

## Reunión Científica

### "Long Term Implications of the Demographic Transition"

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Fundación Ramón Areces (FRA) y Grupo de Estudios Población y Sociedad (GEPS)

## Participants and papers:

**Ron Lee** (University of California, Berkeley) and **Andy Mason** (University of Hawaii) [USA]

Title: "*Some macroeconomic consequences of the demographic transition*"

Brief abstract: Declining mortality followed by declining fertility over the demographic transition initially produce decades of rising child dependency, then decades of improving support ratios as child dependency falls, which raises per capita consumption, other things equal, and finally leads to population aging. Population aging and the forces leading to it can produce not only frightening declines in support ratios, but also very substantial increases in productivity and per capita income by raising physical and human capital intensity. Longer life, lower fertility, and population aging all raise the demand for wealth to provide for old age consumption. This raises capital per worker despite declining aggregate saving rates, unless the increased demand for wealth is met through increased familial or public pension transfers for old age support: institutions and policies matter. Lower fertility and mortality are associated with higher human capital investment per child, also raising labor productivity. Together, these positive changes will likely outweigh the problems of declining support ratios as population ages. We will draw on results from the National Transfer Accounts project to illustrate these points.

**David Reher** (Universidad Complutense de Madrid and GEPS, Spain)

Title: "*The demographic transition and social and economic change*".

Brief abstract: This paper deals with the way demographic transitions everywhere have proven themselves to be an important source of social and economic change. The paper has two parts. In the first one, the different ways in which change takes place over the medium and long run will be assessed. Age structure, migration, reproductive efficiency and familial strategies, and adult health are all ways in which the transformational effects of demographic change are felt. In the second part of the paper I will discuss the way the rate of change of vital rates conditions these beneficial effects in different areas of the world.

**Tommy Bengtsson, Å Hansson, and K Scott** (University of Lund, Sweden)

Title: "*Population Ageing and the Funding of the Welfare State: The Case of Sweden*"

Brief abstract: This paper starts off with an overview of population ageing in Sweden, its causes in the past and its likely development in the future. The question of whether population ageing can be stopped by immigration or increasing fertility is analysed, followed by a discussion of how future population ageing will affect the total need for consumption, and production. We then turn to the tax base and the tax system, the major funding of the welfare state, and analyse whether the increased demand can be met by obtaining additional tax revenues or not.

**David Coleman and Bob Rowthorn** (University of Oxford, UK)

Title: "*Who's afraid of population decline? An exploration of its consequences*".

Brief abstract: The analysis of population decline and its consequences has been overshadowed by population ageing, perhaps because decline is axiomatically assumed to be negative in all respects. This paper shows that its causes and its effects are very diverse. Decline can be a response to environmental, economic or political distress; provoking emigration, higher mortality or restricted fertility. But in Southern Europe and in East Asia the reality or prospect of decline has arisen in benign situations with more subtle causes. The process of decline and its end product of smaller population have different consequences. Using a variety of examples, and economic models, we show that modest rates of decline may be manageable and scarcely perceptible. Smaller population size may be irrelevant to most aspects of political, social and economic welfare and beneficial for environment and sustainability. In the future, adaptation to it may in any case become unavoidable.

**Tim Dyson** (London School of Economics, UK)

Title: "*The role of the demographic transition in the process of urbanization*".

Brief abstract: Outside of the field of demographic and economic history, the issue of how urbanization comes about has received relatively little attention. Instead, it is widely supposed that the process results chiefly from structural change in the economy—especially the movement out of agriculture consequent upon economic growth. Relatedly, there is a tendency to focus on the proximate cause of urbanization that is rural-urban migration (to the neglect of natural increase). However, explanations of the process that are framed chiefly in terms of structural economic change have all sorts of problems—not least, that urbanisation has been fairly rapid in sub-Saharan Africa; and, of course, urban growth in that region has been extremely rapid. The argument—nay, the fact—

that demographic processes play a major part in bringing about urbanization is hardly new. Indeed, in broad terms, it can be related back to John Graunt's famous remark of 1662—namely 'that the country is more healthful than the city'. The role of demographic factors in urbanization is also prominent in the work of scholars like Bairoch and Wrigley, for example. That said, the clearest and most direct account of how urbanization takes place within the context of the demographic transition is that provided by de Vries. Essentially, to explain urbanization, he forwards a sector-specific stylized model of the transition. Against this background, the present paper provides and discusses two 'real' illustrations of the sector-specific model forwarded by de Vries. The illustrations are for Sweden and Sri Lanka—therefore they are based on national data rather evidence for major towns (e.g. Amsterdam, London).

