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Analytical Overview of the Established Demographic Theories of Fertility: Agenda for Further Advancement

Author: Yuri Frantsuz

Affiliation: University of New Mexico, Department of Political Science

Contact information: Department of Political Science, University of New Mexico, Albuquerque, NM 87131 (email:fran0004@umn.edu)

Abstract

The demographic theory of fertility has interested prominent scholars for more than a century. Most recently and notably, Greenhalgh (1994), Van de Kaa (1995), de Bruijn (2006) and Leridon (2015) have dedicated their works to the analysis of the established demographic theories. They have provided a typology and analysis of demographic theories of fertility and illuminated many components of the latter, including the logic of theories' development and evolution, their multidisciplinary nature and their "anchors" in the existing body of knowledge in their respective broader fields. Still, scholars acknowledge ... "we still have no universally accepted explanation for why the Western post-war baby boom occurred, and why it ended. Nor do we have any clear idea of how fertility will evolve in countries where it is currently below replacement level. Homo demographicus is yet to be born..." (Leridon, 2015). The proposed agenda for advancing demographic theories include linking them to their predecessors in social sciences, analyzing them from the theory construction standpoint, providing distinctions between several branches of each of these theories, and outlining a strategy for the integration of compatible parts of these theories.

Keywords: fertility; demographic theory

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Introduction

In this paper I attempt to develop and enhance the analysis of the connections between the major existing demographic theories of fertility and their predecessors in the various fields of social sciences that have inspired major premises of demographic theories of fertility. The major goal of the current paper, therefore, is investigating the connection between theories' premises and their social scientific backgrounds. Correspondingly, each is analyzed from the perspective of meeting the theory construction requirements. The latter implies matching the following major criteria, required for a proper theory construction: statement of purpose, clarity, concepts' definition, logic of provided typology, author's arguments, level of quantification, level of detailed mechanism' explication, statistical rigor, encompassing macro-micro links, and ability to stand refutation and falsification (Reynolds 1971). This endeavor is aimed at helping the advancement of the demographic theories of fertility, since the analysis undertaken allows for addressing major critical points of the original premises, therefore refining the construction of the demographic theories, and locating compatible parts of some of them to improve their advancement and facilitate partial integration.

Classic Transition Theory

Classic transition theory, a version of modernization theory, explains the evolution in demographic reproduction from a high fertility and high mortality state to one of low fertility and low mortality via an intermediate stage typified by mortality decline and lingering high fertility. Classical transition theory emphasizes social and economic forces as facilitating this change and assumes that the processes it describes occur in similar ways across different eras and cultures.

Classical transition theory views social change as unidirectional and progressive, assuming societies move irreversibly toward greater homogeneity. Greenhalgh (1994, 10) formulates the main premises of demographic transition theory as the following:

1. Fertility transition is a phased process. Societies begin at the primitive or traditional stage and end at the advanced or modern stage.

The concept of demographic transition has four stages, including the pre-industrial stage, the transition stage, the industrial stage, and the post-industrial stage. The pre-industrial stage is characterized by a stable population, with high death rates, due to low standard of living, and high birth rates due to the need to compensate for deaths. The second stage is the one, during which the

population begins to increase due to continued high birth rates and declining death rates as a result of an increase in the standard of living. The industrial stage follows and is characterized by continued population increase, despite the declining birth rates and low death rates, which result from increased standard of living and changes in social views. The final stage is the post-industrial stage, which is when the human population stabilizes, due to low birth rates and low death rates.

2. Fertility transition is a homogenizing process that produces tendencies toward convergence among societies.

Most of demographic transition theory proponents claim that in the long-run all countries that undergo the transition will have the similar fertility rates, with Total Fertility Rate approximating 2.1-2.2, or falling below it.

3. Fertility transition is a process of Europeanization (or Americanization).

Demographic transition is an inductive theory that started with the empirical-based analysis of how Western populations have changed over time. Unlike many other theories on population, the demographic transition theory was based on the actual experience of the European countries and the US. This theory is in fact a generalization of the historical sequence and pattern of changes in the vital rates typical for Europe and, to a certain extent, of the US.

4. Fertility transition is an irreversible process. Once started, it cannot be stopped.

This claim implies there is no way fertility rates will ever return to the pre-transitional level, though proponents of the theory do not rule out certain fluctuations in the fertility rates (including slight increase) after the completion of the demographic transition.

5. Fertility transition is a progressive process; in the long run, it is desirable.

The progressive tendencies is seen in the mutual adjustment of reproductive function and self-actualization of women, as well as potential for investing more time and financial resources in the upbringing, health and education of children.

6. Fertility transition is a lengthy process.

When applied to the demographic developments in Europe, it takes up to two centuries; whereas in some modern societies (e.g. four “economic tigers” of South East Asia -- South Korea, Hong Kong, Taiwan and Singapore) -- demographic transition lasted for decades.

The pioneers and, later, the proponents of what has become demographic transition theory, Thomson (2002), Davis (1986), Kirk (1996) and Notestein (1945, 1983), initially attempted to provide an explanation of the dynamics of European demographic developments for the period from the early 19th century to the early 20th century. To explain these changes, they employ the concept of social change. Though they use various definitions and their theories do differ in certain elements, these scholars still unanimously explain the shift from the mode of demographic transition typified with high mortality and high fertility to the one with low mortality and low fertility in terms of such parameters of social change as progress, industrial development, arrival of “technological civilization,” and other characteristics of the modernization process. All of these scholars, to varying degrees, refer to biological/technological, structural, and cultural determinants of civilizational change in defining the causes of demographic dynamics.

Scholars have further refined all of these three components by introducing the measurable concepts of improved sanitation and health services, industrialization, innovative regulation and institutional arrangements. So, it is clear that the major scope in which demographic transition theory could be applied, are grand shifts of long-term, such as industrialization, urbanization, etc.

