



POPULATION AND DEMOGRAPHY

P E R S P E C T I V E P A P E R

*Benefits and Costs of the Population and Demography
Targets for the Post-2015 Development Agenda*

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Post-2015 Consensus

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Introduction

The paper Population Dynamics: Prioritizing the Post-2015 UN Development Agenda on Population Dynamics by Hans-Peter Kohler and Jere R. Behrman is enormous in scope. It addresses the issues of high fertility, population aging, international migration, urbanization, and human capital. Perhaps because of this wide scope there is a lack of details in some of the arguments. In addition, each issue leads to its own set of policy recommendations and this means we have to think of priorities across issues as well as within issues. The paper puts forward five thematic priorities.

High Fertility and Population Growth

The first issue addressed is high fertility, which persists in many developing countries, particularly in Africa. There are a number of important questions here that I think should be brought out. The most fundamental is on the whole issue of applying benefit-cost analysis to fertility. The philosophical basis for welfare judgments when we are changing fertility is very problematic; is the welling of those potentially born included in the analysis? When we invoke the Pareto principle in “if everyone is better off we have a welfare improvement” does the “everyone” involve these children who are born in one scenario but not another? This is of vital importance since the conceptual basis of benefit-cost analysis is that if benefits exceed costs we have a potential Pareto improvement. The usual result in the philosophical literature is that either zero children, or as many as possible, is optimal depending on how we think of the welfare of potential children – either conclusion seems ridiculous¹. I worry about applying cost benefit analysis to fertility policy without thinking hard about this issue. This issue is touched on in the appendix but the doubt that it throws on the whole enterprise means it should be highlighted in the main text, and it should lead to some humility in drawing conclusions in this area.

In addition to this probably insoluble philosophical problem we have the more mundane issue that people like to have children, but this benefit of children is nowhere in the analysis. This leads to the rather strange conclusion that there are always large benefits to lowering fertility compared to the only cost which is that of family planning. It is difficult to monetize the utility gain a man or woman has from having a child, but putting it at zero cannot be right. Not putting fertility desires, and the direct utility benefits of children, at the heart of the story leads I think to bizarre conclusions.

In much of sub-Saharan Africa desired fertility remains high². Men and women have children mainly because they want them and value them. There are also costs to having children. In my view the right place for the decision about the optimal trade-off between the benefits and costs of children is the family where fertility decisions are to be taken. The rights based approach to reproductive health that came out of the 1994 Cairo conference³ was based on a rejection of coercive family planning programs that aimed at macroeconomic population targets. While the paper acknowledges the need for a rights based and gender responsive approach I think much more could be said here to make clear that the decision making is, and should be, at the household level. This is particularly the case when advocating using the contraceptive prevalence rate as an MDG indicator (section 2.3). The coercive policies condemned at Cairo involved forced sterilizations (which count as part of

the contraceptive prevalence rate) that came about because of targets and incentivizing providers. I would much prefer limiting targets and indicators to measures of access to family planning, and unmet need, rather than actual use, so that this point is clear.

The policy should be to provide access; use is up to a woman, and a low contraceptive prevalence rate is not a problem if all contraceptive needs are being met. In addition, while at the aggregate level we expect fertility to come down there are, particularly in Africa, health problems (sometimes easily treated) that cause infertility, with severe psychological and social consequences, for the women involved⁴. Benefit-cost ratios for reducing infertility in cases where more children are desired would make it clear that the approach was targeted at helping families achieve their desired fertility rather than controlling population.

In terms of the benefits to lower fertility four areas that are discussed. The first is the social savings in terms of expenditures on health and education etc. from avoiding children. However it is not clear here if the focus is on public expenditures only or on private expenditures are included as well. If private expenditures are included the “etc.” term should itemize housing, food, and clothing for children, which are probably larger amounts in total than education and health expenditures, and should be given more prominence. If it is only public, and not private, expenditures that are counted in this section then presumably the argument is one about externalities and this is a reason for forcing families to have fewer children than they want since they do not take into account the public as opposed to the private costs in their fertility decisions. This argument does not contribute to the overall benefit cost ratios in the end because of the assumption that there is a quantity – quality tradeoff with fewer children meaning more expenditures per child, so the total is unchanged. However I think it would still be useful to make clear the basis (public expenditures or all expenditures) on which this cost is being calculated.