**Tim Hatton** (ANU, Australia) and **Richard Martin** (University of Bristol, UK)

Title: "*Fertility Decline and the Heights of Children in Britain, 1886-1938*".

Brief abstract: In this paper we argue that the fertility decline that began around 1880 had substantial positive effects on the health of children, as the quality-quantity trade-off would suggest. We use microdata from a unique survey from 1930s Britain to analyze the relationship between the standardized heights of children and the number of children in the family. Our results suggest that heights are influenced positively by family income per capita and negatively by the number of children or the degree of crowding in the household. The evidence suggests that family size affected the health of children through its influence on both nutrition and disease. Applying our results to long-term trends, we find that rising household income and falling family size contributed significantly to improving child health between 1886 and 1938. Between 1906 and 1938 these variables account for nearly half of the increase in heights, and much of this effect is due to falling family size. We conclude that the fertility decline is a neglected source of the rapid improvement in health in the first half of the twentieth century.

**Bobbi Low** (University of Michigan, USA)

Title: "*Demographic Transitions and Ecological Sustainability*".

Brief abstract: "The" demographic transition was, in fact, the accumulation of changes in local costs and benefits for investment in children over time and across space. It has left its imprint on modern populations in at least two ways. Women's life patterns in more than 170 nations reflect cultural and ecological factors, but also underlying ecological realities. A strong relationship across other species, between life expectancy and age at first birth (and thus total fertility), varies across human populations, and is frequently clearly not at equilibrium. Variables such as rapid changes in life expectancy and age-specific mortality clearly affect age at first birth,

and total fertility, and can tell us about reproductive pathways. The least clear relationships exist among nations with the lowest Human Development Indices, and it is here that modern policy attempts to urge demographic changes will create difficulties. Policies urging lower fertility, without changing related costs and benefits, fly in the face of the tradition reality that lowered fertility has always been accompanied by increased per capita consumption. They are likely to fail; policies that do change benefits and costs are likely to shift parental investment patterns (as did 19th-century transitions)—which will greatly reduce both equity and sustainability.

**Mike Murphy** (London School of Economics, UK)

**Title:** *"Long-term effects of the Demographic Transition on cohorts' demographic experiences in Britain"*

**Brief abstract:** The demographic transition is often discussed as a period phenomenon identified as starting in much of Europe with mortality decline in the Nineteenth century which acted as a stimulus for reduced fertility often dated from about 1880. The fertility decline was relatively rapid and even reversed in many countries for a period of time following the 1939-45 War. Mortality decline has been generally longer-lasting and monotonic over the past 150 years or so. Mortality change affects the whole age range (although not necessarily acting simultaneously at all ages), whereas changes in childbearing behaviours cover both a shorter period of time and a restricted part of the life course. Lifetime mortality, fertility and marriage patterns wholly determine the numbers and types of kin and experience of vital events of different cohorts, not only as they move throughout the period of the demographic transition, but in some cases for a much longer period of time, up to a century into the future as well as affecting some family experiences for those born after the period of fertility decline. This paper looks at how the family and kinship networks and experience of vital events such as the death of a child or the average age at becoming a grandparent, change in a population which moves from a high fertility and mortality regime to a low fertility and mortality regime and identifies those aspects of kinship networks that are sensitive and/or persistent. This analysis uses the Berkeley SOCSIM demographic micro simulation model to re-construct the family and kinship networks of the population of England and Wales for all cohorts from 1750 to the present day. The initial 1750 population is subject to appropriate rates of fertility, mortality and nuptiality (including divorce) for the entire period which permits the experiences of vital events and the kinship universes to be re-constructed.