All of the pioneers of the demographic transition approach adopt the idea of a three-stage process of transition sketched by the forefather of this school of thought, Landry (1982). The first stage is typified by high fertility and high mortality, the second by declining mortality with fertility remaining high, and the third with declines in fertility approximating the already low mortality level. Scholars generally explain the first change of the demographic transition process, declining mortality, by the advances of the industrial revolution and modernization and, more specifically and most importantly, by improved sanitation and advances in health care and science. The latter led to a dramatic decline in epidemiological diseases, the major cause of death in Europe in the 17th and 18th centuries.

The next major shift within the demographic transition is the decline of fertility following the reduction of mortality. According to the proponents of this explanatory claim, this phase is much less responsive to modernization and is largely attributable to the collapse of ideational and normative systems that supported high fertility. According to Davis (1986, 54), normative control plays a huge role in reducing fertility in this new type of environment.

Kirk (1996), among other scholars, notes that demographic transition was initially designed to serve as an explanation of demographic developments of a historically and geographically defined scope (Europe from the 18th to the 20th century), rather than as a universal theory with predictive power. However, as noted by de Bruijn (2006, 552), later scholars apply the principles of historic

demographic transitions to contemporary situations in such a way that any country or nation may be placed on the evolutionary track of modernization and mortality and fertility decline. This last version of the demographic transition theory is very debatable and thus it is problematic to apply premises of this theory to the latest developments in certain countries.

As mentioned above, mortality decline is considered to be a prerequisite for changes in fertility by the proponents of demographic transition theory. The focus of this explanatory claim and corresponding empirical research has largely shifted specifically toward the relationship between infant mortality decline and fertility reduction. Infant mortality, in Notestein's words, is an indicator of the sanitation and the quality of health services (1983, 345-360). In that sense, infant mortality is an indicator of a core concept of the modernization process.

In the writings of the above-mentioned scholars, especially Kirk, Thomson and Davis, the explanation of the linkage between the declining mortality and decreasing fertility is obtaining some "functionalist" flavor. Functionalism, the classic Sociological theory, views social systems as the ones seeking equilibrium. Parsons, one of the proponents of functionalism, has outlined the major social system's requisites, with one of them being strive for adaptation. Following that mode of explanation, the aforementioned scholars, implicitly or explicitly, have attributed the decline of fertility as the reaction of the "demographic system" to the threat of violation of its equilibrium, caused by reducing mortality ("threat of overpopulation"). Therefore, this variant (branch) of demographic transition theory could be labeled as "functionalist".

A different approach to the demographic transition theory explanation was taken by other scholars. They have made an emphasis on the individual decision-making on fertility based on the odds of children's survival given the current infant mortality rates. In van de Kaa's words, for instance, "if it is assumed that people's desired family size reflects a specific intended number of surviving children, rather than a certain number of births, they can only reduce their fertility once the chances of survival of the children born have improved" (1995, 405).

De Kaa (1995, 407) outlines four formulated hypotheses regarding the mechanism of fertility response to a decline of infant mortality. They are: 1. Child survival hypothesis; 2. Child replacement hypotheses; 3. Reduction of uncertainty hypothesis; 4. Insurance against widowhood hypothesis. All of them imply individuals making the decision on the number of births based on various kinds of their prospective security at the older age and securing a certain standard of living based on the calculations of the children's survival odds under the given infant mortality rates.

As evident from the provided reasoning, in this variant (branch) of the demographic transition theory the attribution of the decision-making on fertility based on infant mortality is totally on the micro-level of an individual or a family, with no reference to the macro-level requisites of a “demographic system.”

Overall, demographic transition theory provides one of the first theoretical explanations of long-range fertility decline. Demographic transition theory has been criticized for the assumption of universality of demographic mechanism and processes, without being sensitive to parochial cultural and institutional specifics. It fails to explain short-term demographic changes unrelated to changes in mortality. It also does not even attempt to explain population dynamics within the third phase of demographic transition. And, as mentioned above, the theory’s claims sometimes fail to gather unambiguous empirical support.

The critique of this theory (for the most part, its “functionalist” version) largely reflects the vulnerable points of functionalism itself, such as its built-in teleological fallacies, including assumptions about inevitability of bringing the system to the stage of equilibrium, and the unspecified causal link between the requisite for system balancing and “switching” of cultural mechanisms.

Net Wealth-Flow Theory

The first theory in a family of post-classical transition theories is the one of net wealth-flows. It is often times called a restatement of a demographic transition theory. Its author and major proponent, John Caldwell, researched demographic trends mostly in the less developed and historical societies in the mid-1970s. By that time the huge opportunities to study demographic transitions had emerged, one of them being an ability to undertake large scale sociological experiments. The restatement of the demographic transition theory by Caldwell involved both revision of the causal mechanism originally specified by the theory’s proponents and anchoring demographic transition to the historical and modern developing countries.

The core explanation of Caldwell’s theory is that fertility behavior is determined by the direction of net intergenerational wealth flows. The scholar specifies two basic modes of production: familial and non-familial. The first mode is typified by the net wealth flows from younger to older generation, and thus there is no economic gain in restricting fertility. In non-familial modes wealth flows take the opposite direction, and this is why it is economically rational to reduce births. Caldwell places a special emphasis on the role of norms in the reversal of the intergenerational wealth flows. He refers to what he calls “social motivations” (1976, 322) such as the incentive of

following the social norms of children getting greater education. The latter increases the cost of children and reduces the labor benefits to parents contributing the reversal of the intergenerational wealth flows. Moreover, to justify the rationality of keeping high level of fertility in familial mode of production, Caldwell goes even further. He states that long history of familial mode of production contains not only agrarian but also hunting and gathering societies. Caldwell claims that the latter could have been “typified by wealth flows from the younger to the older generation, without a specific child-parent flow, and fertility may have been valuable more in terms of numbers and security than in terms of production before the external imposition favored highly controlled fertility” (1981, 8).

