people's

procreative behavior was seen as a passive result of their impact, and the level of fertility as a "dependent variable".

Subsequent generalizations Hodgson, like many others, connects with the development of the theory of demographic transition as it had taken shape by the middle of the twentieth century. One of its main claims was that, as agrarian rural societies are transformed into industrial and urban ones, they make the transition from a regime of high to one of low mortality and fertility. In itself, this claim raises no objections, but does it clarify the issue of what *determines* the changes in fertility?

The influence on mortality of industrialization, urbanization and modernization is, in a broad sense, obvious. "The whole process of modernization in Europe and Europe overseas brought rising levels of living, new controls over disease, and reduced mortality" (Notestein 1945: 40). Fertility, as Notestein observed, was "much less responsive to the processes of modernization," but eventually it began to decline, gradually spreading to the whole of Europe, North America, Australia and New Zealand. "It is important," he writes further, "to understand something of the causes of this trend" which allowed the population of these regions to take control of their fertility "sufficiently to bring birth rates into balance with the low death rates that modern conditions permit" (Ibid.: 41).

It seems to me that at this point Notestein's reasoning came to a logical fork, from which it was possible to move in different directions. He essentially said that the modernizing changes that caused a decrease in mortality led to an imbalance of the system and required a decrease in fertility to restore the disturbed balance. With this, the search for *causes* of the decline could be ended. Indeed, this is precisely what Spencer did in his day, saying that the only cause requiring a decline in fertility is "the excess of fertility itself" (Spencer 1852: 498).

But, contrary to his own logic, Notestein began building a parallel explanatory series, trying to find the mechanisms of the *direct* (not through the reduction in mortality) impact of social and economic factors on the procreative behavior of people similar to those, easy to show, when it was necessary to explain the decrease in mortality. This path would lead him to the assertion that fertility declines "in response to drastic changes in the social and economic setting that radically altered the motive and aims of people with respect to family size" (Notestein 1945: 41).

From my point of view, this is claim is doubly contradictory.

First, there is ambiguity in the very usage of words, in the identification of fertility with family size; in essence, there is an elementary substitution of concepts[2]. Family size, that is, that regarding which people really can have motives and goals, depends not only on the number of children born, but also on their survival, i.e. on mortality; with a decrease in mortality, fertility *may* decline, but not because people's goals for family size change, but precisely because they *remain the same*.

[2] This identification is generally characteristic of the English-language literature, where the expression "family size" is often used almost as a synonym for fertility: "Family size (the mean number of children in the family) decreased by 61 percent from a high of 7.3 for women born in 1867–1870 to 2.8 for women born in 1951–1955" (Encyclopedia of Sociology 2018).

Secondly, from the central thesis of the theory of the demographic transition about *restoring* the balance of births and deaths at the level of the society, it follows that the new balance must be restored also at the family level, meaning that people's goals with respect to the size of the family *should* remain the same, and precisely for this reason fertility *should* fall. Curiously, this was very well understood by Spencer: “from the fact that, on the whole, civilization increases the ability to maintain life, we may perceive that there is at work some influence by which such diminution (of fertility) is necessitated” (Spencer 1852: 496).

Notestein, apparently, reasoned differently. He constructs his "narrative" by attempting to concretize those socio-economic changes that, in his opinion, *directly* induce people to give birth to fewer children. “Most of them center around the growing individualism and rising levels of popular aspiration developed in urban industrial living… All these developments made large families a progressively difficult and expensive undertaking; expensive and difficult for a population increasingly freed from older taboos and increasingly willing to solve its problems rather than to accept them” (Notestein 1945: 41-42).

Notestein’s argument, in keeping with the words quoted above by Landry, makes absolutely no mention of a reduction in mortality, and in this sense represents a step backwards from Landry, who at least links the ever-growing burden of family pressure to the increase in the number of surviving children. In Notestein's reasoning this connection is absent, as if there were no such fact at all, and it was solely a matter of changes in economic and social circumstances external to the family. Strangely enough, just this position was the most attractive for subsequent generations of theoretical demographers.

It is interesting to trace the evolution of the views of one of the main representatives of the Princeton demographic school, Kingsley Davis. He first turned to the issue of declining fertility in an article of 1937, where he explained the decline as the result of urbanization, industrialization and the growth of mobility destroying the family organization of society and undermining the role of the family as the main institution of population reproduction (Davis 1997). As for declining mortality, it is not even mentioned; clearly this argument had not then fallen within the author's field of view.

