

Bio-social legitimation of population policy in demographically post-transitional society

R. L. CLIQUET¹

RESUMO

Demograficamente a sociedade pós-transicional é caracterizada por uma tendência para a sub-reposição da fertilidade. Uma proporção considerável, e cada vez maior, de indivíduos, não querem, nas populações modernas, mais de dois filhos, apesar de ser necessária uma maior variância no tamanho familiar para garantir a longo prazo a substituição das gerações.

À primeira vista parece existir uma contradição entre o princípio da maximização da aptidão inclusiva e o comportamento relativo à fertilidade na sociedade moderna. A explicação deste paradoxo encontra-se no duplo mecanismo de herança que caracteriza a espécie humana, cuja programação genética directa do egoísmo reprodutivo não é nem maior nem menor que a do seu egoísmo fenotípico. A ligação entre o desenvolvimento fenotípico e o sucesso reprodutivo, necessita da mediação de factores culturais, os quais, na sociedade moderna, permitem o sucesso fenotípico sem a produção de grande número de descendentes.

Se as sociedades modernas querem restabelecer e manter a longo prazo os níveis populacionais, terão de desenvolver, com base na teoria sociobiológica, valores reprodutivos e sistemas normativos que transcendam a organização a nível individual.

Palavras-chave: Fertilidade; Demografia; Transição demográfica; Política populacional.

ABSTRACT

Demographically post-transitional society more and more is characterized by a trend towards a below-replacement fertility. A considerable and increasing proportion of individuals in modern populations want and realize not more than two children, whereas a substantially larger family size variance is necessary to guarantee long-term generational replacement.

At first sight there seems to be a paradoxical contradiction between the maximization-of-inclusive-fitness principle and fertility behavioural trends in present-day modern society. The explanation of this paradox is to be found in the dual inheritance mechanism which characterizes the human species whose reproductive selfishness is not as much or less directly genetically programmed than its phenotypical selfishness.

¹ Population and Family Study Centre, Ministry of the Flemish Community, Brussels.
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The link between phenotypic development and reproductive success strongly needs mediation by cultural factors all of which, in modern society, allow for phenotypic success without the production of a large number of offspring.

If modern societies want to restore and maintain long-term population replacement, they will have to develop, on the basis of sociobiological theory, reproductive value and norm systems which transcend the individual level of organization.

Key-words: Fertility; Demography; Demographic transition; Population policy.

INTRODUCTION

One of the most important effects of modernization concerns the demographic transition, i.e. the change from high mortality and high fertility to low mortality and low fertility in human populations. In its primary stages the demographic transition gave rise to a disequilibrium between mortality and fertility, because in most cases the former started to decrease earlier than the latter. In the final stage of the transition a more or less well-adapted new mortality/fertility equilibrium at low levels is established (COALE, 1973; 1974).

However, in the middle of the sixties, even before the population growth effect of the earlier mortality/fertility disequilibrium was completely burnt out, many industrial countries experienced a new fertility decline which has meanwhile, in a majority of cases, reached such low levels that the long-term replacement of the generations is no longer guaranteed (CALOT & BLAYO, 1982; KLINGER, 1984; WIJEWICKREMA, 1984).

This trend is remarkable in several respects. It started approximately at the same time—in the mid-sixties; it is rather strong and almost universal. Nevertheless, due to fertility differentials at the onset of the recent decline as well as differences in its intensity, differences between countries as well as within countries still exist. The importance of this new reproductive behavioral pattern, however, should not be underestimated when one looks at the low fertility rates that have been reached so far in countries such as Germany and Denmark, which have now below replacement fertility levels of nearly 40%, and at the speed with which fertility levels have fallen in regions traditionally characterized by a relatively high fertility,—the most remarkable cases being some of the Italian regions such as Liguria and Friulia V.G. where the total period fertility rate (TPFR) now lies almost 50% below replacement (SANTINI, 1986).

This emerging below replacement fertility worries policy makers and other people concerned more and more because of the biological, social, cultural and economic effects of the further aging of the population and because of the perspective of an imminent declining population size (FELD & LESTHAEGHE, 1984; MINISTÈRE DU TRAVAIL ET DE LA PARTICIPATION *et al.*, 1981; SCHMID & SCHWARZ, 1985).

