

Global Crisis in Fertility Theory:

What Went Wrong?

CRISE MONDIALE DANS LA THÉORIE DE FÉCONDITÉ:

CE QUI NE VA PAS?

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Abstract: Fertility, as a component of population change, caught the attention of many demographers since the relationship between population and society has been established. Even though micro level theories successfully projected trends of fertility at local level but finding a global theory is still a way to go. Macro theories failed to overcome social, cultural, and political boundaries. The solution can go either way. Demographers can all together give up on looking a grand theory. Or they can go for the regional theories because not all economic, social, or cultural mechanism operates equally to lower down fertility. The present paper is an attempt to question the validity of unified theory of fertility, thereby, an attempt to look for a modified version of fertility theory which would be better fit at the regional level.

Key words: Fertility, theories of fertility, regional theory, unified theory, validity of fertility theory

Résumé: La fécondité, comme une composante de l'évolution démographique, a attiré l'attention de nombreux démographes depuis que la relation entre la population et la société a été établie. Même si la théorie micro-niveau a projeté à succès les tendances de la fécondité au niveau local mais il y a encore un long chemin à parcourir à trouver une théorie globale. Macro théorie a échoué à surmonter les bornes sociales, culturelles et politiques. La solution peut aller à l'une ou l'autre route. Les démographes peuvent donner tous ensemble sur la recherche d'une grande théorie. Ou ils peuvent aller pour la théorie régionale parce que ce n'est pas tous le mécanisme économique, social, culturel fonctionne également à diminuer la fécondité. Le présent document est une tentative de remettre en question la validité de la théorie unifiée de la fécondité, de ce fait, une tentative de chercher une version modifiée de la théorie de fécondité qui serait mieux adaptés au niveau régional.

Mots-Clés: Fécondité, théorie de fécondité, théorie régional, théorie unifiée, validité de la théorie de fécondité

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1. INTRODUCTION

Fertility receives phenomenal attention from demographers not so long ago. Historically, as a component of population change, mortality gets the hype among the demographers. Reason is simple, people want to live first. If you live, you want to think about reproduction (Wunsch, 1995). Social policies, geared toward improving mortality condition, have no doubt a huge contribution to induce demographers to analyze other components of population change. In the very next phase, fertility was the buzzword. Groups of demographers spent sleepless night to explore causes related to high fertility. Sometimes they were concerned with high fertility and sometimes they were concerned with low fertility. Moot point is that fertility in either direction is a problem. This also becomes the starting point for explaining fertility from different perspectives. Some demographers unanimously view that this is also caused a perplexing situation, more specifically, stagnant condition from where demographers failed to traverse unplanned paths of fertility in some countries.

Through out the early Greek and Roman periods, a number of theories have been proposed to explain desired population size and population distribution. Mercantilists accorded the strength of the state as in its population size and the predominance of the industry over the agriculture. Physiocrats strongly believed population as stimulating factor for agricultural production, and hence, the economy. However, Malthus's theory on population was the direct hit to Mercantilists and Physiocrats (Daugherty and Kammeyer, 1995). The tension between food and population was not new but was never thought in the direction to social problems. To mitigate the problem, delayed marriage has been advised to lower fertility. Officially, this was the first theory ever which conceptualized fertility to figure out complex web of the relationship between fertility and society (Nam and Philliber, 1984). Since then, study of population in general and demographers in particular literally set their mind to examine the interrelationship between society and demographic processes, especially fertility. Consequently, this interrelationship provides a major impetus to demographers for looking into the reasons of high fertility experienced by some countries. No wonder, result was some unique theories to explain fertility.

An overambitious project was explaining fertility with global theory. More importantly, a unified theory was attempted to explain fertility decline regardless of economic, social, and cultural settings. Was that endeavor successful? Did they end up with a unique theory of fertility decline at all? Do demographers need a theory of fertility decline? If so, what sort of theory is the crying need? This paper is an attempt to question the validity of unified theory of fertility, thereby, an attempt to look for a modified version of fertility theory which would be better fit at the regional level.

Demography has been blessed with theories and sophisticated models. These theories and models come along with unique data set to forecast demographic processes. In most cases, demographers want to determine processes, causes, and consequences of demographic events that are being studied. Possible answers of these questions were tested on several occasions, if tested repeatedly, and if supported by available evidences, then these possible answers become part of the theory, eventually lead towards a theory. This is the most common process through which we get a theory (Frankfort-Nachmias and Nachmias, 1996). Like other scientists, demographers do the same and try to find out the causal relationship between cause and effect and the temporal connection between cause and effect. However, demographers usually do not ask for all inclusive panacea or cause of all causes. We may call it demographers do not search for a grand theory.

