POPULATION GROWTH AND ENVIRONMENTAL QUALITY: ARE THEY COMPATIBLE?

Clive Hamilton

There is no correlation between a nation's population growth and its rate of economic growth. Population growth will not make us richer in economic terms and it will almost certainly make us poorer in terms of environmental amenity. This paper examines the effect of Australia's population growth on greenhouse gas emissions and on the integrity of coastal ecosystems.

INTRODUCTION

The population driven by higher levels of immigration have little substance. There is no correlation between population size and economic performance. There are plenty of very small countries that do very well by any standard, including northern European ones whose populations are stabilising. If we take the richest 24 countries by Gross Domestic Product, (GDP) per capita, and compare population with GDP per capita the correlation coefficient is less than 0.1, and the rank correlation coefficient is negative. Over the last 15 years Australia's population has expanded by 22 per cent while that of the European Union has grown by only four per cent. Yet growth of GDP per person has risen faster in the EU than in Australia.

This crude association has received more sophisticated corroboration by the work of Ian McDonald and Ross Guest on the implications of demographic change for living standards (reported elsewhere in this issue). In place of the vague assertions about higher population growth making an economy more 'dynamic' and able to exploit economies of scale, Guest and McDonald show that demographic factors are themselves unimportant as far as living standards are concerned and that a proper analysis must account for levels of employment growth, consumption and investment and how these interact with the age structure of a population. They conclude that differences in fertility and immigration will have no appreciable effect on living standards by the middle of the century and beyond and that, indeed, low fertility may even result in slightly higher consumption per person.

The debate in Australia now focuses, quite properly, on the social and environmental implications of higher levels of immigration and a larger population. In this paper I concentrate on some of the environmental implications of faster population growth.

First, it's worth pointing out the absurdity of suggestions that Australia could expand its population to 50 million people by 2050. This would require the construction of a city the size of Sydney every seven years and an annual immigration rate of 450,000. This idea seems to be driven not by any understanding of demography but by vague notions of Australia as a vast land of untapped opportunity.

These grand visions seem to be based on an old-fashioned view of Australia as an immense productive resource waiting to be filled with pioneers. Glenn Withers has said that if we took the entire population of the world, formed them into families of four and gave them a quarter-acre block then they would all fit into Queensland.[1] They would all fit into

Antarctica as well; but they would not survive for long, just as they would not survive for long squeezed into Queensland.

The relationship between population growth and environmental impact is a complex one, and varies from environmental problem to environmental problem. For some problems, such as rangeland degradation and logging of old-growth forests, the relationship is weak (but not insignificant). For others it is very strong and direct. Here I will comment on two problems of the latter type, greenhouse gas emissions and pressures on coastal systems.

GREENHOUSE GAS EMISSIONS

Population growth is directly related to the growth of greenhouse gas emissions. Decomposition analysis of the sources of growth in greenhouse gas emissions in OECD countries shows that, in contrast to most other OECD countries, population growth in Australia has in the past been one of main factors driving growth in emissions.[2] The effects of population growth and growth of income per person have not been offset by increased use of non-fossil energy sources and greater energy efficiency.

Turton and Hamilton[3] also examined the expected influence of population growth on growth of emissions through to 2020 by adapting the energy projections model developed by the Australian Bureau of Agricultural and Resource Economics (ABARE) to include the explicit effect of population growth. Briefly, ABARE's model assumes that population growth influences activity in all sectors of the economy except mining and agriculture. Demand for the output of these two sectors is assumed to be independent of Australia's domestic population, although this is not really the case. If the population grows, imports of consumer goods, and capital goods used to make consumer goods, will grow and, unless we are to have a continuously worsening trade deficit, we must increase exports.

Energy use in some other sectors — namely, the residential sector, passenger-car transport and air travel — is assumed, on the basis of past trends, to be directly related to population growth. Energy use in other sectors — including the commercial and services sectors, construction, road freight and rail transport — is assumed to be influenced by the impact of population growth on GDP growth. Energy use in the manufacturing sector is divided between export-driven and domestic output, the latter being influenced by population growth via increasing consumption.

Depending on Australia's population policy decisions, population growth is expected to lead to total energy-related emissions of between 385 and 455 Mt CO_2 by 2020. These are 37 per cent and 62 per cent above the 1990 level of energy-related emissions respectively. The difference between the Australian Bureau of Statistics (ABS) high and low population growth scenarios makes a very big difference in expected growth of greenhouse gas emissions.

Looking at the results another way, we can say that each additional net 70,000 migrants arriving annually from now on will lead to additional emissions of 20 Mt CO_2 per year by 2010, increasing to 30 Mt CO_2 per year by 2020.[4] How big is this? The additional 20 Mt CO_2 per year by around 2010 can be compared with a reduction in emissions of 8-10 Mt CO_2 per year by 2010 expected from the Government's two per cent renewables policy in the electricity sector. Roughly speaking, therefore, one might say that a

decision to adopt a policy of high rather than low immigration would require two or three policies equivalent to the two per cent renewables policy to offset the consequent increase in emissions.

The same study[5] showed that, while the difference between high and low immigration scenarios amounts to an extra 70 Mt of greenhouse gas emissions in Australia by 2020, the world's greenhouse gas emissions would increase by less than half of this amount since immigrants to Australia come from countries that have per capita emissions levels less than half of Australia's (around 42 per cent).

It is often argued that we need not worry about the effect of population growth on emissions growth because we can cut our emissions by changing technologies and pursuing energy efficiency. Indeed we can. But every small step in this direction has proven very difficult politically. The two-per-cent-renewables energy policy proved extremely difficult to implement, despite the Prime Minister's promise. It met fierce resistance from the fossil fuel lobby.[6] It was, in fact, watered down so that it is more like a 0.5-1.0 per cent renewables policy. Any increase in the current immigration intake will require more severe restrictions on the economy to control emission- producing activities if Australia is to meet its international targets.