In an article of 1945 the emphasis shifts. On the one hand, it contains arguments close to those that Davis himself had made in 1937, or to those that we find in Notestein ("the competitive, individualistic, urban society that had risen made large families a handicap rather than a blessing"(Davis 1945: 5)). On the other hand, this article points to the huge decline in infant mortality, which, by increasing the number of large families, created independent incentives to reduce the number of births (Ibid).

Subsequently, this idea was developed in Davis' article "The theory of change and response in modern demographic history" (Davis 1963). This article is one of the most important publications in the entire literature on the demographic transition. In particular, it expressed with great certainty that a “mortality decline impinged on the individual by enlarging his family” and made the habitual behavior of families a hindrance in their desire to take advantage of the opportunities provided by the developing economy. Accordingly, they began to change their reproductive behavior (Davis 1963: 352).

It seems to me that in this article Kingsley Davis appears rather as an advocate of the first approach to explaining the changes in fertility, that he is, in any case, nearing recognition of the *demographic* logic of its decline. Unfortunately, he would develop this logic no further. At the end of his life, Davis reverted to his initial views that modern industrialism weakens the family, turns it into a "social rudiment" unable to provide the level of fertility necessary for population reproduction after, as in developed countries, this level has come into equilibrium with a new (low) level of mortality (Davis 1986: 59-63), i.e. after completion of the demographic transition.

The non-demographic logic of the explanation of the decline in fertility, as well as of the determination of the fertility level in general, prevailed not only in the views of American classics in the theory of demographic transition. It practically dominates in the works of the majority of demographers who adhere to this theory, not to mention those who disagree with it. As noted in a review of the theoretical understandings of low fertility that had taken form by 1990, "everyone agreed that the fertility decline was basically driven by the Industrial Revolution, much as Notestein (1945, 1953) had described" (Caldwell, Schindlmayr 2006: 355).

Van de Kaa adheres to the same logic. "The shift from family-based production to wage-paid labor that accompanied industrialization and urbanization reduced the economic utility of children. They could no longer serve as cheap labor for the parental farm or business but instead required investment in schooling and training to give them a reasonable chance in life... A large number of children could mean the dissipation of family assets like land after the parents' death, so birth control became a sound strategy. Secularization reduced the influence of the churches and increased couples' willingness to practice family planning" (van de Kaa 1987: 5).

Nearly the strangest thing in all such arguments seems to be the habitual one-sided interpretation of the long-known correlation between the fertility decline and the development of the most important social institutions of the modern world. For example, there is a well-known link between a decline in fertility and an increase in gender equality in terms of education and professional activity. This growing equality is invariably treated as the *cause* of the decline in fertility and is never regarded as its *consequence*. Meanwhile, if fertility did not decrease and the woman still had to spend her entire life in a state of pregnancy, feeding and caring for infants, there could be no question of gender equality. That became possible only when the survival rate of children rose sharply; the initial condition was a huge reduction in mortality.

The same should be said for many other changes often seen as the *cause* of declining fertility, such as changes in the role of the family and in the balance of a person's family and non-family interests, in family roles and morals, sexual morality, and much more. Particularly surprising is the "anchored" explanation of the reasons for the so-called "second demographic transition". The authors of the corresponding "narrative" see these causes mainly in "ideational and cultural changes". In their opinion, the second demographic transition differs from the first one in "the overwhelming pre-occupation of the populations experiencing the second transition with self-fulfillment, personal freedom of choice, personal development and lifestyle, and emancipation" (van de Kaa 2010). The close connection between the decline in fertility and the "ideational and cultural changes" is not in doubt by anyone, but which is the cause, and which the consequence, depends on the position of the researcher. If we proceed from the central thesis of Spencer, these changes are associated with a decrease in fertility, but as a *consequence*, not as a

cause – yet another step in the development predicted by him of the "antagonism of reproduction and individualization" in favor of individualization.

The reduction in mortality made the former high fertility unnecessary, which led to a series of changes that literally transformed the individual and social life of people. Everything would have to change, and did indeed begin to do so, including cultural norms and attitudes.