Mostly, demographic theories look for a small number of possible causes. In doing so, demographers use inter-disciplinary perspective to formulate theory based on micro level variables (Wunsch, 1995). The usual practice is that if explanation met sufficient and necessary condition to uncover the causal relationship and no alternatives are thought of at that point, those explanations considered as theory with best causal explanations. Are we missing something here? Are we going for a theory because we failed to propose one with far sighted and more predictive power or our soul is satisfied with the fact that any theory which followed the ground rules for constructing theory is good enough to explain fertility?

2. THEORIES OF FERTILITY DECLINE: HOW FAR HAVE WE COME?

The major concern of fertility theory was to explain differential fertility pattern. Obviously, this explanation always rooted in relation to economic development. In 1958, Coale and Hoover stated that rapid population growth is detrimental to economic development. As number of children increases in the family, household expense increases and as a result people have less opportunity to save money. In order to feed extra manpower, government has to pay more money and has less money to invest. Simply, high fertility is discouraged. In contrast, Julian Simon argue that population is the ultimate resources for developing countries ((Kelley, 2001).With vast amount of manpower, these countries become major source of cheap labor for many developed countries. For a developed country, paying less than two dollars per day is a good deal and less burdensome if she has to hire her own folks. For a developing country, at the end of the day, minimum wage paid up by the developed world is a big deal. This is one of the main reasons Singapore has changed her population policy. Singapore government has realized that they endangered their main economic strength, skilled labor force, through its population policy and thereby, modified population policy ((Darkakis-Smith, 1992). This debate revolved around the academicians for a while. Along the same line, we also observe the relationship between development and fertility, which is called demographic transition theory.

No doubt, the theory which essentially brought fertility into focus was theory of demographic transition. This theory is one of the earliest attempts to explain fertility decline in industrialized countries. The classical transition theory claims that industrialization, urbanization, and modernization are the major causes of low fertility in pre-transition era. Three stages were largely identified before a country complete high fertility to low fertility. Stage I of demographic transition is characterized by high fertility and by high mortality. Stage II, which is known as “population explosion”, depicted as declining mortality with high level of fertility. In stage III, birth rate started to decline to approach low mortality (Thompson, 1929; Notestein, 1945). However, theory has never

been gone unchallenged. As Coale and Watkins found that fertility started to

decline in some places before urbanization and industrialization took place (Coale and Watkins, 1986). They also found out that fertility declines before mortality started declining (Kirk, 1996). The theory also failed to explain two issues – A. what level of development is required to reduce fertility? and B. how much time is needed?

Coale figured out that besides socio-economic development, three other factors are needed to decline fertility. As he mentioned- A. *fertility must be within the calculus of conscious choice*, B. *reduced fertility must be advantageous* and C. *effective techniques of fertility reductions must be available*. However, he mentioned, “in some premodern societies all three prerequisites for a decline in fertility exists, and fertility is reduced before extensive modernization occurs” (Coale, 1973). This argument critically raises the validity of demographic transition theory.

First, one of the main tenets of this theory is that mortality decline precedes fertility decline with a near constant fertility. This implies that mortality decline is to some extent prerequisite for fertility decline. As Ronald Freedman mentioned, “Most sociologists and demographers would probably agree...that one of the two basic causes of the general [fertility] decline was...a sharp reduction in mortality which reduced the number of births necessary to have any desired number of children (cited in Van de Walle, 1986: 201-202).” However, France and Germany were two good examples of simultaneous decline of both mortality and fertility back then. This implies that high fertility which thought to be the prime cause of population explosion is negated by the theory. Second, the transition theory describes that that all its “tenets” are universal and do not have regional variation. While there have been many local variations in the speed at which the vital revolution has occurred.

Third, a large variation is also seen in marital fertility because of number of married women who were at their childbearing age. From the proximate determinants of fertility, we now know that four mechanisms cause to change fertility rate. These are: the proportion married, postpartum infecundability, contraception and induced abortion (Bongaarts, 1978). The very history of population growth in Europe

shows that never married population played a key role in reducing fertility. Fourth, even adjacent neighboring countries follow different patterns of demographic transition. Fifth, the major weakness of demographic transition theory is that “difficulty of defining precise thresholds” (Coale, 1973: 64.)