Relationships which arise from genealogical linkages that depend on ascendant generations, such as parents and, in particular, grandparents are shown to have particularly persistent effects so that some groups, especially older people in contemporary societies, still show echoes of experiences of the demographic transition. For example, the number of

living siblings of a person born about 1915 is determined by the fertility of people typically born about 120 years ago. Although the childhood experiences of cohorts over the past 150-year period, as reflected in ever-born sibship size, are very different, the adult experiences, as reflected in living sibship size, are much more similar especially from about age 65 due to mortality improvement. The number of some kin such as the number of first cousins depends on the fertility of one's grandparents, people likely to have been born in the middle or even before the occurrence of demographic transition in many European countries for some cohorts. The changing fertility and mortality patterns associated with the first demographic transition have effects that may take up to a century to work through the kinship universe. In particular, the changing demographic regime, which causes the ageing of populations, will mean that there will be an ageing of generational relationships: events that formerly occurred early in life are being pushed back at present, such as the experience of one's parents' deaths, and some, such as becoming a grandparent, vary substantially for different cohorts.

**Lelsey Newson** (University of Exeter, UK) and **Peter Richersen** (University of California, Davis, USA)

Title: "*The cultural evolution of low fertility and other modern behaviours*".

Brief abstract: Anthropologists who have studied "natural fertility" populations from an evolutionary perspective have found that the reproductive decisions made by their members approximate those which would be predicted by evolutionary theory. They do not produce offspring profligately; the rate of offspring production is adjusted to resource availability and cultural norms encourage behaviour that tends to maximize Darwinian fitness. Once populations begin to develop economically, however, this begins to change. Social psychology research into how cultural norms are created, maintained and modified suggests a reason for this change. Individuals infer rules of behaviour by observing and interacting with members of their social network. Economic development profoundly changes the structure of communities creating an evolutionary novel social environment. I will argue that this initiates a cultural evolutionary process that can account for not only the Demographic Transition but also many of the other cultural changes that accompany economic development. If human societies are experiencing such an evolutionary process, the rapid cultural change is likely to continue even in populations that have been economically developed for some time.

**Héctor Pérez-Brignoli** (San José, Costa Rica)

Title: "*The Demographic Transition in Latin America*".

Brief abstract: The paper has two main parts. First the main characteristics of the Demographic Transition in the region will be outlined. Secondly, special attention will be given to the ways in which demographic change interacted with economic change in Latin America during the nineteenth and twentieth centuries.

**Luis Rosero** (San José, Costa Rica)

Title: "*Intergenerational Economic Transfers and Population Ageing in Latin America*".

Brief abstract: This paper explores some of the economic effects of population ageing in Latin America, given the intergenerational transfer system existing in the region. It starts with a characterization of the lifecycle deficit and the corresponding system of intergenerational transfers and the intra-generational reallocations in five Latin American, middle income countries: Brazil, Chile, Costa Rica, Mexico and Uruguay. It focuses on economic transfers only, i. e. those transfers in cash or market goods, including those at the interior of a household or a family, such as food, roof, clothing, education and the likes that, for example, parents provide to children. It does not include the important in-kind (mostly time) and emotional support transfers that family members give to, and receive from, each other. The paper then explores some of the potential effects of the combination of this transfer system and the projected trends in population ageing upon economic growth, including the burden on the government and families and the accumulation of wealth and capital. Some of these effects have been called "demographic dividends" in recent literature. The paper draws heavily upon the theoretical and methodological work by Ronald Lee, Andrew Mason, and collaborators in the international project "National Transfer Accounts", and uses the estimates made by the local teams of researchers in this project.

**Gustavo de Santis, Gianbattista Salinari, Massimo Livi Bacci** (Università di Firenze, Italy)

Title: "*Population equilibriums and transitions*".

Brief abstract: Our paper has two main parts, a theoretical and an empirical one. The theoretical part shows that population evolution over time may be studied in terms of time series analysis. In this series, two different population conditions may be distinguished: 1) "demographical equilibrium", during which both inputs (births, immigration) and outputs (deaths, emigrations), properly transformed, approach a stationary

stochastic process; 2) the “demographic transition” during which these series follow a heteroskedastic stochastic path. As we will see, one of the advantages of this theoretical setting is that it makes it possible to properly identify the starting and the ending point of a demographic transition.