The second area of benefit is in terms of maternal and child health. Here I think the theoretical basis is much clearer. Much of the benefits of family planning to child and maternal health come from better birth timing and spacing^{5,6}. Such timing and spacing effects mean we do not have to deal with the thorny question of the number of births; this section could be phrased entirely in the language of moving a set number of births to take place at different maternal ages and with different birth spacing. Births before the mother is age 18, or at less than 36 months after the previous birth, are very high risk to both the mother and child. To the extent that family planning shifts such high risk births to safer times it is clearly beneficial. The literature on the risk of births at high parities or at older ages seems a less clear⁷ if it is the age of the age mother or the parity of the birth that is the key risk factor. The very high benefit cost ratios, up to 50 to 1, for maternal and child health calculated in the paper seem justified. The third benefit is in distributional and intergenerational gains, but again these are difficult to quantify, and are not included in the headline benefit-cost ratios.

The largest impact of family planning programs appears to be through rising income per capita. I am concerned with taking income per capita growth as a benefit. Income per capita is not a welfare measure. National income accounting was developed as a method of

measuring the volume of goods and service transactions that were carried out for money as a way to see the effects of macroeconomic demand management efforts. It does not include, by design, activities that are not traded for money but may add to welfare. So, for example, leisure time is not counted as part of national income – and it would be easy to increase income per capita, perhaps doubling it, by mandating minimum 80 hours a week of work per adult person but it is less clear this would produce a corresponding large rise in human welfare.

Similarly, the value to parent of having children does not appear in the national income accounts. Therefore reducing the population by 1% by reducing the number of children, will raise income per capita by about 1% since having fewer children does not reduce the numerator, production, in the short run since children do not work (and may even increase it if it frees up women's work time) but will reduce the denominator. It follows that on the author's approach China's one child policy has a very large welfare benefit and benefit-cost ratio, and a zero child policy would be even better. My view is that this misses some benefits of children. Even if the children avoided are unwanted this does not imply they have zero value to parents. Unwanted simply means the benefits of extra children are less than the costs, not that children bring zero benefits to parents.

My own view is that parents like to have children, and this should be included in the welfare analysis. For example, the Barro-Becker⁸ model of fertility choice in a model of economic growth allows for parents to derive welfare both from the number of children they have and the utility of these children, as well as their own consumption. Other models allow parents to derive utility from the number of children they have and the education or consumption of these children⁹. Households can choose to have fewer children, raising the consumption of the parents and the consumption of and investment in the children they do have. At the optimum, the benefits and costs to the parents of an additional child are equalized. By the envelope theorem, if we are near such an optimum the costs and benefits of an extra child are approximately equal and the net welfare benefits of fertility reductions are small.

The counterargument to this has to be that we are not near such an optimum but the authors fail to make this case. Their one argument is in terms of possible externalities. An externality would be important because then the private optimum may have negative social consequences.

However, the only possible externality they document is the effect of children on social spending on health and education, and they admit that fewer children may not lead to lower total spending on these.

The second is that due to some barriers we are far from the optimum that families want; families are not optimizing. The real argument for family planning seems to me to be twofold. One is information. Families may not be optimizing because they do not understand the health benefits of birth spacing and timing. In addition, families may not understand the benefits and costs of family planning, or lack access to family planning. It is difficult to make this case for lack of knowledge on family planning itself given the high

reported knowledge in Demographic and Health Surveys¹⁰. The reported reasons for non-use of contraception are much more about access and side effects¹¹. This speaks both to the quantity of family planning services available in locations and to quality of these services, particularly with regard to counseling and treatment off side effects.

The second argument is about how families make decisions. Husbands almost always have higher fertility preferences than their wives¹². The unwanted fertility measure is of women's desire of more children. It may be that despite unwanted fertility in this sense families decide to have more births because of the husband's preferences, particularly in societies that are male dominated. I think a strong argument in such cases can be made for giving more power in decision making to women since they bear more of the costs of higher fertility, and also tend to have a greater priority on their children's welfare even at the expense of their own. However such an approach would tend naturally to give smaller estimated benefit-cost ratios since any benefit from the wife's perspective might have to offset with a cost from the husband's.

