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Depopulation: Concept, consequences, and counteractions

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Depopulation is a familiar if statistically poorly documented process found in the deep recesses of human history.

It is invariably associated, as both cause and consequence, with the collapse of ancient civilizations and empires.

But as a modern phenomenon—that of the last 300 years—on the state level or on the level of geographically defined large population entities, it is virtually an empty box.

(Sub-nationally, mostly as a result of internal migration, sporadic small-area depopulation is common enough and it tends to be accepted with equanimity—rightly so, as it is the natural result of structural changes in the economy.)

On national levels, the absolutely predominant demographic process in modern history has been, and remains in the foreseeable future, population *growth*.

Yet the potential reversibility of that growth has not gone unnoticed.

Classic Malthusian theory implied only a periodic fall-back to a state of low-level equilibrium, not population decline.

However, the plausible emergence of elective control of fertility, the main driver of population growth, by the voluntary action of betterment-seeking individuals has been already implicit in the works of Cantillon and Adam Smith in the 18th century, as well as in the work of the mature Malthus.

But such grass-roots regulation of individual-level fertility had no plausible theoretical lower bound, implying, as a potential aggregate result, a process of population decline.

By the mid-19th century, individual-initiated fertility control was increasingly widespread in France and a bit later in the United States.

By the early 20th century it exerted a significant brake on population growth—growth powered by the decline of mortality everywhere in Europe and in its overseas offshoots.

Initial concerns, most notably in France, with the phenomenon of supposedly looming depopulation focused on the dangers of slippage in terms of relative national population size, a concern articulated in the writings of such theorists as Jacques Bertillon and Arsène Dumont.

By the first decade of the 20th century scholarly voices predicting, and deploring, eventual population decline were numerous.

Even though "depopulation" in the common perception conjures images of dire decay and eventual civilizational collapse, the term popularized by Dumont has stuck.

Ever since, linguists, demographers, or amateur lexicographers have failed to come up with a label more suited to describe the phenomenon at hand—decline toward population sizes attained at some earlier point in history—even though calling those earlier states "depopulated," in any meaningful sense of the word, would be clearly recognized as nonsensical.

Writing at the end of World War I, Oswald Spengler famously predicted an "appalling depopulation" of Europe, one "that will last for centuries."

Numerous perceptive observers of the interwar years expressed similar views, although couched in less sweeping terms.

None of these prophecies was verified by 20th century history.

At the end of World War I, Europe's population was slightly above 400 million and prevailing living standards were low.

By the end of the century, despite another world war, Europe's population rose to roughly 730 million, yet was enjoying a greatly improved level of material well-being.

Not surprisingly, by the middle of the 20th century, European population issues came to be seen as of secondary importance. Population policy debates were preoccupied by the issue of rapid population growth in the less developed world, and on possible ways of slowing that growth.

Yet the turn of the Millennium brought the specter of population decline, or, hyperbolically speaking, depopulation, back to public attention.

This time, however, the reasons for this reprise were weightier than were the arguments set forth eighty or some hundred-odd years ago.

Uncoordinated individual choices in the matter of fertility now yield, or are about to yield, an annual birth-crop falling short of the number of deaths in many populations in Europe and in East Asia.

No longer just an extrapolated possibility, “depopulation” is becoming an observable phenomenon, and, in the longer term, for many countries, a real and ominous prospect.

But ominousness must be tempered by the feasible depth of temporal foresight.

The only way for demographers to lend substance to the concept of depopulation is through construction of plausible scenarios that are numerically reified in the form of alternative population projections.

It can be shown, however, that as the time horizon is extended, the valid information conveyed by population projections rapidly dissipates.

That means, in practice, to cite Nathan Keyfitz’s dictum, “useable forecasts for the next 5 to 20 years, virtually no information on the population 100 years hence.”

His empirical demonstration of this point underlines the wisdom of routinely limiting current population projections to a time horizon extending only to 2050, as is done by the UN Population Division, or to 2060 as is done by Eurostat, or to a decade or two beyond that year, as is done by the US Social Security Administration as well as by various national statistical agencies.

Longer-term projections occasionally do get prepared—extending their scope to the next 100 years, or even well beyond that, as was done in a 300-year projection exercise by the UN Population Division itself.