Some feel that a population policy must be developed to change present trends and to restore fertility at replacement levels. However, within the framework of currently prevailing values, many do have problems in identifying criteria that could legitimate a population policy. Traditional religious

precepts, the foundation of which has been undermined by modern biology and other natural sciences, no longer seem to suffice. Moreover, nationalistic motives in the currently unifying world, are difficult to play on, although in some cases — with France as the best example — it is still being done and not without success.

The growing concern about these developments is quite understandable. A strong below replacement fertility will not only strengthen the aging of the population some more, but it will also lead to a population decline within a few decades, if it is not yet the case now. The strengthening of the population aging will undoubtedly produce many social and economic problems, especially in the delicate field of the intergenerational transfer systems have been established in a period in which the population was still growing (ESPENSHADE & SEROW, 1978). Some also fear that the further aging will influence the social dynamism of society in an unfavorable way (CHESNAIS, 1985). Last but not least the perspective of a declining population also rises questions and fears regarding its possible political importance and influence. In the past, population size and growth were indeed usually considered to be instruments of economic and political power.

This contribution aims at developing a bio-social legitimation of population policy, especially with respect to fertility, in demographically post-transitional societies. In our view two major issues of fundamental importance in this respect, namely

- a) the individual versus the population controversy;
- b) the quantitative versus the qualitative controversy.

THE INDIVIDUAL/POPULATION CONTROVERSY

The current below replacement fertility trend in industrial societies serves as a good example of the individual/population antagonism which characterizes such societies. The overwhelming majority of individuals or couples in modern culture wants children, but they want a small number of children. Relatively thorough psychological studies on desired family size on the value of children (DEVEN, 1982) show that one or two children appear to perfectly satisfy all major needs of parents with respect to having and educating children. Under present circumstances there seems to be no need for most people to have a third or a fourth child. A small family appears to be, for the large majority, a good compromise between overall costs and benefits of having children (COUNCIL OF EUROPE, 1985).

In present circumstances however, the long-term intergenerational replacement at the population level necessitates a rather considerable family size variation within the population:

- a) on this basis of current mortality and sex ratio figures, one needs about 210 children per 100 women to obtain population replacement;
- b) on the basis of present nuptiality trends, desired family size distribution, subfecundity, and other life course circumstances, it is not unrealistic to

assume that in the near future — in some countries it is already the case by the way — 25% of the female population will remain childless and 20% will have only one child;

c) on the basis of the desired family size distribution it is equally reasonable to hypothesize that in the future only about 5% of all women will have four children and virtually none will have five children or more.

Taking all this into consideration, one needs 50% three child families, and only 10% two child families to achieve long-term intergenerational replacement (COUNCIL OF EUROPE, 1985).

As far as can be discerned, this controversy is often be addressed in an inadequate way, because only proximate, short-term or partial elements such as individual freedom, family welfare, ecological homeostasis, are being taken into consideration, implying that they won't do as a sufficiently objective basis for legitimizing a population policy.

Let us for one moment concentrate on individual freedom. In industrial countries, or at the least in Western pluralistic democracies, the ethical principle of individual freedom is highly valued, but when it is not considered in a broader context that also includes higher levels of organization of life such as the family level, the population level and the intergenerational level, it is impossible to address questions that precisely concern the interrelations of different levels of organization. Moreover, according to many sociologists, Western democracies are currently being characterized by an individuation process (SCHMID, 1984). Whether those societies are really witnessing a fundamentally new behavioural trend is perhaps amendable to discussion, but there can be little doubt that the observed symptoms of this putative individuation process are the result of the way in which the modern welfare state is organizing the welfare care out its citizens and of the way in which people experience their relations with fellow citizens in such societies.

It is posited here that a more fundamental, comprehensive and ultimate approach to disentangle the individual/population controversy with respect to reproductive behaviour might be found in considering this matter from the viewpoint of the biological and cultural evolution and of the bio-social specificity of the human, because only in such an approach intra — as well as intergenerational, and phenotypic as well as genotypic aspects are taken into consideration.