In contrast to the theory of demographic transition theory, sociologists have studied fertility not only from the point of society as a whole and but also groups and strata in a given society (Davis and Blake, 1956). This model has been successful identifying some proximate determinants, which have substantial explanatory force with respect to the differentials of fertility across countries. The main problem of this model is that individual’s choice has no role to play in explaining fertility.

Right after that, diffusion theory has been proposed to get a view of the process of fertility decline. Most of the developing countries experienced rapid mortality decline, high fertility, high population growth, low labor force participation of women, and difficulty providing universal education compared to the 19th century Europe. The main problem comes from the demographic transition theory to explain developing countries fertility because socio-economic conditions of the 19th century Europe were not same as developing countries (Teitelbaum, 1975). He provided some lists of causes what helped to decline fertility in LDCs. In many LDCs, socio-economic development was rapid.

Table 1 Difference between Developing countries and 19th Century Europe

Indicator	Developing countries	19 th century Europe
Mortality decline	Rapid	Gradual
Fertility	High	Low
Migration	International migration is not possible	Accommodate population growth by international migration
Population growth	High	Low
Population momentum	Present	Not present
Occupational mobility and rural-to-urban mobility	Not relevant	Provides more opportunity
Female labor force participation	Few opportunity	More opportunity
Universal education	Difficult to provide	As not as difficult in developing countries

Compared to Europe. Improved contraceptive technology and safe abortions techniques were readily available to these countries which were not the case for European countries (Table 1). The European transition starts with late marriage, where as fertility in developing countries, two factors-both marriage practices and fertility within marriages contribute to lower fertility. In addition, presence of small family norm, increasing interest among governments of LDCs to reduce fertility, availability of administrative and technological infrastructure, international assistance, and rapid pace of fertility caused to decline fertility in LDCs. Beaver argued that transition theory could achieve a moderate success in Latin America, if the theory has been substantially modified and included additional cultural factors (Beaver, 1975). In contrast, the strong family planning program effort was implemented in many developing countries to set norms of small family size, which was an innovation.

Establishing a more specific framework with testable hypotheses has been the goal of “diffusion theory.” “Diffusion exists when the adoption of innovative ideas (and corresponding behavior) by some individuals influences the likelihood of such adoption by others” (Montgomery and Casterline, 1993: 458). The core theme of diffusion theory is that people do interact and aside form individuals role to lower fertility, their preference is always influenced by others’ preferences, cultural norms, and societal institutions. They collect information from others and try to act upon them. The process of gaining knowledge and the process of influencing others are the two major mechanisms of diffusion (Casterline, 2001).

Some found that even in pre-transitional nations qualify for diffusion to occur (Cleland and Wilson,

1987). Communication networks and the mass media act as two main pathways through which diffusion occurs. Communication networks literally maintain their relationship with reference groups which involve oral and written correspondence. Television, radio, and newspaper still remain the main sources of getting information for many. Both of these play a major role in diffusing social norms and conforming to the rest of the society.

Once, social elites exclusively used birth control. Later, family planning programs disseminate messages about family planning methods and way to get methods. These two factors made it easy for general public to restrict their future birth. Birth control is no longer limited to well-educated, urbanized or high-income groups. As Tsui mentioned, "The steps leading to a decision to adopt a method... which generally include the stages of becoming aware, becoming informed, evaluating, making a trial, and finally adopting the innovation" (Tsui, 1985: 117) which exactly follows the social learning and social influence aspects of diffusion theory. If development is the key factor to use contraceptive methods and thereby to experience low fertility, then developing countries never had a chance lowering their fertility down. Widespread use of contraceptive and low fertility rate is the two best examples of diffusion as an innovation. By using World Fertility Survey data, Tsui also described five stages of diffusion process- awareness, knowledge, evaluation, trial and adoption- that portray the fertility decline in many developing countries.

When comes to contraceptive use, we do not expect much from disadvantaged groups. Diffusion theory rightly explained that these groups would be using contraceptives if they were given right information and ways to reduce fertility. This theory is also right in the sense that it correctly observed that disadvantageous group has less opportunity to innovate because of their position in socio-economic status ladder. The only thing differ is that timing is different for different group. It could take a little time in rural areas than urban areas, but it would happen. However, if we do not observe that a lion share of couples stop using contraceptives and fertility still remains the same, we can conclude that diffusion does not work for developing countries. But to our surprise, many couples in developing countries quickly ensued from one stage to another. Further evidence of cultural diffusion is that child spacing and using contraceptives become part of many women's lives around the globe.