If we put the reduction of mortality in parentheses, then all other economic and social factors associated with a decrease in fertility are *not causes*, but only parts of the *mechanism* and at the same time *consequences* of this decrease. Their action brings the level of fertility into accordance with the new level of mortality and at the same time allows for an unprecedented social gain that becomes possible at this – final, from Spencer's point of view – stage of the development of the "antagonism of reproduction and development of the individual".

## SPENCER'S PLACE IN THE PEDIGREE OF THE CONCEPT OF THE DEMOGRAPHIC TRANSITION

Although the beginning of the modern demographic transition is usually dated back to the end of the eighteenth century, it gained strength only later and was apprehended only in the first half of the twentieth century. Can one connect the demographic ideas of Spencer to this transition and fit them into the pedigree of today's ideas of theoretical demography?

Spencer based his ideas on generalizations relating to the entire history of life on Earth, and it would seem impossible that they could have been influenced by contemporary historical processes that had barely just begun. Nonetheless, his ideas were not and could not be torn away from the general movement of the European thought of his time. And this was a time when the transition was objectively already taking place, when Europe had begun to feel previously unknown demographic consequences, when the population of many European countries was growing at an unusually high rate and the growth was accelerating.

The new situation was not immediately perceived. Montesquieu, as early as the mid-eighteenth century, argued that "most countries of Europe were better peopled ... than they are even at present" (Montesquieu 2001: 457), and in "The Spirit of the Laws" there is a chapter "On the Depopulation of the Globe" (Ibid.: 447). But gradually the center of gravity shifts towards discussion of issues related not to the possibility of depopulation of the world, but, on the contrary, the possibility of its overpopulation. The idea of "equilibrium" appears and naturally there arises an effort to understand the nature of growth's *regulators*, capable or incapable of maintaining such an equilibrium.

The evolution of views on these issues can be illustrated by the example of three emblematic figures of the history of demographic thought: Süssmilch, Malthus and Spencer, each of whom lived about half a century after his predecessor.

Süssmilch: "Equilibrium is an equilibrium of the numbers of people. Overpopulation would lead to a general war" (Süssmilch 1998: 43). Equilibrium is maintained by Divine Providence. "Reproduction is a changing thing, so God can easily speed it up or slow it down, depending on the state of the world ... It is a simple thing for Divine Providence. To do this, you need only to let

a few more people die. And this can be done quite easily. ... Just as God can easily speed up reproduction by giving more vitality to children so that they do not die in such numbers and so quickly, he can just as easily slow it down by allowing more of them to die" (Ibid.: 100).

Malthus: Responding to those who claim "that the natural checks to the population will be sufficient to keep it within bounds, without resorting to any other aids", Malthus notes that "to a rational being, the prudential check to population ought to be considered as equally natural with the check from poverty and premature mortality which these gentlemen seem to think so entirely sufficient and satisfactory" (Malthus 1998, Appendix I, 1807: *6, *7). By "prudential check" he means the reduction of fertility. "If the resources of the country would not permanently admit of a greatly accelerated rate of increase in the population … one of two things would happen, either an increased mortality of some other diseases, or a diminution in the proportion of births… I have expressed my conviction that the latter effect would take place" (Malthus 1998, Appendix I, 1807: *5-*6).

Spencer: "In approaching an equilibrium between his nature and the ever-varying circumstances of his inorganic environment, and in approaching an equilibrium between his nature and all the requirements of the social state, Man is at the same time approaching that lowest limit of fertility at which the equilibrium of population is maintained by the addition of as many infants as there are subtractions by death in old age" (Spencer 1910: 538). "Excess of fertility, through the changes it is ever working in Man's environment, is itself the cause of Man's further evolution; and the obvious corollary here to be drawn is, that Man's further evolution so brought about, itself necessitates a decline in his fertility" (Ibid.: 501).

There is one very important, at least from the point of view of the demographer, trait that brings Malthus and Spencer closer together and distances them both from Süssmilch. For Süssmilch, the role of regulator is played by mortality, while for Malthus and Spencer it is fertility.

If I may express my own opinion on what constitutes the essence of the demographic transition, after so many bright minds have tried to do so, I will say that this essence consists precisely in the change of the regulator. The role of the regulator of demographic dynamics has shifted from mortality to fertility, and this is the main thing. All the rest is only a consequence of this unique event, which has happened only once, not only in the history of human society, but in the whole history of life on Earth.