Herewith it is not contended that a replacement fertility ought to be realized in order to maintain the present population size in industrial countries. On the contrary, several fundamental biological and more particular ecological arguments could be advanced in favour of a lower population size or density, especially in the highly dense regions of the advanced world. However, even if such a decline in population size would be desirable, it should be achieved in such a way that unfavorable demographic, social, economic and cultural side effects would be avoided. There can be little doubt that the present below replacement fertility levels in many industrial nations are of such nature that they will lead to a too fast aging and population decline, implying unfavourable social consequences. However, with respect to the essence of the

matter under discussion, all this is irrelevant. The fundamental question is that generational replacement — at whatever population size level — requires a considerable fertility variance and therefore an individual transcending value system once the population size target has been set.

The evolutionary approach

The theory of natural selection is based on the postulate of reproductive fitness maximization that allows carriers of particular genes to outbreed carriers of other alleles and consequently to adapt to (changing) environmental living conditions (DARWIN, 1859; O'DONNALD, 1982). The recent development of kin selection theory (HAMILTON, 1964; KURLAND, 1980) has even broadened and strengthened that postulate and has given new impetus to evolutionary theory, more particularly with respect to the emergence of social life and particular behavioural patterns such as selfishness and altruism (GHISELIN, 1974; TRIVERS, 1985; WILSON, 1975).

Concerning the level of organization at which selection processes occur, it seems to be rather generally accepted now that this mainly happens at the individual level (ALEXANDER & BORGIA, 1978; TRIVERS, 1985; WILLIAMS, 1966). Some go even further and interpret the facts of life from the viewpoint of the gene level of organization (DAWKINS, 1976).

The maximization/transition paradox

Confronting evolutionary theory and more particularly the maximization of inclusive fitness principle with demographic transition and especially with the reproductive behavioural patterns in post-transitional circumstances, there seems to be a paradox at first sight: demographic transition would namely challenge the maximization-of-inclusive-fitness principle which is considered to be one of the most fundamental tenets of evolutionary biology (BOYD & RICHERSON, 1985; BURLEY & BARKOW, 1980; VAN DEN BERGHE, 1979). Several explanations for this paradox have been suggested (CLIQUET, 1986).

In our view, the most important cause for the maximization/transition paradox lies in the fact that in humans the achievement of genetic fitness is not completely genetically programmed, but that it occurs largely via the realization of the genetically programmed urge for selfrealization, i. e. via the realization of phenotypic fitness. Yet, modernization has changed the living circumstances so thoroughly that the achievement of phenotypic fitness not necessarily induces reproductive (genetic) fitness. As a matter of fact, modernization is characterized by a turnaround, as CALDWELL (1982) puts it, of the direction and size of the intergenerational wealth flow between children and parents. In pre-industrial culture the generational replacement, i. e. the transmission of the human genome, was guaranteed by the advantages offspring provided to the parents themselves. Indeed, the intergenerational wealth flow went from the younger to the older generations. In such living

circumstances, having a large number of children supplied labour force in the household and guaranteed survival and safety of the parents in old age.

On the contrary, in modern culture the increased requirements with respect to the education of children, the capitalist instead of the familial way of production, the development of technology, the creation of traditional opportunities, other than the pleasure-giving, and, last but not least, the establishment of a societal instead of a familial based social security system all favour a small number of children (SCHMID, 1984). Whereas in traditional culture, the intragenerational and phenotypic parental selfishness went together quite well with the intergenerational or genetic selfishness, this is not the case anymore in modern culture.

The adaptive significance of the population organization level

Accepting as a working hypothesis that evolutionary processes essentially occur at the individual or even at the gene level of the organization of life — a conservative hypothesis with respect to the discourse developed here — there can also be no doubt that in the evolution of the hominids, individual transcending organization levels, such as the family and population levels, have acquired an adaptative significance of such an importance that the emergence not only of the biological specificity of the human but also of his ontogenetic development in each generation and his future intergenerational, phylogenetic evolution depend on that.