These issues are raised by the authors in the section on the costs of family planning programs. They note that pure supply side measures are unlikely to be very effective. These have to be coupled with demand side measures that increase information about family planning and its benefits, signals of social acceptability of family planning through community leaders and networks, and also increase women's autonomy in contraceptive decision making. I would argue that these demand side measures should not only be added into cost calculations but are an important part of the rationale and estimation of the benefits of family planning.

Low Fertility and Population Aging

Longer healthy life spans are one of the great achievements of the last century and have added enormously to human welfare¹³. We are not only living longer than in the past but this is, by and large, an increase in healthy life spans, with the period of ill health at the end of life staying the same or actually decreasing¹⁴. This improvement in healthy lifespan has contributed as much as economic growth to improvements in human welfare since 1960. Healthy aging is much better than the alternative, death.

The problem of population aging is that it can lead to a rise in the old age dependency ratio. However this "problem" is not really about age structure. Children are naturally dependents, the old are not. If the old save for the retirement needs, including healthcare, they are not dependents. Indeed these retirement savings increase the capital stock and can provide high incomes to working age people.

The old are only dependents if there are public or private transfer systems in place that make them dependent. These transfer systems usually have distortionary incentives towards early retirement¹⁵. The paper puts forward a proposal to make the benefits of such systems such as to not give incentives to early retirement, and make payments a function of expected future lifespan (which varies by a person's characteristics) rather than age, but does not make clear how this would be institutionalized. A simple way of doing this, which

is used by several countries (for example Singapore and Chile), is to have forced savings out of earnings but these savings are invested in individual accounts. This system has the properties that the authors want – working longer generates more savings for retirement, so there are no incentives to retire early. A person who expects to live longer has a lower annual “pension”, either through their own spending pattern or by buying a competitive priced private annuity when they retire.

This system of private accounts should be supplemented by a basic pension to avoid poverty¹⁶. This system seems to meet all the desirables the authors want – is it what they are advocating? I think so but it would be better if they were clear on this.

An additional benefit of the private account systems is that there are no transfers between generations except for the minimum anti-poverty pension, which can be small – for example South Africa’s universal age related pension has been successful in reducing poverty and while very important non-contributory cash transfer programs (both old age support and child grants) only amounts to 3.5% of GDP¹⁷. Without transfers between generations, the problem of population aging does not really occur – the age structure does not affect anyone’s pension individually or pension sustainability collectively. A longer lifespan, in this setting, benefits the person involved and has no negative externalities. In countries, such as Singapore, where the old finance their own retirement there is no “problem” of population aging. The problem only emerges in transfer systems that involve large transfers between generations as in pay as you go financing. My view is that it would be desirable to end such intergenerational transfers, which would mean that population aging had no fiscal consequences. A problem with the recommendations in the paper is that while they change the benefit conditions they do not eliminate transfers from working age to the retired and so may still not be sustainable.

The issue of using incentives to increase fertility in order to reduce population aging needs more discussion. The first is that it appears to conflict with the earlier proposal to reduce fertility in high fertility countries. In fact there is little conflict between the proposals. As we lower fertility from high levels we reduce youth dependency and increase the working age share. However, once we go below replacement fertility (just over 2 children per woman) further reductions tend to lead to smaller cohorts in absolute size and an increase in old age dependency, raising overall dependency ratios¹⁸. If the goal is to maximize the working age share of the population then this goal is achieved at, or near, replacement fertility. We therefore may want to lower fertility in some countries while increasing it in others. However this point is not obvious and should be discussed in more detail in the paper.

The argument for subsidies to increase fertility is presumably the fiscal externality; these children will pay taxes to support the old when they reach working age and parents in their private decisions in fertility do not take this into account¹⁹. While I agree in principle that externalities might justify subsidies to fertility I do not think that a tax distortion in the funding of pensions qualifies as such. There is a risk of devising a Heath-Robinson tax system where we have a foolish pension system that is funded by high taxes on workers and can only maintain the sustainability of this system by encouraging women to have

more children through subsidies so we have enough workers to fund the pensions. This raises the maintenance of the current tax and subsidy system to be a goal of economic policy, when in fact it is a mechanism that we should change to maximize welfare.

Population aging is incompatible with the current institutions and work and pension arrangements in many countries. We have to change the institutions and pension systems. The goal of economic and population policies should not be to keep the current intuitions and pension systems in place, rather it should be to adapt these systems to the reality of population aging.