The first to speak with unusual force about the change of regulator was Malthus. It was he who first publicly announced the need for a new regulator, and in every possible way propagated it – hence it is he, it would seem, who should be called the father of the theory of demographic transition. Yet there is one obstacle: Malthus did not see the *transition* at all. His demographic picture of the world was static, with no increase in the duration of human life since the creation of man. "With regard to the duration of human life, there does not appear to have existed, from the earliest ages of the world to the present moment, the smallest permanent symptom or indication of increasing prolongation" (Malthus 1998: III.1.14, III.1.18). Accordingly, his law of population was also timeless.

The demographic picture of Spencer's world, on the contrary, is historical. “From the fact that the human race is in a state of transition, we may suspect that the existing ratio between its ability to multiply, and its ability to maintain life, is not a constant ratio”, and “any change in the ratio will probably be towards a diminution of fertility” (Spencer 1852: 496).

Spencer's reference to a "state of transition" leaves room for interpretation. Most likely, he simply had in mind the whole history of mankind, considered the growth of the "ability to preserve life" as an accompanying continuous process and understood "transitionality" likewise, as a gradual process leading to a final equilibrium. But even in this case, the only step that separates Spencer's conceptual vision of a decline in fertility as an adaptive response to a decrease in mortality and the resulting imbalance from modern concepts of the demographic transition is its localization in time.

The modern theory of demographic transition links the decline in fertility to various kinds of modernization processes, among which a key place is given to industrialization and urbanization. This automatically identifies the starting point of the demographic transition as the time of the industrial revolution, sometimes of the political revolution in France, and includes the demographic transition in the series of fundamental changes characteristic of the new phase of history, at least of European history, that began with these two revolutions.

But in Spencer’s day this time boundary, which marked the entry into a new stage of history, was not yet apprehended. The expression "industrial revolution" was occasionally encountered in different authors, but did not lead to any generalizations. Such a generalization can perhaps for the first time be found in F. Engels: "An industrial revolution, a revolution which altered the whole civil society" and “is of the same importance for England as the political revolution for France, and the philosophical revolution for Germany” (Engels, 2010: 307, 320); but it did not then become famous. It is considered to be A. Toynbee who, much later, brought it into wide circulation (Bezanson 1922).

So it is not surprising that the step that separates Spencer from modern theorists of the demographic transition was also taken later – in the case of the Princeton demographers, a hundred years later. But if we ignore the question of temporal localization, the whole logical scheme of the transition – right up to its completion – was very clearly drawn by Spencer. In the middle of the nineteenth century he confidently predicted not only the growth, but also the cessation of growth of the world population and the demographic pressure generated by it. “After having caused, as it ultimately must, the due peopling of the globe, and the bringing of all its habitable parts into the highest state of culture – after having brought all processes for the satisfaction of human wants to the greatest perfection – after having, at the same time, developed the intellect into complete competence for its work, and the feelings into complete fitness for social life – after having done all this, we see that the pressure of population, as it gradually finishes its work, must gradually bring itself to an end” (Spencer 1852: 500).

It is precisely Spencer's predictions, which have come true or are coming true, about decreased fertility as a way of restoring a demographic equilibrium disturbed by a decline in mortality which give every reason to consider him the father of the concept of demographic transition, a theorist perhaps even much more astute than later, universally recognized ones, and in this sense still unsurpassed.

Spencer's strictly monistic interpretation of fertility decline is very consistent. Development leads to a reduction in mortality and the emergence of excessive fertility, the changes resulting from this lead to fertility's decline, and "the sole agency needed to work out this change is - *the excess of fertility itself*" ( Spencer's emphasis) (Spencer 1852: 498), i.e., a disturbance of the equilibrium. This interpretation does not imply any other causality.

It is enough to know only what Spencer said to assert that, at first, the response to a decrease in mortality *must* always depend strongly on local characteristics and historical differences. No society can pass by the new opportunities that are opening before it, but the speed of their comprehension, the sequence of their use, the readiness for change, the strength of the opposition to them and many other characteristics will necessarily differ. The search for these differences is reflected in countless "narratives" which can be moderately useful for understanding various kinds of real situations.

But these "narratives" are by no means a search for the causes of the decline in fertility. What their authors are usually discussing is *NOT THE CAUSES* of the decline in fertility, but the *CONSEQUENCES* of the emerging possibility of its decline. These are *ways of realizing* the unprecedented gain brought by the reduction in mortality, which made possible and necessary a corresponding reduction of fertility and, ultimately, a transition to a new, much more efficient reproductive strategy for *Homo sapiens* (Vishnevsky 2014).