Two best examples of fertility decline through diffusion are Taiwan and Egypt. In fact, a local program with diffusion agenda was proposed, which was a great success. Following that Taiwan's family planning program shows how communications networks work, even though this program start with completely different agenda other than that of diffusion (Montgomery and Casterline, 1993). Egypt took a program called "Minya Initiative" and held total 460 meetings in Upper Egypt. In most cases, audience was men. Right after attending the meeting, ninety percent men spoke with their spouses about using contraceptives, which basically portrays the two major steps of diffusion- awareness and diffusion (Johns Hopkins Center for Communication Programs, 1997). In sum, diffusion works well in many developing countries translating fertility transition into by using contraceptives.

One odd was that the theory failed to explain the reasons why individuals change their fertility behavior. Another missing link is how to explain the behavior of persons who took the first step to change fertility behavior. Assumption is that people receive important information from someone whom they trust, then share that views with their spouses and try to use contraceptives, if it goes with their lifestyle; they eventually practice family planning methods. From this, it is almost impossible to explain the behavior of innovator. Some view that this theory is too much behavioristic in nature.

The theory also did not mention other forms of social learning which deserve attention: social comparison and social coercion. Sometimes people compare themselves with others who are positioned well in the society and try to find out the reasons of forming a happy family and try to practice same philosophy in their life. However, not all people react the same way that means, if we compare people based on their willingness to use contraceptives and thereby, compare fertility between groups that would eventually lead to some form of fallacy. In the same line, people are being forced to change behavior. Likelihood is that if government implement polices and people act as per policy that also lowers down the fertility rate: China's one child policy is the best example in this regard (Attane, 2002). However, little research has been conducted to test the hypotheses associated with diffusion theory. This implies that empirical evidence to support this theory is scanty (Casterline, 2001).

Before fertility transition takes place, we see some changes in demographic behavior. There has always been an excess production of children because of lack of contraceptives, lack of knowledge about availability of contraceptives, and lack of understanding about fertility behavior. As society moves onto low fertility rate, diffusion process induces couples to limit family size. If things did not go as it is projected, right after the transition, fertility rate will increase one more time. The main strength of diffusion theory is that diffusion goes well along with other substantive interpretations. Diffusion truly affects all aspects of the household decision making frameworks. In addition, diffusion as a process can and do affect the psychological and monetary costs of fertility control. Moreover, it can also affect the perceived benefits of fertility control.

Unlike social demographers, Economists stress on behavior with conscious and rational choice. In most cases, their discussion includes economic factors which help in reducing fertility. Becker pointed out that number of children is associated with old age security and mental satisfaction. These two reasons prompted individuals to have more children (Becker, 1988). However, before Easterlin (1968) the costs of fertility were never taken into account which might cause high fertility in some societies. Even if individuals chose to use contraceptives, they may not do so due to non-availability of contraceptive methods and high costs of fertility regulation. In addition, for the first time psychic costs of having children has entered in the fertility model. The model did not make it clear whose psychic cost was the focal point. This model is claimed to be too deterministic and economic in nature, thereby failed to capture other factors which may have role in declining fertility.

Caldwell (1982) attempted to explain the reasons that work in reducing fertility. Pre-modern and pre-transition period is characterized by extended family with house full of children. Economic life is very much in touch with reproductive life. Household heads never felt controlling fertility as more children means more labor power. Since they are the one exercise power over other members of the household, no couple has ever dared to ask them about limiting family size. The trends changed, as socio-economic conditions changed. The rise of capitalism, which eventually leads to changes in familial mode of production, tended to see more children as burdens for family.

In familial mode of production, children were also part of productive life and economic life. But under capitalist system, their role had been squeezed. Instead of working for the family, now family is working for them to raise them up and raising children under capitalists system is way too expensive. As a result, parents consciously choose to limit their family size and fertility declines. This explanation is also economically determined. Robinson (1997) made it very clear that demographers neglected an important biological factor which is sexual activities. Birth of a child is not always determined by demand, supply or costs. Not all think that children will provide economic, social, psychological support and old age security. This implies theory sometimes fail to explain individuals preference, taste, and even a regional difference. Moreover, not all theory is applicable to everywhere since fertility motivation is not equal in developed countries and developing countries.