Such long-term projections indeed can bring us a numerical depiction of depopulation, without quotation marks. But the aim of such calculations is explicitly merely illustrative; they are not offered as an input for serious policy considerations.

Thus, realistic measures of prospective depopulation can be thought of as embodied in population projections up to mid-century or cautiously beyond that mark.

At the aggregate population level, the picture, low-fertility country by low-fertility country, is a mixture of moderate population growth, near stasis, and moderate, and in some instances substantial, decline.

This mixture, on average, tends to yield a modest aggregate decline for larger collections of such countries. A good example is the recent (2006) report of the European Commission on Europe’s (in effect on the EU25’s) demographic future.

That future is illustrated by a Eurostat projection for the time span 2005-2050.

Total population, according to it, goes from 460 million to 450 million: a decline of 1.9 percent over 45 years.

All of that decline is forecast to occur beyond 2030. Clearly, by this light, the EU as a whole, presumed to be one of the prime candidates for depopulation worries, does not seem to be depopulated by mid-century.

Actually, the Eurostat picture is somewhat retouched so as to suggest the mollifying prospect of quasi-stationarity.

It posits a net immigration from outside the EU of some 40 million persons. Adding the descendants of the immigrants to the 40 million, the implied net *natural* population loss, that is, the loss assuming zero net immigration, is somewhat over 60 million; a substantial figure, indicating an appreciable demographic decompression.

Yet, the 2050 EU25 population so calculated would still match the population size of all-Europe in 1900.

Another example is Japan, one of the lowest-fertility countries in the world. It is an even more apt illustration of the less than cataclysmic "depopulation" syndrome, since the projected net immigration is minuscule.

In 2005 Japan had a population of 127 million, contrasted to a population of 45 million a century earlier and to 83 million in 1950. The UN's medium projection for 2050 is 102 million; the "low-variant" projection is 90 million.

Again, the prospect shown is substantial potential population loss, but hardly a depopulated mid-century Japan.

In general, typical depopulation processes that can be projected with relatively high confidence for countries with current below-replacement level fertilities would yield population sizes still high by historical standards.

Indeed, smaller future population sizes may readily be seen as a welcome if partial correction for an extended period of past rapid population growth; growth that was the mechanical consequence of a lagged adjustment of birth rates to falling mortality rates.

Further extension of a period of demographic growth is now widely seen as not a desirable social goal.

On the force of well-grounded arguments, further growth is deemed suboptimal with respect to space- and resource-intensive yet universally sought-after life styles and aspirations for a higher level of cultural and civic achievement.

It is also recognized that, on balance, an actual retreat to a lower population size, if this comes about as a result of uncoerced micro-level decisions, would lessen ecological footprints and could provide the basis for greater per capita material wealth than might be afforded by higher population size or even the simple maintenance of already attained population levels.

One should add that, while such a secular correction is not yet set in motion worldwide, its global generalization is both inevitable and desirable.

Just as Europe and its overseas offshoots pioneered in the process of demographic transition by adopting lower levels of fertility, they, along with the Asian transition pioneers, now move toward a period of negative rates of natural growth and, plausibly, toward eventual stabilization at an appreciably lower population size than obtains in the early 21st century.

They thereby set an example to follow and prefigure future population adjustments to be experienced also by the rest of the world.

It can also be shown that compared to a number of major national and international societal problems, declining population size is of distinctly lower importance, or indeed that it is a phenomenon imparting net social and even economic benefits.

The issue of depopulation over the historical period for which meaningful propositions can be advanced boils down to the problem inherent in the transformation of demographic and socioeconomic structures that by necessity accompanies declining population size.

The problems these transformations entail are admittedly difficult and are further complicated by the fact that they are largely beyond existing historical experience.

They have to do with population aging; shifts in demographically-affected industrial composition of the labor force; increasing exposure to the vagaries of globalization; growing vulnerability in the competition with countries still at an early stage of their demographic transition; increasing acuity of intergenerational conflicts; a slow-down of aggregate rates of economic growth compared to the average post-World War II experience; maintenance of infrastructure built for a larger population; and, finally and inevitably, a loss of economic weight and geopolitical status relative to countries still in a phase of vigorous demographic expansion.