The role of family nucleation in the reversal of the direction of wealth flow is an important part of Caldwell’s restatement of the demographic transition theory. For the “great divide”, a metaphor used by a scholar to describe the reversal of the intergenerational wealth flow, the family has to be largely nucleated both emotionally and economically. Caldwell stresses that “a fair degree of emotional nucleation is needed for economic nucleation” (1976, 355). And, most importantly, “considerable amounts of both are required before parents are free to indulge in ever greater expenditures on their children” (1976, 355) that actually means the complete reversal of intergenerational wealth flows. Caldwell specifically emphasizes the importance of the economy of the nuclear family to be largely isolated from that of an extended family for the occurrence of the “great divide”. This process implies the change of economic balance in the family so that the parents are fully in charge of their own family economy.

Caldwell’s basic premise is that familial revolution does not necessarily coincide with economic modernization. Accordingly, Caldwell states that in some countries economic modernization is not accompanied by certain types of social change (including family nucleation): this explains sustained high fertility despite the chance of urbanization and proportion of nonagricultural production. The opposite is also true – familial revolution could precede economic modernization. In that case corresponding reversal of intergenerational wealth flow leads to a fertility decline regardless of economic modernization advance. This explains phenomena that demographic transition theory failed to account for –for instance, steep declines in fertility in mostly agricultural Bulgaria between World Wars I and II or sustained fertility in the urban areas of Egypt and Far East in the 1950s.

Net wealth-flow theory’s major achievement is the restatement of demographic transition theory in a way that provides explanations for this demographic phenomenon that transition theory failed to provide (e.g., fertility decline in the Westernized, but not modernized countries). The wealth

flow theory's advantage was in shifting focus of demographic decision-making to the micro (family) level. The theory is mostly applicable to the explanation of grand shifts in demographic behavior, such as transition from familial to a non-familial mode of production, or the "great divide" leading to the nucleation of family, or Westernization.

The inseparability of this theory and the explanations of grand social changes is stressed by van de Kaa. He claims in that regard: "The proponents of the wealth flow concept have at the same time embedded it so intricately in the overall process of social change, that its own explanatory power is seriously impaired" (1995, 418). The net wealth flow theory has also attempted to explain recent fertility changes, too, however, mostly in modern developing countries. Therefore, it is problematic to apply it to explaining current demographic changes in developed countries. Also, wealth-flow theory doesn't explain cultural variations in parental investment in children and the related social attitudes and policies.

Microeconomic Theory

General Approach. Chicago-Columbia School

The next post-classic transition theory is microeconomic. It was first formulated in 1957 by Leibenstein, and later advanced by Becker. The micro-economic approach is often referred to as a "demand theory," "The Chicago School model," "New Home Economics," and "New Household Economics." As mentioned above, the major premise of the demographic transition theory is the impact of society's modernization on changing mortality and fertility rates. The early explanations of the demographic transition emphasize the role of macro-economic parameters in affecting these processes. Among these parameters are the levels of industrialization and urbanization; according to the transition theory, they are the very reasons for spreading traditional values contributing to the reduction of fertility.

The microeconomic approach retains the central premise of transition theory that reduced demand for children is the major driving force for the demographic transition. However, it shifts the focus from macroeconomic parameters to the decision-making on fertility at a micro-level unit of a family. The microeconomic theory of fertility is a branch of the theory of consumer choice. The key assumption of that theory is that family members are rational, self-interested actors, maximizing their behavior in all decision-making situations (Becker 1960). This kind of behavior is the same for making decisions about purchasing a house or giving birth to an "additional" child (the term used for defining children in this approach is (not accidentally) the one of "consumer durables"). The key unit where this decision-making process takes place is the household; and the

“household production function” approach links fertility decision to other household processes including consumption.

As noted by Pollak and Watkins (1993, 474), the microeconomic approach is an elaboration on a simple and restrictive model called the “household consumption model” that was further extended and generalized as the “household production model.” The household consumption model emphasizes deriving utility from consuming market goods upon purchasing them. In that sense this model employs consumer behavior theory. The latter uses such explanatory variables as a given household’s resources, prices of all goods, and budget constraints that constitute the boundaries of the purchasing opportunities. Thus, “constraints” and “opportunities” refer to the set of various alternatives available to the household.

Microeconomic theory states that what is maximized by the members of a family is well-being (i.e. utility). Families are supposed to aim to maximize utility limited by two constraints: available financial resources and available time. These constraints determine “opportunities” (including children). The maximization of total utility by the household by using the constrained total resources leads to the utility-maximization equilibrium, such that “no reallocation of available resources would increase total utility” (Robinson 1997, 51).

Now we turn to the specification of the place of children among other “commodities” in a microeconomic model. As mentioned above, the household production function is aimed at maximizing its own utility with the help of internal and purchased external resources and the use of “household technology.” That means that the “demand” for children is actually a demand by parents for the flow of services that children produce over time. Consumption of these child services generates pleasure or “utility” for parents (the household). Leibenstein (1957) distinguishes three types of utility that parents receive from having children: 1) consumption utility (meaning non-economic benefits, such as emotional ones); 2) labor productivity utility; 3) old age security utility. Children thus are treated as a special type of commodity that produces a flow of services to parents which determine their utility for the latter. The volume of the flow of services from the children could be larger or smaller, depending on the underlying technology.

Becker later added two major theoretical points to the original microeconomic model. The first one was bringing other members of the family by: 1) adding “altruism” as a source of utility to the decision-maker, thus bringing meaning to the utility of other members; 2) extending the decision-making process to be “dynastic,” meaning that present decision-making acts on behalf of future generations by adding bequests and investments to the current expenditures.