**Rebecca Sear** (London School of Economics , UK) and **David Coall** (UWA School of Psychiatry & Clinical Neurosciences)

Title: "*How much does family matter? The empirical evidence for a cooperative breeding strategy in our species, and its implications for the demographic transition*"

Brief abstract: This paper will review the empirical evidence that women receive help from other individuals in raising children, by investigating whether the presence of kin improves child well-being and affects fertility patterns, and identifying which kin affect which outcomes. The paper will also consider how patterns of kin help vary between societies, in order to explore the hypothesis that changes in kin networks associated with modernisation are partly responsible for the fertility transition.

**Jan van Bavel** (Vrije Universiteit Brussel –VUB- and Interface Demography, Belgium)

Title: "*Having children, grandchildren and great-grandchildren across Europe*"

Brief abstract: The paper will do two things. First, it will look at the consequences of fertility decline and postponement for the number of children, grandchildren and great-grandchildren people have in about 20 European countries. Second, it explores the relationships between this quantitative issue on the one hand and some qualitative characteristics of intergenerational relations in these countries.

**Wang Feng** (University of California, Irvine, USA)

Title: "*The Future of the demographic overachiever: Long-term implications of the Demographic Transition in China*"

Brief abstract: China is commonly seen as an exceptional case in the global demographic transition, for its sheer magnitude, drastic speed, and in particular, the prominent role of the state. In this paper I argue that the demographic transition process in China contains many similarities to demographic transitions elsewhere in the world. China, in other words, is not that unique in its demographic transition. The Chinese state has clearly played an extremely active role but such state intervention was conditioned by the particular economic and political system and it began after, not before, the demographic transition was already set in motion. Careful analysis of the demographic transition process in China reveals not the might but the limit of the state. Individual and institutional



adaptation to declining mortality and the separation of production and reproduction are the core causes of the demographic transition. The state is only one institution in the process and not always the most relevant. The myth of the state's role in China's demographic transition not only contradicts the important historical facts that are often obscured by the presence of a strong state policy, but also contributes to a misguided view that justifies continued state intervention, which could well lead the most populous country in the world to its demographic doom.

**Paul Demeny** (Population Council, New York, USA))

Title: "*Population policy beyond the demographic transition: Prospects and options*"

Brief abstract: Internationally differing phases of the demographic transition and the differing speeds with which transitions in laggard cases may be completed assure that at least in the first half of the 21<sup>st</sup> century contrasts among countries in terms of their demographic configurations will persist. The non-synchronous pattern of the transitions will continue to call for differences in policy responses, if any; the seeming inconsistency of these responses is likely to remain a source of tension in the search for appropriate remedies and construed as an argument for alternative policy approaches. Differences in transition patterns also lead to marked shifts in relative population size among countries. Geopolitical implications of these shifts, whether real or merely perceived, in turn will have a feedback on the nature of population policy responses. The paper explores possible alternative developments in this domain during the coming half century. In countries where the demographic transition, in its classical definition, is now essentially complete or will become such in the near-term, the modal case is likely to be a reproductive configuration close to replacement level; slightly above or, more commonly, below it, but by a margin that modern industrial societies will find acceptable because the resulting demographic pattern can be accommodated at tolerable net costs or even with some net benefits. In such situations "population policy" bearing on fertility will be a non-issue, blended into garden-variety family policies. In a number of cases, however, even amplified Myrdalian approaches will prove inadequate and demographic collapse becomes a real prospect. In the affected countries this will require radical re-thinking of the now envisaged policy approaches; a repertory of structural reforms that may offer solutions will be outlined. Laggard transition, too, may increasingly demonstrate the inadequacy of the now accepted policy models seeking to complete the demographic transition: promising alternative policies will be examined. The logic of economic globalization, allowing minimally impeded movement of trade and capital movements also calls for free international mobility of labor, hence of population, questioning the relevance and appropriateness of population policies conceived for



national entities with essentially closed borders, that is, precluding large-scale net international migratory balances. The array of the resulting possible population policy responses will be examined. They may range from acceptance of internationally open-borders to a regionalized set of Schengen-like arrangements, or even to a reversal to a generalized Westphalien pattern of national states shaping their population policies independently. The latter solutions imply a marked deviation from the globalized world model as it is now conceptualized.

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