These costs and the non-population policy measures that need to be mustered to cope with them are numerous.

In most instances those measures can only mitigate rather than remove the difficulties inherent in the process of the demographic and socioeconomic adjustments I have just noted.

Deliberate pronatalist policies of the type currently often applied will also be part of such mitigating attempts, but experience suggests that they are bound to remain tentative, inconsistent, and ultimately ineffective.

A more promising, because politically easier policy approach countering population losses is liberalization of immigration policies.

That solution is favored by economically and politically influential segments of the populations of low-fertility countries but tends to be opposed by large but less organized domestic majorities.

Persistent differences in per capita income levels and in demographic growth patterns among countries virtually guarantee that economically more advanced countries can have access to an elastic supply of willing immigrants that can ease, although not resolve, the problems generated by population aging and declining domestic labor supply.

Recourse to that remedy, however, is problematic: it is likely to be against the perceived and often real interests of the majority of the receiving population, hence likely to become a source of domestic conflict and a cause of eroded social capital.

Large-scale immigration to low-fertility countries would also delay spontaneous or policy-generated responses that would tend to correct below-replacement levels of reproduction.

Relying on immigration to counteract declining population size is also ethically suspect: it is a Ponzi-scheme-type solution to which latecomer countries facing the need for analogous demographic and economic adjustments will not have recourse.

In the immigrant-receiving countries, it is also a solution that merely delays confronting imperatives of domestic reform, such as renegotiation of the rules regulating intergenerational economic and social relations.

As to the immigrant-sending countries, it provides an excuse, however illusory, for not addressing their internal demographic problems forthrightly.

Deliberate population policies of any sort are not to be seen as the most likely chief instruments generating an adequate response to the impending doom of "depopulation."

Incentive shifts generated by not-consciously-designed market signals and through subtle forms of social pressures and interactions are likely to act as the most potent guides to a path toward a new and sustainable demographic equilibrium.

In the long run, after a more or less extended but in historical terms brief period, characterized by negative population growth rates and consequent population shrinkage, the most probable outcome of these adjustment processes will be net reproduction rates fluctuating around a central tendency toward a quasi-zero average rate of natural population growth.

If short- to medium-term deviations from that central tendency are modest, such as perhaps 0.3 points above or below a TFR of 2.0, technologically advanced affluent societies would have little inclination for contemplating, let alone introducing, intrusive and costly fertility-reducing or fertility-enhancing policies.

Feasible medium-term economic and social adjustments to untoward demographic trends, and the not unreasonable expectation that such trends will in time spontaneously right themselves, would imply that political support for garden-variety but upgraded corrective policies will be weak or nonexistent.

Nor would states already overcommitted to a wide range of redistributive functions (that absorb upwards of 30 percent of national income) be inclined or able to add to these functions merely to fine-tune aggregate fertility changes that yield small deviations, up or down, from a zero natural rate of population growth.

Population policy will then be blended with social policies at large, shaped mostly or entirely by considerations other than population growth.

But the felicitous demographic outcome resulting from benign spontaneous feedbacks may not materialize everywhere.

Yet fertility levels that substantially deviate from the desired central tendency of zero natural growth cannot be sustained in the long run.

In particular, a persistent fertility trend that falls well below replacement level—the more probable future deviation from zero growth—would eventually lead to extreme population aging and precipitous population shrinkage.

These are possible demographic outcomes that today cannot be dismissed even in such large countries as Japan, Germany, and Russia, as well as in a number of less populous nations.

There, prevailing fertility levels, let alone continued decline to even lower fertility rates (the latter possibility suggested by, among other signs, rising proportions of women ultimately remaining childless by choice), imply stable negative natural growth rates that would reduce a population to one-third of its original size within the historically brief span of two generations.

The extreme distortion of the age structure in a population under such conditions could not be accommodated: societal collapse or near-complete replacement of the original inhabitants by immigrants would become inevitable.

Countries faced by such prospects should at least debate possible policies “out of the box”: beyond the present armamentarium of pronatalist policy measures. Promising options in this regard do exist.

Demographers should be active participants in discussing such options and in proposing plausible remedial policies.

By all evidence, including that of the present conference, progress in that direction has been thus far close to nil.