The second point Becker introduced to the model of utility maximization is the concept of “child quality,” that implies mostly health and education of the off-springs. There are two ways, Becker states, to increase prospective child-services: (1) have more children; or (2) increase children’s quality.

R. Easterlin’s Theory (“Pennsylvania School”)

Easterlin (1974) builds on the classic microeconomic theory of fertility; however, his own theoretical advance can be distinguished from it in at least three ways. First, Easterlin develops the concept of a “births production function” and relates it to the demand for children. Second, he introduces “endogenous preferences” into the fertility model and develops a theory of “taste formation.” Third, he allows for unintentionalness in the utility-maximizing process which is reflected in his concept of “unperceived jointness.”

The microeconomic model of fertility emphasizes the demand part of the decision-making process of fertility. The other factor that also is a part of the “optimal solution” – the birth production function, or output of children, or, a “supply” factor, is not adequately addressed. Easterlin fills that gap, elaborating on the concept of potential production of children (i.e., supply factor). He defines that concept as “the number of surviving children a household would have if fertility were not deliberately limited” (1974, 55). The key factors that determine the potential output of children are natural fertility and probability of infant survival. Among the factors that, in turn, affect these two variables, are health, quality of nutrition and medical care.

The second distinction of Easterlin’s approach is the incorporation of “endogenous tastes” (e.g., preferences) into the fertility decision-making model. Easterlin introduces what he calls “interdependent preferences” – both for fertility and consumption. Two versions of interdependent preferences models are introduced.

The first version, the “socialization” model, assumes that family’s preferences depend on the average consumption and family size of all families in the previous cohort. The second version, the “intrafamily” model, assumes that each family’s preferences are determined by the consumption and family size the husband and wife experienced during their childhood and adolescence.

The main difference between these two versions is that while “socialization” does not imply the existence of systematic differences within a group of families with the same socioeconomic status, education and religion, the “intrafamily” version predicts heterogeneity within such a group

because of the differences in the consumption and family size experienced during childhood and adolescence.

Easterlin's third contribution to fertility theory is the introduction of the concept of "unperceived jointness." The classic microeconomic approach was often criticized for assuming that a family has complete information about the factors affecting their optimal decision-making on fertility. Easterlin and his associates address this criticism by introducing the concept of "unperceived jointness," which describes the situation when the family does not recognize the relationship between its consumption pattern and its fertility and infant mortality. Easterlin stresses that unperceived jointness does not imply complete ignorance. Actually, unperceived jointness would be consistent with any kind of knowledge except a perfect one.

Microeconomic theory provided a useful tool for understanding demographic decision-making. However, it is criticized for many of its assumptions, premises and unexclusiveness. Among these criticisms, aimed for the most part on the "Chicago-Columbia School" variant, are:

- 1) Assumed universality of cost-benefit maximization in demographic decision-making;
- 2) Assumed perfect knowledge about all possible costs and benefits related to children, in utility-maximizing decisions on fertility;
- 3) Ignorance of important cultural and institutional constraints and impacts on fertility decision-making;
- 4) Difficulties in empirical verification due to ambiguity in concepts, and challenges in defining their relationship;
- 5) Equating decision-making on fertility with the one on, for example, purchasing a car;
- 6) Assuming that all children born in a family embody the same quality.

The "Pennsylvania School" model was given much credit for broadening the narrow economic approach of the first branch of a microeconomic theory. However, it was not free of several critical points as well. Indeed, Easterlin has significantly advanced the original microeconomic theory in several ways (including introduction of the non-economic predictors of fertility). Still, even this advanced version of a microeconomic theory has one significant trait that prevents from applying it to investigating the period impact on fertility swings: Easterlin traces formation of fertility intentions to the periods of childhood and adolescence, while for researching sudden period impact on fertility one has to look at the change of such attitudes at childbearing years

In addition to these lines of criticism, it is claimed that microeconomic theory failed to generate a substantial empirical support. One of the reasons of it is that it is very challenging to meet this theory construction requirement because of the problems with the operationalization of such essential concepts as energy and time resources spent on rearing children.

Cultural Theory

Cultural theory has largely appeared as an attempt to address the major critical points of the three above mentioned theories that are largely based on rational choice assumptions. Much of cultural theory was constructed inductively, basing its premises on empirical findings. Cultural theory is about innovation, diffusion and ideational / normative changes that impact fertility. In a narrow sense the theory includes the development of means of birth control, and the spread of its use and attitudes toward these practices. The broader concept of cultural theory also includes the greater scope of ideational changes that are ultimately related to the formation of a new level of a desired fertility as well as new attitudes toward new patterns of fertility behavior, including calendar of births and types and timing of marriages that stem from employing practices of birth control. Both narrow and broad meanings of cultural theory premises are strongly interrelated.

Explaining fertility changes by cultural properties such as innovation, diffusion and ideational shifts has meant breaking away from major premises of transition, wealth-flow and microeconomic theories. In other words, postulating above mentioned cultural properties as the major causes of fertility dynamics implies acknowledging the weaker impact of the socioeconomic variables on this demographic process.

Research and corresponding findings in this area, as noted by de Kaa (1995, 420), was conducted in three various contexts. The first one is the historical decline of fertility in Europe, the second one is in contemporary developing countries and the third is related to the Second Demographic Transition (SDT) in modern advanced countries. Let us discuss the research conducted in the third context.

The strong ideational shifts accountable for changes in fertility dynamics are not limited to just use of contraception. This claim is strongly supported by the scholars in regard to the third context, the SDT. A major premise of this theory, as well known, is the explanation of changes in demographic behavior by huge shifts in the prevailing societal values. Van de Kaa emphasizes these new values of the "postmodern epoch." Among them he mentions "...the overwhelming preoccupation with self-fulfillment, personal freedom of choice, personal development and lifestyle, and emancipation..." (De Kaa, 1996, 425). The European Value Survey, conducted in the

Northern, Eastern and Southern parts of the continent, has confirmed connection between new models of demographic behavior and such values conducive to theory as stressing individual autonomy, weaker civil morality, world orientation, and tolerance toward minorities, self-fulfillment and other postmaterialist values (Surkyn and Lesthaeghe, 2004, 54).