It should be said that for groups such as the Business Council of Australia (BCA) to call one day for much faster population growth but to oppose measures to reduce our greenhouse gas emissions the next is hypocritical. One cannot have it both ways. If the BCA wants higher population growth then it should also be lobbying the Federal Government vigorously to introduce a large carbon tax — or the equivalent of such a tax — to offset the impact. In fact, the BCA has actively opposed the introduction of carbon taxes, emissions trading, and a number of other mandatory measures including the introduction of a 'greenhouse trigger' in the Environmental Protection and Biodiversity Conservation Act. It has also lobbied to reduce taxes on fossil fuels and succeeded in having the Government's proposed two per cent renewables energy target greatly watered down. At the same time senior BCA figures have called for a population of 50 million by 2050.

Some environmentalists also argue for high levels of immigration without appearing to understand fully the implications for the growth of greenhouse gas emissions. The Australian Conservation Foundation has found it too difficult to adopt a zero population growth policy and the Australian Greens have an equivocal population policy.

The relationship between population growth and growth in greenhouse gas emissions has recently been recognised by the NSW Government. It has announced mandatory benchmarks for electricity retailers that will require emissions to be reduced by five per cent per capita by 2007 compared to 1990.[7] NSW is the first jurisdiction in the world to impose a mandatory cap on greenhouse gas emissions. These levels must be maintained for at least five years and retailers that fail to meet the benchmarks will be fined $15 for each tonne of carbon dioxide emissions above their target. As a result of this scheme, population growth and growth of emissions associated with electricity in NSW will be directly tied.

COASTAL PRESSURES

The degradation of coastal ecosystems is another major environmental stress for

which population growth is directly responsible. These pressures are much more difficult to measure than emissions of greenhouse gases, but the effects are plain to see.

Around 80 per cent of Australians live close to the coast and the trend to move closer to the coast is continuing. The NSW Department of Planning has produced a map showing the population drift out of Sydney. The largest flow is to the north coast of NSW. The drift of residents out of Sydney is more than offset by new arrivals from overseas who fill the gaps left. Or perhaps the decline in amenity due to the flow of immigrants into Sydney is pushing established residents out.

This drift of population to the North Coast is the cause of a creeping environmental crisis — one that local councils struggle with on a daily basis. New arrivals want land to build on, roads to travel on, new water supplies and sewerage systems. Some of the pressures are described in the recently released *State of the Environment 2001* report — a rather cautious document that cannot be accused of exaggerating the problems.[8] Noting that where human settlement is light coastal waters are generally in excellent condition, the report observes:

> Effects of human activity cause the loss or degradation of specific habitat types, alter tidal water flows in wetlands and streams, cause erosion of beaches and dunes, and degrade water quality through stormwater runoff, sewage and litter. Developments may cause loss of familiar and loved landmarks and seascapes, obliterating cultural heritage and changing land use patterns. For example subdivision of farmland for housing.[9]

The report notes that the condition of Australia's 972 estuaries is deteriorating with almost half degraded significantly. We are losing habitats for sea-birds and shore-birds. It sums up as follows:

> Overall, the quality of estuarine and coastal waters has not improved, although there are some locations where signs are positive, for example around Sydney's beaches and parts of the Harbour. But these improvements have required massive infrastructure investments …[10]

In other words, state and local governments up and down the coasts of Australia are engaged in a relentless battle to protect the environment from the effects of human settlement as more and more Australians decide that they want to live near the sea. Every year thousands of planning decisions affect the natural environment. Population growth is directly related to these pressures. Of course, it is possible, through the diversion of resources, to protect against some of the impacts; but it is expensive, and it will increasingly require restrictions on how many people can live near the coast.

Under current pressures, and even more so if population growth is faster, we can expect to see a proliferation of medium and high-density residential and commercial developments in coastal towns and cities as space runs out. Yet it is above all to find more space that people move to the coasts. Space is the amenity that people leave the cities in search of and it is the feature that tourists come to Australia to enjoy. According to recent polling, Sydney-siders are increasingly resentful at overdevelopment and overcrowding.[11] It seems bizarre to jeopardise the very features of Australia that define us so uniquely.

AN ENVIRONMENTAL TRADE-OFF?

Perhaps it is possible to achieve sustainable population growth in Australia. Could environment groups strike a deal with the Federal Government by agreeing to support higher population growth in

exchange for measures to eliminate the environmental effects? What would it take to protect the environment from the effects of faster population growth? Here is an initial list.

1. The Government would need to agree immediately to ratify the Kyoto Protocol and go well beyond the limits embodied in it.
2. There would need to be an enforceable Federal-State plan to restrict the settlements that jeopardise coastal ecosystems, covering land from the coast to the Great Divide. This would need to cover urban and rural developments, roads, water diversions, sewerage systems and waste disposal.
3. Serious measures would need to be taken to solve the problems of urban transport, problems too numerous to list.

Could such a trade-off work? The political feasibility of it is questionable, simply because of the time-frames involved. Recently, the Federal Government has reneged on a number of environmental undertakings, including the agreement with the Australian Democrats to allocate 400 million dollars to greenhouse programs in exchange for support for the Goods and Services Tax. The Natural Heritage Trust, funded from the sale proceeds of Telstra, is widely viewed as an environmental failure with too much of the funding directed to pork-barrelling in the bush. In the prevailing political system, therefore, the prospects for a population-environment trade-off appear remote.

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References

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[11] *Sydney Morning Herald*, 25 March 2002