The logic of all the "narratives" constructed by van de Kaa, but understandable also without his impressive classification, can be summarized in one phrase: civilization in its modern forms and manifestations has made inevitable the decline in fertility. The logic of Spencer is the opposite: "the excess of fertility has itself rendered the process of civilization inevitable" (Spencer 1852: 500). I think that Spencer's logic is less evident but more profound.

## LOW FERTILITY AND PRO-NATALIST POLICY

Landry's "Demographic Revolution" was an alarm signal. "Man restricts his child-bearing, more and more, to the point where humanity is no longer replacing itself completely" (Landry 1987: 740). "There are also selfish feelings, which make people consider the child as an expense and an inconvenience… And it can be observed that the role of selfish feelings is becoming greater and greater: we observe that among the lines of reasoning that one can follow, those that make the limitation of births more rigorous are increasingly pursued" (Ibid.: 739). Landry constantly emphasizes the danger of a discrepancy between the demographic interests of the individual and of society, and suggests the need for special measures aimed at eliminating this discrepancy.

For Süssmilch, it was God who took care of maintaining the equilibrium, while Malthus tried to put the responsibility on people themselves, and Spencer believed in the regulatory mechanisms of nature. As for Landry, he appeals to a legislator. He spoke with approval of the fact that France already had pro-family legislation, but considered it necessary "to continue the policy already begun, to develop and strengthen the legislation already shaped by this policy, and to go far beyond what has been done so far" (Landry 1982: 94). He spoke with enthusiasm of the pro-natalist measures of the Roman emperor Octavian Augustus, and with regret of how in modern conditions the introduction of "equally vigorous" 'population-based' laws like those that existed

under Augustus" would encounter great difficulties rooted in human egoism (Ibid.: 98). But he calls for overcoming these difficulties, for prevailing over public opinion and changing the behavior of people leading to depopulation. “When it comes to something as important as the life of mankind, no effort should be spared” (Ibid.: 105).

Developing the logic of Landry, A. Sauvy, who considered himself his disciple and follower, argued that this choice cannot be entrusted to people. "The complex phenomenon of demographic reproduction is much too imperfectly known for the sense of moral duty to ensure the equilibrium of the population" (Sauvy 1969: 368). “An equilibrium of a providential kind may appear to exist over a long span, but only if the many individuals appointed as its instruments do not betray their mission, and especially since only the survivors can write history” (Ibid.: 387).

This impassioned position seems very convincing and has a huge number of followers. Once France was the only country to consider introducing state pro-natalist policy, whereas now it is hard to find a country with low fertility which would not attempt to pursue such a policy. Nevertheless, as is known, fertility in all these countries remains below the replacement level, and the only thing that the initiators of such a policy can usually say in its defense is that if there were no such policy, fertility would fall even more – an assertion that cannot be verified.

It would seem that Spencer could never have foreseen the current general enthusiasm for pro-natalist policy. However, predicting a decline in fertility as a result of the interaction of oppositely directed forces, as he understood them, he remarks: “Provided that the actions and reactions which have been described are not artificially interfered with. I append this qualifying clause advisedly, and especially emphasize it, because these actions and reactions have been hitherto, and are now greatly interfered with by governments, and the continuance of interferences may retard, if not stop, that further evolution which would else go on” (Spencer 1910: 532).

This is not a casual remark, but a reflection of Spencer's general views on society as a self-regulating organism. Almost simultaneously with the 1852 article on the theory of the population, in 1853 he published in the same *Westminster Review* an article entitled "Over-Legislation", in which he was very skeptical about the regulatory capabilities of governments.

A society, he claimed, has many needs, and its successful functioning presupposes a certain hierarchical sequence of meeting these needs: the more important ones must be satisfied earlier than the less important. Always, therefore, there is a problem of choosing priorities. But it is in the matter of choosing priorities that "the judgment of a government is no longer to be trusted". It is "a task that no legislature can accomplish". "Society must be left to *feel* what it most needs. The mode of solution must be experimental, not theoretical". The search by citizens for ways to get rid of "evils and dissatisfactions of various kinds, affecting them in different degrees" can be hampered by “men's habits and prejudices”, but such searches are "far more trustworthy than are legislative judgments" (Spencer 1981: 308-309).