Van de Kaa stresses relationship of these values' emergence with social, economic and structural conditions of societies: "Rising incomes and the economic and political security which democratic welfare states offer their populations has helped trigger a 'silent' revolution", a shift in a 'Maslovian' post-materialism direction where an individual's sexual preferences are accepted for what they are, and decisions on cohabitation, divorce, abortion, sterilization and voluntarily childlessness are largely left to the discretion of the individuals and couples involved" (1996, 425).

To summarize the cultural theory of fertility, one could stress the decisive role of cultural properties – ideas, values and norms – in shaping demographic behavior. As was formulated in the conclusions of the World Fertility Survey data in regard to demographic transition theory: "Taken en masse, the results (on the WFS) are more consistent with an ideational theory of change based on the spread of new aspirations or new attitudes toward family formation or birth control, than with a structural theory, which emphasized changes in the economic roles of family units or of children (Cleland 1985, 243).

Cultural theory has illuminated the important variables in fertility decision-making. However, as even cultural theory proponents recognize, large portions of it is not a theory as such. The reason for that notion is that while the role of culture is defined, and the mechanism of spreading out of norms and values (diffusion) is specified as well, the mechanism and path of culture's impact on fertility is not discovered in full, especially when it comes to its short-term swings.

Institutional Theory

In addition to cultural theory, the institutional theory of fertility was brought to life largely as a response to shortcomings and unsupported claims of "universality" of classic transition theory and its post-classic versions. It emphasizes, as cultural theory does, the contextual, often times situational character of fertility decision-making. Institutional theory, however, introduced several explanatory claims of its own. First, the theory proponents elaborated on the very concept of institutions and singled out the ones that are fertility related. Second, it explained demographic change in terms of path-dependency that is closely related to the uniqueness of institutional contexts for any given country or groups of countries. And, third, it came up with the explanation

of the mechanism of how institutional settings are perceived by individuals and impact their fertility decision-making.

Let us start with the elaborations on the first point. Institutions that could be used as determinants or predictors of fertility behavior, are not, as one of the main proponents of institutional theory, McNicoll, puts it, "...tangible public entities like prisons or hospitals" but rather "clusters of behavioral rules governing (or, to put it more neutrally, regularities describing) human actions and relationships in recurrent situations" (McNicoll 1994, 4-5). The rules could be written or unwritten but it is known that there are sanctions for violating them coming from institutional authorities, or self-imposed.

McNicoll also emphasizes the multifaceted character of institutions. The latter have both material and cultural antecedents, with the latter sharing with culture such properties as symbol and belief. Social institutions impacting fertility plausibly have this multifaceted nature. Acknowledging that institutions are not neatly classifiable, McNicoll (1984, 11) suggests following enumeration of some supposedly fertility-related institutions: (1) family and local community, (2) family and property law and the local dimension of public administration; (3) family and the stratification system and the mobility paths it accommodates; and (4) family and the labor market.

The major reason for the various outcomes was plausibly the differences in the countries' institutional contexts, most importantly, in political systems (Klupt, 2008). According to McNicoll (1993, 9), in totalitarian states the expansion of power at the expense of other social institutions was virtually complete. That allowed Chinese Communist party local communities to ostracize and punish those in the communities and enterprises not complying with the party line and refusing to limit births with one child. India's democratic institutional context along with being a multiconfessional country prevented the success and durability of authoritarian and administrative population policy.

The second, arguably, the most important explanatory claim of the institutional theory is the one employing the concept of path-dependency. This very concept and the general rules of the way it works, is imported from the classic institutionalism and neo-institutionalism (North, 1990). Path-dependency implies the partial dependence of the emerging institutions, or "clusters of behavioral rules," on the way previous choices and developments ("paths") were made. These previous choices, in turn, are impacted by both previous history and various expectations of society.

The key word in the institutional theory's path-dependency approach is "uniqueness." As van de Kaa (1996, 427) puts it: "The institutional endowments of a society will reflect its unique history;

hence, the demographic response of societies to changes in economic circumstances, in the probabilities of survival, in security risks of families and individuals, in sex roles, or in the policies pursued by their government, will in some measure be unique.” The theory’s emphasis on the uniqueness of demographic developments due to the specifics of institutions relevant to fertility behavior challenges the universality of the wealth-flow, microeconomic and, especially, demographic transition theories.

However, the work of Rindfuss, Guzzo and Morgan (2003, 411-438), written in the vein of institutional theory, offers a somewhat distinctive approach. This work takes into account not only the uniqueness of countries’ institutions in regard to their impact on fertility but also commonalities in countries’ institutional settings that allow for specifying the patterns of institutional settings for the various groups of countries and determining corresponding demographic responses. In authors’ words, they “...look at the interplay between the uniqueness of countries (or individuals) and their response to similar forces and constraints” (Rindfuss et al, 2003, 413).

The authors have examined the changing institutional context of low fertility in a set of 22 countries that had achieved moderate or low levels of fertility by the 1960s. The authors specifically looked at two major institutional incompatibilities that supposedly play a great role in fertility swings: the ones between the mother and the worker roles and between marriage and child-rearing. Rindfuss et al single out institutional constraints that affect existence and degree of reducing both incompatibilities. They include religious issues, labor market issues, educational policies and opportunities, legal issues and familial context.

All of these institutional contexts vary across countries. This is very much evident when it comes to institutions accounting for the reduction of the first type of incompatibility, the one between the worker and mother roles. The institution that Rindfuss et. al believe is of a paramount importance for reducing these roles incompatibility is child care. The authors conceptualize this institution, specifying availability, acceptability, accessibility, quality and cost of child care, and demonstrate various patterns of each across groups of the countries.