Recognizing that the moving power of human action is to be found ultimately at the individual level or even at the gene level of organization, it would, however, be a mistake to assign to the population level of organization only an instrumental role or significance with respect to individual survival and reproduction. As bearer of an intergenerationally emerged cultural heritage and transmitter of values and knowledge, the population organization level of life has acquired a second function which clearly transcends its role with respect to the need satisfactions of the individual. As products of the accumulated creativity of very large numbers of individuals, not only spread over the different existing populations, but also belonging to many past generations, culture is not only an exosomatic structure, but it has long become a phenomenon that largely exceeds the absorbing capacity of the individual. Notwithstanding its functional dependence on individuals, also for future development, it has become an individual — transcending phenomenon.

Implications for population policy

From the above developed considerations two lines of reasoning with respect to the justification of a population policy can be derived.

The first concerns the individual level of organization itself. In societies where the average individual and familial welfare is largely guaranteed by human action emanating from higher levels of organization such as the community, the national, the continental and even the global level, a popula-

tion policy ought to be a common constituent of society's general policy. Individual development and need satisfaction — pre-conditions or individual freedom — can only be safeguarded when individual freedom and action are harmoniously combined with individual responsibility towards society. In modern society, with its large population numbers, complex social structures and impersonal interindividual and non-kin relations, the profound societal dependence of the individual and his welfare is experienced only very weakly. Moreover, an adequate present-day value system in this respect, replacing obsolete traditional value systems, has not been successfully developed or popularized yet.

This conclusion does not imply that all individuals in society ought to behave with respect to reproductive behaviour in a particular or uniform way. Responsibilities in this field can be shared in different ways. It also does not imply that the population policy, more particularly in the field of fertility behaviour, ought to be a coercive nature at the individual level. First of all, coercive measures would probably not be very effective in the long run. Moreover, they are undesirable from an ethical point of view. Modern culture at last has other means in the field of the development of values and welfare care, that might prove to be more acceptable and probably also more effective in the long run.

Perhaps the second argument is of a more disputable nature. It concerns the population level as a bearer and transmitter of culture itself. Whereas the justification of a population policy — seen as indirectly protecting the interests of the average individual — can be supported rather easily because the individual dependence of the population organization level is so fundamental and can be illustrated by so many undeniable facts, the population/culture argument in itself is of a much more arbitrary nature. Nevertheless, to the extent that this population/culture position is considered to be a valid assumption, it has a powerful weight in the debate, because in that case the individual interests can be considered to be subordinate to the population and cultural interests.

The quantitative/qualitative controversy

Demographers with a social science background usually limit their concern about the effects of the current below-replacement fertility trends to demographic and socio-economic consequences. Possible biological and — more particularly — genetic consequences are mostly not considered. Worse, in some cases, the consideration of biological consequences is simply being opposed (COUNCIL OF EUROPE, 1983).

This lopsided quantitative approach and the neglect of, if not opposition to, qualitative considerations probably have several, in part mutually reinforcing causes:

a) the knowledge of biology and genetics among social scientists often is highly unsatisfactory;

b) due to ideological prejudices, social scientists often take positions with respect to the quantity/quality controversy, in which subtle distinctions between relevant concepts such as equality and diversity and equality and equity are mixed up;

c) the misuse of putative biological theory by conservative and exploitative political ideologies in order to give a natural — often implying a supernatural — basis to racist, sexist and classist theories, has left serious scars;

d) the development in the course of this century of the various human sciences to autonomous fields has been accompanied by a very unfortunate intellectual inbreeding and isolation.

Nevertheless, demographic transition and the reproductive behavioural patterns, observed in post-transitional societies, are not only important with respect to the numerical population growth, but also to the biological and the genetic composition and change of population. As a matter of fact demographic mechanisms such as fertility and mortality come close to being instruments of biological evolutionary processes.

The development of fertility differentials during demographic transition

The fertility decline in the transitional phase of the demographic transition showed a differentiation that would have had important effects with respect to the biological composition of the population in the long run if this decline would have sustained. This fertility decline started in those individuals or groups of individuals — and were most outspoken in them for long time — who appeared to be economically, culturally and phenotypically most successfully, i. e. who showed higher performances on an average for the following, partially (inter) correlated features: educational level, income out of labour, social status, social mobility, physical health, cognitive performance.