Migration and Human Mobility

I agree with the papers emphasis on migration as a potential source of large welfare gains. Different countries have different legal and institutional systems that affect productivity. Some countries also have geographic advantages, in terms of natural harbors and ports that allow them cheap access to international markets²⁰. This naturally leads for a desire to move from low productivity areas to high productivity ones. For example, in the United States dense populations are concentrated on the coasts, and along the navigable waters of the Mississippi river and Great Lakes²¹. Individuals who move between countries often enjoy very large gains in earnings. Barriers to the free movement of labor imposed by national boundaries remain as perhaps the last great barrier to economic efficiency²².

The difficulty with migration is that while the individual migrants see large benefits, the gains to the receiving country are less clear. Unless there are actual labor shortages in some areas, the migrants will typically reduce wages of similar native workers²³, benefiting employers but harming the native workforce. While the paper acknowledges this issue there is no effort to overcome it. Since the gains of the migrants are much larger than the losses of the domestic workforce there should, in principle, be a method of compensation, sharing the gains from migration, so that everyone benefits. However it is difficult to implement such a compensation scheme in practice since it will induce rent seeking behavior.

The more difficult challenge to migration is the fear of changes in the receiving country's political economy due to migration. It is instructive to think about a simple way of allowing migration, this would be for countries to merge and remove national borders. This is essentially the approach of the European Union which allows the free movement of labor between member states. Larger countries are more efficient; they can take advantage of economies of scale, and can allow for the most efficient allocation of resources, including labor, without artificial barriers. Why then do not more countries merge to exploit these economies of scale? In fact many countries are quite small.

One answer is that large countries have more heterogeneous populations and it is more difficult to provide public goods to heterogeneous populations²⁴. Governments fund expenditures on public goods that benefit the whole population by taxing private incomes. Taxpayers find this more acceptable in homogenous societies where they identify with the people who benefit, who are much like they are. In heterogeneous societies, divided by

income, ethnic, religious and language differences, many of those who benefit may be very different from an individual taxpayer, who consequently values the transfers less. So for example, towns in the United States with more heterogeneous populations tend to have lower levels of funding for their public schools²⁵.

While the benefits of migration are large and real in order to make it acceptable much more weight should be given to overcoming the costs, so that everyone benefits. Workers who compete with migrants need to be compensated. To the extent that migration leads to increased heterogeneity they may be a cost in terms of lower provision of public goods through the political system. Both of these are difficult issues but I think they need to be addressed if the policy proposals for increased migration flows are to have a realistic chance of success.

While the economic rationale for larger migration flows is clear, the paper makes the point that family connections should not be a basis for migration. This needs some clarification. There are enormous welfare gains from allowing migration due to family connections. For example allowing a husband and wife and their children to live in the same country can bring benefits to all. These do not appear in GDP per capita, since they involve non-traded services, but their value can still be considerable. While the costs of separating families by migration barriers has not been estimated the social and economic costs of divorce can be very high²⁶ leading me to suspect the same is true for enforced separations. It may be the case that we do want to stop migration based on family connections but the authors would need to show evidence that the welfare benefits of uniting families are small; it seems to me that the opposite is the case.

Urbanization

The analysis in this section takes the approach that we are seeing rapid urbanization and will see further large increases in urbanization in Africa and Asia. Taking this as given, we should plan for this urbanization and also take steps to mitigate its potential harmful consequences such as environmental degradation. This sidesteps the issue of whether we should be encouraging or discouraging migration to cities. This can be done in several ways. Price controls or subsidies to foodstuffs, such as in Egypt can lower farm income and lower food costs in cities encouraging urbanization. China discourages urbanization by a system of internal passports that prevent rural citizens moving to cities (many do so illegally but are denied access to services, such as health care, and education for their children when they do). This means there should be a discussion of whether countries should be trying to influence their rates of urbanization.

My own view is that at the individual level welfare seems to be higher in cities than in rural areas. This is true not only in terms of income but also health²⁷. The benefits of living in cities are why we tend to see urbanization. The key question is whether there is an externality to urbanization. There have been arguments for urbanization in terms on allowing increased specialization and economic efficiency²⁸. However urbanization seems to have little or no effect on economic growth²⁹.