Another example of this somewhat distinctive approach within the institutional theory (the attempt to provide not just the unique case, but clusters that are typified with common institutional or developmental traits) is the one of the works by McNicoll (2006). This scholar defines five types of demographic transition: 1. Traditional Capitalist; 2. Soft State; 3. Radical Devolution; 4. Growth with Equity; 5. Lineage Dominance.

In its most developed form, the institutional theory of fertility is presented in a form of causal mechanism linking macro-level (institutions) with micro-level (individual decision-making on fertility). Several assumptions allow for creation of a model of the macro-micro interaction, involving several intervening variables. The first assumption is that institutional forms in the society could recreate an incentive structure. The latter is defined as the one that “comprises the arrays of pressures directly or tangentially leaning on fertility” (McNicoll 1984, 443). Such pressures, according to McNicoll, could be either economic incentives that work through economic returns to children; legal administrative sanctions, like marriage laws or governmental decrees; or, social pressures to conformity.

The second assumption is that a person does not experience institutional environment as a whole, but rather “as a series of domains, within each of which behavior is adaptive” (McNicoll 1984, 457). Such domains are called “segmented decision environments.” It is these decision-settings that combine delineated institutional change with the decision process of a person. It is this structured part of the institutional environment that really matters for fertility behavior.

The last assumption of this model is about the individual who makes this decision (the micro-level). The institutional theory borrows the concept of “administrative man”, introduced by Simon (1957) as an alternative to an “economic man” that was utilized in the microeconomic theory of fertility. In contrast to economic man, administrative man does not maximize, he rather “satisfies”. Examples of such behavior, provided by McNicoll, are: satisfying such criteria as fair price, adequate profit, a given share of the market, a quiet life. The rationality of individual is bounded or segmented. A segmented decision-making environment provides those boundaries, across which the administrative man shapes his plans for fertility behavior.

To sum up, institutional theory introduced and employed several explanatory claims of its own. First, the proponents of this theory have specified the most important institutions that make an impact on demographic process, including fertility. Second, it explained demographic change in terms of a path-dependency concept. Third, on a micro-level it utilized the model of “administrative man” and attempted to explain the mechanism of acquiring fertility behavior based on the institutional environment.

The institutional approach in its most developed form comes close to the theory construction requirement in defining the mechanism of institutions’ impact on fertility. However, the theory failed to provide a clear algorithm of how the intervening variable, the segmented decision-making environment, is created out of the institutional change. That leaves the possibility for the ad hoc definitions of the segmented decision-making environment and multiple interpretations of the way

fertility is affected. So, though the theory provided the general model of macro-micro links, these connections are not clearly specified.

Avenues for the Advancement of Theories and Their Partial Integration

The analysis undertaken allows for defining the major avenues for the further advancement of demographic theories. First, each of the broad established theories of fertility should be analyzed from the standpoint of major critical points of its antecedents in the social sciences. For instance, classic demographic transition theory and its offspring (second, third and fourth demographic transition theories) should take into account the critical points aimed at Functionalism, such as the need for an avoidance of the illegitimate teleology, and ability to stand refutation and falsification. Likewise, critical points, provided for “supply-demand” approach and neo-institutionalism, could initiate the refinement of, correspondingly, microeconomic and institutional theories of fertility.

Also, theories of fertility should be assessed from the standpoint of following the major methodological orientations in sociology, rational choice model and normativism. As evident from this analysis, some of the theories of fertility (like cultural and institutional) for the most part employ the latter, while others (microeconomic and, to a certain extent, net wealth-flow theory) incorporate the premises of the former. For this very item, taking into account the discourse on methodological orientations in Sociology seems to be of great utility; in particular, the recent claim that contrasting normative and rational choice approaches is a “false dichotomy” seems to be very relevant. Finally, literature on bridging micro-macro links in sociological research (Pawlak 2018) could be also very illuminating for addressing the same issue in all established theories of fertility.

Second, each of the theories of fertility should undergo revisions, according to the theory construction requirements. Specifically, each of the theories should be checked against the listed above following major criteria for a proper theory construction, adopted in social sciences: statement of purpose, clarity, concepts’ definition, logic of provided typology, author’s arguments, level of quantification, level of detailed mechanism’ explication, statistical rigor, encompassing macro-micro links, and ability to stand refutation and falsification.

Third, the typology of the theories of fertility should be refined. As seen from the discussion above, some of the theories of fertility are quite heterogeneous. For instance, demographic transition theory contains several variants, with two of them being especially distinctive: the first one, that was referred to in the first sections as the “functionalist” version, views fertility dynamics at the macro-level of a demographic system seeking equilibrium; and, the second one, focuses on fertility

decision-making performed exclusively at the micro-level of an individual or a family. Likewise, as been noted in the corresponding section, the institutional theory of fertility also contains two different variants: first one, that emphasizes the uniqueness of institutional impact on fertility at a given point of time and/or at a certain country or region; and, the second one, attempting to find commonalities in the institutional arrangements and/or demographic developments that lead to providing typologies and clusters. Making these divisions within each of the established theories of fertility brings us close to the next avenue for the advancement of these theories, namely to investigating the possibility of their partial integration.

It is worth starting the discussion of the fourth avenue of theories' advancement with the question: what is the merit of attempting integrating theories of fertility? The brief answer is: each theory of fertility contains plausible explanations and, if combined, contributes to the creation of an all-encompassing body of knowledge. It is also worth noting that the similar path was taken in the development of the sociology itself. Conflict and Interactionist theories have appeared largely in order to address the weak points of Functionalism; later on, Alexander (1982) has outlined a strategy of the integration of all these theories in order to provide an all-encompassing explanation of sociological phenomena.