Since economic and sociological approach fail to capture the real dynamics of fertility decline, diffusionist theorists provided an alternative explanation. What they have been arguing, as people get to know new ideas and new attitudes towards birth control, some people will learn and adopt the new behavior pattern and attitude. By accepting new attitudes and new behaviors, they also conform to the law of having small family size. The pioneer group basically influences other people and they demonstrate the process what would be the cost and benefit of taking same reproductive choice. The theory gives credit to how ideas and behavior spread over time that also influences to decline fertility. However, behavior of pioneer group is not unraveled by the theory. Moreover, this theory indicates an isolated behavior from economic and social structure. Can we possibly do that? The answer is no.

Over the years, demographers are perplexed by high fertility. As many countries introduced family planning program, fertility started to decline in some countries beyond demographers expectations. Their understanding was that a certain level of infra-structural development is much needed to decline fertility. This decline did not much with demographers' usual formula. As a result, population talk is much more concentrated on micro-issues. We see the reflection in the agendas of population conference. Before Cairo Conference, the focus was on two issues- consequences of high fertility and ways of lowering fertility (Gulhati and Bates, 1974). Obviously, the major focus was at the macro-level and

consequently demographers proposed grand theories with high level abstraction. They were wishing to understand the whole situation and what is happening around them. Since these theories partially explain causes and consequences of high fertility but failed to explain regional variation, Post-Cairo population thinkers attempt to explain fertility decline based on micro-level variables.

Their focus has been shifted from strictly demographic factors to micro level issues like sustainable development, gender issues, reproductive health and adolescent health, women's right and empowerment, violence against women, female genital mutilation, the rights of indigenous people, family planning and so on. While focusing on other issues, they did not pay attention to the determinants or consequences of high fertility. No doubt, the 1994 International Conference has changed the whole focus of population issues (McIntosh and Finkle, 1995). Following is the key differences between Pre-Cairo and Post-Cairo population agenda which also shows major changes in issues and priorities of population issues (table-2).

Table 2 Population Agendas of Pre-Cairo and Post-Cairo Population Conference

Pre-Cairo Population Agenda	Post-Cairo Population Agenda
Macro	Micro
Aggregate	Individual
Directed toward population change	Directed toward broader reproductive health, women's right, and human right issue
Demographic objectives were not subordinated	Demographic objectives are subordinated
Source of funding and budget issues were discussed	Fund needed for proposed line of action is now a big issue as it never discussed in the Cairo conference.

3. TOWARDS A REGIONAL THEORY

Theories of fertility provide a crucial insight for explaining fertility decline. These theories laid out a framework on the basis of economic, social, biological, cultural factors and so on. For years, these theories attempt to explain fertility of both developed and developing countries. Not all underlying causes were present in developing world. Not all prerequisites were met by developing countries. With Western demographers wonder, fertility declined in some countries, but not declined in some other countries. Broadly, we could conclude that these theories were not sufficient enough to explain fertility decline. If we put simply, answer would be no. Can we conclude that those theories can explain differential pattern of fertility decline at the global level? Answer would be no.

As it turns out that pace of fertility decline is different in the developed world and developing world. Some claim that one of the reasons that cause to different pace of fertility decline and that also partially fail fertility theories is that social norms have been altogether excluded from the analysis. This is one variable that cannot be explained by economic factors. Some mention that even though some aspects of cultural diffusion have been taken into consideration but still a complex web of cultural, socio-economic, and demographic issues remain unexplained. This is evident from the low fertility in European countries and high fertility in sub-Saharan Africa. So far there is not such a theory which combines all these factors under one umbrella. Is there an alternative? Or what would be the better theory for explaining fertility

decline? More simply, what we need? Whether we need a grand theory which would partially explain fertility decline or we need theories to explain regional variation- we need a consensus in this regard.