However, the rather strong differential fertility according to several biosocially important performance characteristics, which originated in the course of the transitional stages of the demographic revolution, appeared not to persist but seemed to be a transitional phenomenon itself. With the progression of the demographic transition, birth limitation became a rather general form of behaviour and the original differentiation tended to level off, to disappear or in some cases even to reverse slightly. This phenomenon, undoubtedly with differences in time and intensity, has been observed in many countries (BAJEMA, 1976; CATTELL, 1983; CLIQUET & VAN LOON, 1972).

An even more interesting phenomenon appears when desired family size among the more recent birth-cohorts is considered. This can be illustrated by means of the quinquennial fertility surveys undertaken by the Population and Family Study Centre in Belgium since 1966 (CLIQUET, 1985; CLIQUET & DEBUSSECHERE, 1983). In the most recent cohorts women with the highest educational levels were found to aspire to higher fertility rates on an average. However, when achieved figures are considered, it appears that these aspirations are not or will not be met, because women with high educational levels want to make a career more often than other woman. Apparently phenotypically successful

women cannot optimize their genetic fitness due to the existing social constraints with respect to parenthood. This shows that present social structures are no longer adapted to optimize genetic fitness of some individuals in modern populations or to promote eugenic fitness in general.

The latter phenomenon can also be illustrated at the other end of the scale. Couples or women who score very low on a variety of social-biological performance variables (cognitive performance, educational level, social status, social mobility) on an average score higher than mean fertility. This is largely due to excess fertility, i.e. the realization of more children than one wants. This excess fertility is often the result of an accumulation of personality characteristics that lead to being unable to master fertility (CLIQUET & BACAEN, 1983). So, modern society is maladaptive as far as this aspect is concerned as well, this time not with respect to genetic fitness but only with respect to eugenic fitness.

Implications for the legitimation of a population policy

Human evolution is not just a transgenerational developmental process, but it is also characterized by the short-term conservation of the human specific features and by the long-term progressive improvement of those features, allowing for a steadily increasing mastering of the environment and the self.

In modern culture, man has made considerable progress in discovering the mechanisms determining evolution and has started, mainly through intervening in the basic demographic mechanisms — fertility and mortality —, to influence his own evolution much more intensively. It may be feared that, due to his shortsightedness and phenotypic selfishness and due to the maintenance of norms which probably had a certain adaptive value in pre-scientific cultural circumstances, he has so far mainly produced disgenic effects.

On the basis of present knowledge and applying a value system that not only takes the individual and more particularly his phenotypic wellbeing into account, but also the more essential features of life, namely the intergenerational and genetic aspects, not only the individual welfare would be taken care of in a better way. Further long-term progressive evolution might also be achieved.

That's why there are two major arguments in favour of designing a population policy that not only takes quantitative but also qualitative facets into consideration:

- a) the protection of the existing human genome, as it was constructed in the course of human evolution;
- b) the furthering of the hominization process.

SUMMARY AND CONCLUSIONS

Demographically the post-transitional society is characterized more and more by a trend towards a below-replacement fertility. A considerable and

increasing proportion of individuals in modern populations wants and realizes no more than two children, whereas a substantially larger family size variance is necessary to guarantee long-term generational replacement.

At first sight there seems to be a paradoxical contradiction between the maximization-of-inclusive-fitness principle and fertility behavioural trends in present-day modern society. The explanation of this paradox is to be found in the dual inheritance mechanism that characterizes the human species the reproductive selfishness of which is not as much or less directly genetically programmed than its phenotypical selfishness. The link between phenotypic development and reproductive success needs strong mediation by cultural factors all of which, in modern society, allow for phenotypic success without the reproduction of a large number of offspring.

If modern societies want to restore and maintain long-term population replacement, they will have to develop, on the basis of sociobiological theory, reproductive value and norm systems which transcend the individual level of organization. This need to develop biosocially based, individual-transcending value and norm systems can be founded at two levels:

a) the individual level: in complex societies the average individual welfare is largely guaranteed by human action emanating from higher levels of organization such as the population level, and this requires a reciprocal individual responsibility towards the population level;

b) the population level: as the bearer of an intergenerationally emerged cultural heritage and as a safeguard for future bio-cultural evolution, the population/culture level has acquired an individual-transcending significance. This is not only the case with respect to the mere quantitative replication of human life, but also and even more for the maintenance and the furthering of human life quality.

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