In his classic piece "Theoretical Logic in Sociology" Alexander claimed the possibility of integration of those premises contained in various theories that refer to distinctive scope conditions. The classic example of such an approach in the exact sciences is Pifagor's theorem on the impossibility of two parallel lines intersection. The scope condition for this statement is two-dimensional space. And, the theorem is quite compatible with the opposite claim by Lobachevsky, of two parallel lines being able to intersect in a different scope, a three-dimensional space.

So, the fundamental question that stems for the purpose of searching for demographic theories' partial integration, is: what scopes these theories' premises apply? Demographic transition theory explains the changes of mortality and fertility at times of transition from traditional to industrial society. Wealth flow theory concentrates mostly on the explanation of the transition from high to low fertility during the shift from familial to a non-familial mode of production, using Caldwell's terms. Microeconomic theory of fertility explains the logic of the decision-making on the number of children in a family mostly in the modern, rational-choice driven societies. Cultural and institutional theories in general explain demographic behavior at all times for any nation, however, making emphasis on the specifics of a given nation, country or region.

If we look at the possibility for theories' integration from Alexander's perspective, first two demographic theories, classic demographic transition and wealth flow theories, do not seem to be the ones suitable for that purpose. Indeed, both theories are mostly preoccupied with the explanation of demographic behavior and its changes in the same scope conditions, the transition from agrarian to industrial society. However, there is a certain angle in the net wealth flow theory that implies having an autonomous scope and, therefore, opens a possibility for a partial integration of these theories. I am referring to the above analyzed distinction between the concept of modernization utilized by the proponents of demographic transition theory, and the two key concepts of a net wealth flow theory, nucleation and Westernization. As mentioned above, the first concept refers to the share of those occupied in industry, shares of industrial and agricultural products in the overall economic output, level of urbanization, and the level of population sanitation. However, the second group of the criteria for a "great division" of traditional and modern types of demographic behavior, employed by the proponents of the net wealth flow theory, is similar, yet not identical to the ones related to classical modernization theory.

First of them, nucleation of family, in which Caldwell singles out economic and emotional aspects is, indeed, related to classic modernization. Still, both phenomena are not necessarily coinciding time-wise. As noted above, Caldwell believes that in many countries, where economic modernization was completed, nucleation does not begin for quite some time. On the contrary, as also was elaborated upon in the corresponding section, nucleation could precede the economic modernization, and even play a role of a catalyst of the latter. And, the time lag between two, according to Caldwell, could be very substantial. In the context of the employed criterion for theories' integration, it is important. Since, according to the wealth flow theory premise, such nucleation can sometimes launch the process of demographic transition and, therefore, the latter does not necessarily occur during the times of social and economic modernization.

A special role in the emergence of nucleation is assigned by the wealth flow theory to the phenomenon of Westernization. The latter implies mostly the import of Western culture and related education. Since these institutions can be internalized in a given country in the absence of economic modernization, the impact on the nucleation of a family and related changes in the demographic behavior could well happen in the absence of economic modernization. This "window of opportunity" allows for a partial integration of demographic transition and wealth flow theories. In cases when nucleation and Westernization precede or follow social and economic modernization, we can apply wealth flow theory for explaining decline in fertility in such a scope. However, demographic transition theory could be applicable in the scope condition of social and

economic modernization (whether accompanied by nucleation or not) for explaining the same phenomena, changes in fertility rates.

Partial integration of microeconomic and cultural theories of fertility seems to be possible even to the greater extent. The search for such integration is actually the variant of the integration of major methodological orientations in Sociology, the normative and “rational choice”, proposed in the field of Sociology. The normative compound of the decision-making, according to this proposition, shapes the array of the culturally accepted number of children. Within this array, however, prospective parents perform the decision-making on the number of children, driven by microeconomic based rational choice.

The very interesting potential seems to exist for the partial integration of demographic transition and institutional theories. If employing Alexander’s approach, it seems at the first glance that these theories, explaining demographic behavior in various scope conditions, could supplement each other. Indeed, while demographic transition theory operates in a very particular scope, the transition from traditional to the industrial society, institutional theory claims to explain possible changes in demographic behavior in basically any scope. However, even in the same scope (like at the times of demographic transition) there are also ways for these theories to supplement each other. Van de Kaa (1996, 137), in particular, has noted that institutional theory “adds up national and regional flavor” to the general sequence of a demographic transition.

This kind of integration, however, seems to apply only to certain branches (variants) of both theories. Let us look at the other variants of both theories from the perspective of possibilities for a partial integration. On one hand, as mentioned above, demographic transition theory is very heterogeneous. It contains branches (variants) that emphasize economic aspects of modernization in triggering changes in demographic behavior, as well as the ones paying special attention to the change of normative foundations that followed economic modernization. As mentioned above in the corresponding section, there is a special branch within demographic transition theory that places emphasis on the demographic system’s equilibrium, viewing changes in fertility as a function of declining mortality (a “functionalist” version). As also mentioned above, some of hypotheses derived from demographic transition theory emphasize the decision-making on fertility made at the micro- and meso-levels, without making any references to the macro-level systemic requisites. Also, there is a division line between the early variants of demographic transition theory that had limited scope (dynamics of demographic parameters at a certain time and for only certain

areas of the world), while later the newer interpretations of the theory claimed its universal character.

On the other hand, institutional theory is also not a homogeneous one. As was mentioned above, it is not limited to only case studies, emphasizing their uniqueness. There are also attempts to build a typology of certain types of institutional responses to population policy and attitudes, and availability of childcare provisions (e.g., Ridnfuss et. al, 2003, 411-438). As mentioned in the section on the institutional theory, there is also an attempt on behalf of a well-known proponent of institutionalism to create a typology of demographic transition (McNicoll, 2006). It seems that the best option for integration is the one of these branches of institutional theory with the variant of demographic transition, emphasizing universality and systemic approach. It seems like merging these two approaches will allow for further development of the types of demographic transition.