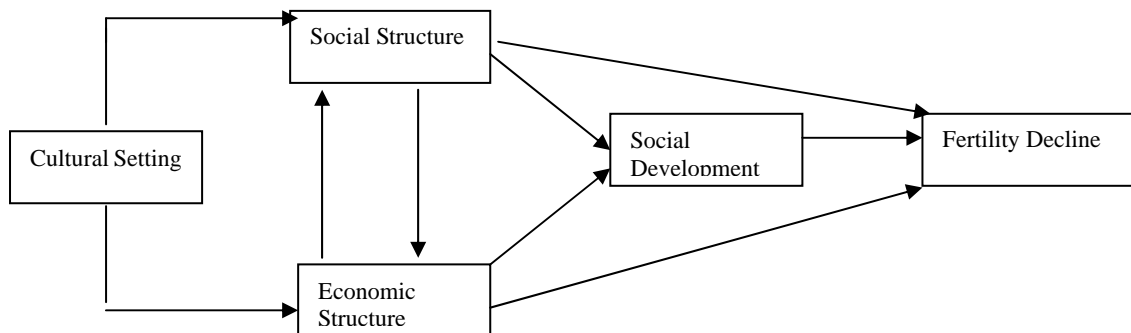
Since, social norms and cultural values proved to be two major factors in explaining high/low fertility, and also have differential patterns in different countries, would not that be more logical to offer more micro theory based on region. More clearly, not all economic, social or cultural mechanisms will operate equally in every parts of the world, if we propose a theory with unique characteristics of region at a large, and include them in a regional model, that might have a better chance in explaining fertility. If grand theory appears to fail to capture the reasons of fertility decline at the global level, what is wrong with proposing a theory for regional level? All we need to explain why fertility decline, if regional level theory gives us better precision, why not we go for that?

However, some argue against proposing regional theory. The reason is that they claim that sometimes demographers use culture as an escape-goat when comes to explaining human behavior, especially fertility decline. If we cannot explain dynamic nature of behavior, only conclusion we eventually made is that behavior must be culture specific. If we take culture as the most extreme exogenous variable then it allows us more predictive power in explaining fertility decline. From previous knowledge about theories of fertility decline, we know that social structure and economic structure is intertwined, the future theory should include both of them under one theoretical schema. But question of priority also remains the issue.

If we prioritize economic structure, then some would argue that theory would be too economical nature. If we prioritize social structures, then further question will formulate against neglecting economic factors. As Marx has said that superstructure depends on base structure but it is also eminent that both of them complement each other. Both social structure and economic structure affect the level of social development. The empirical studies have shown that social structure and economic structure have independent effect on fertility decline and also these broad variables have joint effect on social development, which basically works here as an intermediate variable and tend to reduce fertility (Figure 2).

Kirk (1996) argue that economic development is not necessarily help declining fertility, rather diffusion within a specific cultural and linguistic region contributes more to decline fertility. Economic development came out as a sufficient cause but not a

Figure 1 Regional Model of Fertility



necessary cause for fertility decline (Coale, 1973). For example, many provinces in Europe had experienced fertility decline without being urban, under high infant mortality, and only a small percentage of people were involved with industrial occupations (Weeks,1999). Kondel and van de Walle provided a good summary that the real decline of European fertility occurred with widely differing social, economic, and demographic conditions. They suggested that -“ 1. *Fertility declines took place under a wide variety of social, economic, and demographic conditions, 2. Family limitation was not practiced among broad section of the population before the decline in fertility began, even*

though a substantial proportion of births may have been unwanted, 3. Increases in the practice of family planning and the decline of marital fertility were essentially irreversible process, once under way, and 4. Cultural settings influence the onset and spread of fertility decline independently of socio-economic condition” (cited in Kirk, 1996:367). No wonder cultural settings have outright contribution in declining fertility.

4. CONCLUSION

Transition demographers were not confident that economic growth in non-industrialized countries could outpace population growth. Because of that they shifted their focus of attention from social science perspective to policy science perspective. The standard approach now inclines toward policy oriented approach. However, there is no quick demographic solution to the problems of population pressure as Notestein mentioned. Some believe that a major change in social structure with a complete and integrate program of modernization and fertility would decline. By the mid-50s, Davis advocated social scientific perspective as it provides more importance on the interaction between socioeconomic change and demographic change. However, they realized at some point that their theories failed them in explaining fertility decline. The new policy oriented approach, which described fertility, has independent affect on other household level variables and fertility attitudes need to be changed basically generated from the older social scientific perspective, which viewed fertility as a dependent variable that is affected by socioeconomic change (Hodgson, 1983).

Nonetheless, some view that micro-level phenomena can work as determinants of declining fertility. As it turns out that micro-level variables do help explaining fertility decline but still there remain regional variations. Simply, theorists who attempt to explain fertility by using social, economic and development approach were partially successful. Grand theory failed to explain regional variation. All these implies we are onlookers who wanted a theory which would provide us better precision and better result in explaining fertility. The very simple solution could be proposing regional theory with special emphasis on cultural setting along with other socio-economic variables which deserve attention.

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