The low fertility in all developed countries and the multiple unsuccessful attempts to increase it with the help of state-led pro-natalist policy give grounds to assume that "the judgment of a government is no longer to be trusted" in this field too, which is, in fact, just what Spencer meant when he objected to "government interference".

## CONCLUSION

The purpose of this article is to analyze Herbert Spencer's contribution to demographic theory, above all to the theoretical understanding of the phenomenon of low fertility. Our task has been not simply to fill the gap in the generally accepted ideas about the history of demographic thought. It seems to me more important to bring Spencer's argument to the current debate about the present and future of low fertility, based on the premise that his argument not only has not become a historical curiosity, but even today is far ahead of its time.

Spencer viewed human society as a single organism, thus giving grounds to reproach him for substituting biological explanations for social explanations. In some cases, as for example that of his explanation of the decline in fertility by the development of nervous centers, these reproaches are justified. But such cases are more the exception than the rule. In general, Spencer did not identify the social organism with the biological, did not deny the differences between them, but only assumed that this difference "does not result in a difference in the laws of the organization: the required mutual influences of the parts, not transmissible in a direct way, being, in a society, transmitted in an indirect way" (Spencer 1898: 462). In this argument, Spencer appears as one of the outstanding predecessors of the systemic approach, which would be developed only in the twentieth century.

This approach has still practically not found its place in demographic theory. But it was this which, if only in its early forms, allowed Spencer to rise to a very high level of generalization and predict the transition from an equilibrium of high mortality and high fertility to a demographic equilibrium with a low level of both. The "determinants" and "factors" used by modern theoretical demographers to try and explain the causes of this transition had barely appeared on the historical stage in the days of Spencer, many of them had not yet manifested themselves or been noticed. But Spencer didn't need them. He understood the *main*, or more precisely, the *only*, cause for the decline in fertility – its excess due to the "increased ability to maintain life", which he regards as the fruit of civilization, i.e. as a social process: "increased ability to maintain life… necessarily involves decreased ability to multiply" (Spencer 1852: 498)

Historians of demographic thought trace the pedigree of the concept of the demographic transition back to Adolph Landry and Warren Thompson, and sometimes point to their predecessors, for example Arsène Dumont with his idea of "social capillarity". But when it comes to understanding the true causes of the decline in fertility as an integral part of this transition, then the decisive word was Spencer's, and nothing new to it has ever been added.

It is to be regretted that this word was not heard by demographers. Spencer's ideas are not present in their work on the demographic transition. The only consolation is that demographers are not alone in their ignorance.

Spencer has been buried more than once. As Crane Brinton wrote in the 1930s, "Who now reads Spencer? It is difficult for us to realize how great a stir he made in the world... He was the intimate confidant of a strange and rather unsatisfactory God, whom he called the principle of Evolution. His God has betrayed him. We have evolved beyond Spencer" [*Brinton 1933: 226-227*]. Parsons, quoting Brinton, generally agrees with him, albeit with the proviso: "Not, of course,

that nothing in his thought will last. It is his social theory as a total structure that is dead" [Parsons 1949: 3].

However, is it really dead, and are Parsons' own systemic views on society independent from Spencer's "organismic" views? Is it accidental that the author of the preface to the posthumous reprint of Parsons' book "The Social System" found it necessary to emphasize that "in social theory, employing analogies and metaphors from biological sciences has been a common strategy in the development of theoretical frameworks on social systems" [Turner 1991: xvii] and that this strategy is characteristic, in particular, of Spenser's evolutionary sociology, while Parsons' views on the systemic qualities of social relations were also influenced by the ideas of the biologists Claude Bernard and Walter Cannon? What matters is not whether the researchers of the twentieth century went further than their predecessors, who lived a hundred years earlier – it could not be otherwise - but whether they went in the same direction.

As Jonathan Turner (not to be confused with the Brian Turner quoted above) asserts in his article "The forgotten theoretical giant: Herbert Spencer's models and principles," Spencer's methodological principles "have been used for decades in a wide variety of empirical contexts far more often than principles developed by Marx, Weber, and Durkheim. Sometimes this usage is acknowledged, but more often it is unknown, with the result that Spencer's ideas have often had to be re-discovered… Had sociological theorists and researchers begun the 20th century with Spencer's models and principles in hand, it is likely that sociology would be a more mature science" (Turner 1981: 95).

The same applies all the more to demography.

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