My reading of this literature is that it is inconclusive and that we should be agnostic on the issue of encouraging or discouraging urbanization. This leaves us in the paper's world of dealing with the large urbanization that will occur given current trends. The difficulty, as the paper points out, is that the right policies are likely to be very context specific making it difficult to put forward a global priority.

Population Quality

By population quality the paper means nutrition, health, schooling, and education. In terms of education we see high rates of return to schooling³⁰, though the paper makes the important distinction between years of formal schooling and education, in the sense of improvements in knowledge and cognitive ability, with education being the real goal. I agree with the view that subsidies should be targeted at early education in kindergarten and primary school, rather than tertiary education, on the grounds that returns at the earlier levels may be higher and focusing on these levels will tend to help poorer families and encourage equality. However, while I agree that subsidies to higher education do mainly flow to elites there is a case I think for needs based subsidies in higher education to encourage some social mobility.

I agree with the emphasis on health as a factor that has a high benefit-cost ratio both in itself and in terms of its effects on physical and cognitive ability and worker productivity. The evidence here seems strongest for early childhood intervention in nutrition and the prevention of infectious disease^{31,32}. The paper makes a case for a shift of resources towards adults and non-communicable diseases given the rapid increase in the population in older age groups. There are proposals to base funding priorities on the burden of disease in this way; however my preference would be to focus on health interventions that have the highest benefit-cost ratios and where additional spending will do the most good, rather than on focusing on conditions that impose a high burden on the population but where we may lack cost effective solutions³³. Reducing smoking in adults clearly fits the bill here but it is less clear that the treatment of non-communicable disease has similarly high benefit cost ratios.

Priorities

The paper suffers from proposing four high benefit-cost ratio interventions, in different areas, in its conclusion. Having this number means that the emphasis on each could be diluted. In terms of the individual proposals I agree with the goal of achieving universal access to family planning. While my focus would be on the health benefits to children and mothers from better birth timing and spacing, and reducing unwanted fertility, rather than the GDP per capita effects of smaller families the benefit-cost ratios remain very high for this intervention.

On the second proposal to eliminate age based eligibility for retirement and make benefits a function of expected remaining years of life I would take a somewhat different approach. I would advocate for a low universal pension to combat poverty and a system of forced saving and private accounts to provide earnings related pension. This would have the

advantage of removing the large intergenerational transfers that make the current pension systems of many countries unsustainable.

The third recommendation is to reduce barriers to migration, which I agree would have large benefit-cost ratios. However I think this has to be accompanied by proposals to share the benefits of migration so as to compensate the losers, the workers in the receiving country who compete with the migrants. Serious attention should also be paid to mechanisms that address the political economy issue of changing the composition of the population and its ability to provide public goods, though here I am afraid that it is unclear to me how this can be done.

The “selected interventions”, at different scales, that are proposed to address urbanization, are somewhat vague. The different scales also make it unclear whether priorities in this area should be set at the regional, city, or community level. While such interventions are desirable this vagueness makes priority setting difficult.

Given these four priorities can we prioritize between them? The second and third, on migration and pension reform, are of a kind in the sense that they have very little direct resource costs and instead obtain efficiency gains by changing institutions and rules. The reason the large potential efficiency gains that would flow from these changes are not being realized is that there are losers as well as winners. In the case of migrants we have already discussed the domestic workers the migrants compete with. In the case of pension system reforms may well leave current or near future pensioners worse off than they would be with a continuation of the current system. The issue here seems to be to devise mechanisms that spread the efficiency gains of institutional change more widely so as to make the change more politically acceptable. Just documenting the potential gains is not enough; it is the distributional issues that stand in the way of change.

The first and fourth, on family planning and the amelioration of urbanization do have real resource costs and do compete with other interventions. From my perspective I would prioritize the first. The health benefits of better birth timing and spacing with access to family planning give very high benefit cost ratios and will help mainly the poor. My lower ranking of issues addressing urbanization is perhaps because of the large number of location specific interventions that may be required that make calculating benefit cost ratios difficult, but I find it difficult to think these would exceed the high ratios found for family planning.

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This paper was written by David Canning, Richard Saltonstall Professor of Population Sciences and Professor of Economics and International Health at the Harvard School of Public Health. The project brings together more than 50 top economists, NGOs, international agencies and businesses to identify the goals with the greatest benefit-to-cost ratio for the next set of UN development goals.

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