However important the approach for theories' integration provided by Alexander is, the strategy for integration should not be limited only to a search for merging parts of various demographic theories based on the differences of scopes they work in. For instance, cultural and institutional theories basically work in the same scopes. However, their integration could be based on the proximity of the concepts of "culture" and "institutions". These theories' integration could be based on providing links between the cultural properties and the creation of corresponding institutions that were singled out as the ones making decisive effect on demographic behavior.

Conclusion

Advancing demographic theories of fertility still has a long way to go. This important development is needed for better understanding and prediction of the dynamics of demographic parameters in the future. The proposed approaches based on the analysis of existing demographic theories and their linkages with their antecedents in the areas of Social Sciences, the ones also containing the suggestions for refining them from the theory construction requirements standpoint and outlining the possibilities of theories' partial integration are hopefully laying foundations for creating an all-encompassing body of knowledge in the area.

References

- Alexander, J. (1982). *Theoretic Logic in Sociology*. Berkeley: University of California Press
- Becker, G. (1976). *The Economic Approach to Human Behavior*. Chicago: University of Chicago Press
- _____. (1991). *A Treatise on the Family, Revised and Enlarged Edition*. Cambridge, MA: Harvard University Press
- Caldwell, J. (1976). "Toward a Restatement of Demographic Transition Theory." *Population and Development Review* 2(3/4) 321-66
- _____. (1977). "The Economic Rationality of High Fertility: and Investigator Illustrated with Nigerian Survey Data." *Population Studies* 31(1): 5-27
- _____. (1981). "The Mechanism of Demographic Change in Historical Perspective." *Population Studies* 35(1): 5-27
- Caldwell, J., I. Orabulye and P. Caldwell. (1992). "Fertility Decline in Africa: A New Transition." *Population and Development Review* 18(2): 211-42
- Davis, K. (1986). "Low Fertility in Evolutionary Perspective," in *Below-Replacement Fertility in Industrial Societies. Causes, Consequences, Policies*, Supplement to Vol. 12 of *Population and Development Review*: 48-65
- De Bruijn, B. (2006). "Fertility: Theories, Frameworks, Models, Concepts," (pp. 549-569), in *A Treatise in Population*, edited by G. Gaselli, J. Vallin, and G. Wunsch. Burlington, MA: Academic Press
- Easterlin, R.A., R.A. Pollack and M.L. Wachter. (1997). "Toward a More General Economic Model of Fertility Determination: Endogenous Preferences and Natural Fertility." (pp. 81-149) in *Population and Economic Change in Less Developed Countries*, edited by R. Easterlin. Chicago: University Press
- Cleland, J. and C. Wilson. (1987). *Demand Theories of the Fertility Transition: An Iconoclastic View* *Population Studies*, 41(1): 5-50
- Greenhalgh, S. (1994). *Anthropological Contributions to Fertility Theory*. The Population Council Division Working Papers.
- Kirk, D. (1996). *The Demographic Transition*. *Population Studies* 50(3): 361–87.
- Klupt, M. (2008). *Demografia Regionov Zemli (Demography of the Regions of the World)*, "Piter", Sankt-Peterburg
- Landry, A. (1982 [1934])., *La révolution démographique – Études et essais sur les problèmes de la population*, Paris, INED-Presses Universitaires de France
- Leibenstein, H. (1957). *Economic Backwardness and Economic Growth*. N.Y.: Wiley

- Leridon, H. (2015). The Development of Fertility Theories: A Multidisciplinary Endeavour. *Population (English Edition-2002)* 70(2): 309-348
- Mason, K.O. (1984). *The Status of Women: A Review of Its Interrelationships to Fertility and Mortality*. N.Y: Rockefeller Foundation
- McNicoll, G. Institutional Determinants of Fertility Change. (1980). *Population and Development Review*, 6(3): 441-62
- McNicoll, G. (1994). Institutional Analysis of Fertility. (pp. 199-230) in *Population, Economic Development and Environment: The Making of Our Common Future*, edited by K. Lindhal-Kiessling and H. Landberg. Oxford: Oxford University Press
- McNicoll, G. (2006). "Policy Lessons of the East Asian Demographic Transition," *Population and Development Review*, 32(1): 1–25
- North, D. (1990). *Institutions, Institutional Change and Performance*. Cambridge; New York: Cambridge University Press.
- Pollak, R. and S. Watkins. (1993). Cultural and Economic Approaches to Fertility. Proper Marriage or “Misalliance”? *Population and Development Review*, 19(3): 467-96
- Pawlak, M. (2018). *Tying micro and macro: what fills up the sociological vacuum?* Berlin; New York: Peter Lang
- Reynolds, P. (1971). *Primer in Theory Construction*. Published by Prentice Hall
- Simon, H. (1957). *Models of Man, Social and Rational: Mathematical Essays on Rational Human Behavior*. N.Y.: Wiley
- Surkyn, J. and Lesthaeghe R. (2004). Value Orientations and the Second Demographic Transition (SDT) in Northern, Western and Southern Europe: An Update. *Demographic Research, Special Collection 3, “Contemporary Research on European Fertility: Perspectives and Developments”* www.demographic-research.org
- Thomson. (2002.) Motherhood, Fatherhood and Family Values, (pp. 251-72) in *Meaning and Choice: Value Orientations ad Life Course Decisions*, edited by R. Lesthaege. Vol 37 Publications of the Netherlands Interuniversity Demographic Institute (NIDI) and the Population and Family Study Centre (CBGS) series. Berlin: Springer.
- Van de Kaa, D. Europe’s Second Demographic Transition. (1987). *Population Bulletin* 42(1), PRB, Washington.
- Van de Kaa, D. (1996). Anchored Narratives: The Story and Findings of Half a Century: Research into the Determinants of Fertility. *Population Studies* 50: 389-432