

LOCALISING AND GLOBALISING THE DEPOPULATION DIVIDEND: THEORY AND EVIDENCE FROM THREE COUNTRIES IN THREE WORLD REGIONS

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Abstract

We bring together evidence from three countries in differing world regions to ask whether or how depopulation is delivering socio-environmental gains – what we call a ‘depopulation dividend’. We first discuss the depopulation problem itself and introduce the idea of a ‘depopulation dividend’, and we present research on national and sub-national depopulation processes in each country, beginning with demographic and environmental change in Japan. Following that we introduce socio-economic outcomes in Spain and New Zealand. Overall, we present a positive perspective on depopulation – an issue that is usually presented in the negative – and we localize and globalize Japan’s, Spain’s, and New Zealand’s experiences therein.

Keywords: Depopulation, Environment, Japan, Spain, New Zealand.

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Introduction

The world is experiencing unprecedented demographic and environmental change. Throughout the 20th century human populations grew more rapidly than at any time in our history, and for a time at an exponentially increasing rate. Whereas the world's population grew by nearly one billion to 2.5 billion between 1900 and 1950, in the second half of the century the number of humans on Earth more than doubled, to reach 6.1 billion at century's end (UNPD, 2019). The global population is now approaching 8 billion and UN projections point to around 11 billion being alive at the close of the 21st century (UNPD, 2019). Such estimates have caused much concern, even alarm, with their potential consequences for the sustainability of Earth systems and humanity's continued habitation of large areas of the planet (Attenborough, 2009; Göttmark and Maynard, 2019; Wallace-Wells, 2019: 8). Indian novelist Amitav Ghosh asks, in all seriousness, whether humanity is deranged, in our collective lack of response to the consequences of the collision of population, development, and environment in the 21st century (2016).

There is, however, another comparatively unseen story taking place behind this extraordinary expansion. Since 1960 the rate of global population growth has halved and has been decreasing continuously since then (Rosa, Ritchie and Ortiz-Ospina, 2019). This turnaround is associated with many factors, among them higher levels of human development, including female education and emancipation, and urbanisation (Bongaarts, 2016; Lerch, 2019; Martine, Alves and Cavenaghi, 2013). By 2019 half of the world's countries showed lower than replacement human fertility, and 34 countries currently show negative natural population growth, mostly in Central, Eastern, and Southern Europe, including Spain (GBD 2019 Demographics Collaborators, 2020).

Spatially, population change is a layered phenomenon exhibiting contrasting manifestations and outcomes depending on local, regional, national, and international, or global, scales and conditions. In Pacific Asia, Japan is in the vanguard of a broader demographic transition to low fertility, ageing, and depopulation, which includes China and South Korea (Figure 2) (Kirk, 1996; Matanle, 2014 and 2017). Since 1974 its Total Fertility Rate (TFR) has remained below replacement, reaching a historic low of 1.26 children per woman in 2005. Indeed, as early as 1956 Japan's Net Reproduction Rate – the average number of girls born to each woman – fell below the replacement rate of 1.0 (MIC, 2022). Demographers could have predicted then that, if conditions persisted and in the absence of replacement migration, Japan would experience ageing and eventually depopulation. Conditions did persist and, sure enough, by 2005 Japan's mortality rate had overtaken its birth rate and, with negligible net inward migration, in 2008 its population began to decrease (Figure 1).

Beyond Asia, most of Europe is either already shrinking or is ageing and anticipated to start shrinking before mid-century. Even hitherto immigration friendly Anglophone New World countries such as New Zealand and Canada are experiencing sub-national processes of ageing and shrinkage, with some researchers predicting the ‘end of growth’ (Jackson and Cameron, 2018; Sims and Ward, 2017). Some Latin American countries – Brazil, Chile, Colombia, Costa Rica, Cuba, and Uruguay – also report below replacement fertility (UNPD, 2019). And among Middle Eastern countries, Bahrain, Iran, Kuwait, Lebanon, Qatar, Turkey and UAE show a total fertility rate of 2.1 children per woman or lower (World Bank, 2022).

Hence, we together evidence from three countries in differing world regions to ask whether or how depopulation is delivering socio-environmental gains – what we call a ‘depopulation dividend’.¹ We first discuss the depopulation problem itself and introduce the idea of a ‘depopulation dividend’. Then we present research on each country in turn, starting with demographic and environmental change in Japan. Following that we introduce socio-economic outcomes in Spain and New Zealand. Overall, we present a positive perspective on depopulation – an issue that is usually presented in the negative – and we both localise and globalise Japan’s, Spain’s, and New Zealand’s roles and experiences therein. And we encourage governments and people around the world to consider depopulation as a potentially positive development in the 21st century, but one that requires analysis, planning and intervention if significant dividends are to be accrued.

Although the international system often renders human population change a ‘national’ question through regulation of citizenship, mobility and migration, and the relative ease of measurement and comparison, both localisation and globalisation are important dynamics that add extra dimensions to the depth of our understanding. For example, regions can be shrinking even as the country as a whole is growing. Hence, within-country sub-national demographic variation sometimes goes unnoticed and, moreover, its causes and outcomes can be a significant early indicator of the future direction of national, even global, population change (Jackson, 2014; Matanle et al. 2011). Conversely, nature pays no heed to political boundaries and the environmental crises currently unfolding are global in extent and hardly susceptible to independent action aimed at single-country outcomes.

¹ This article is substantially expanded and updated from an earlier article published in 2019 in the *Journal of the Japanese Institute of Landscape Architecture* (Matanle & Sáez Pérez, 2019).

Hence, we argue that it is through both a localisation and globalisation of these questions that we can discover resolutions to their contradictory ambiguity. We end by suggesting that, just as Japan was the 'lead goose' in the famous Flying Geese formation for East and Southeast Asian economic development in the 20th century (Akamatsu, 1962; Kojima, 2000), so there is an opportunity once more for Japan to show leadership, this time in adjusting to the consequences of that rapid economic development in 21st century demographic and environmental change.

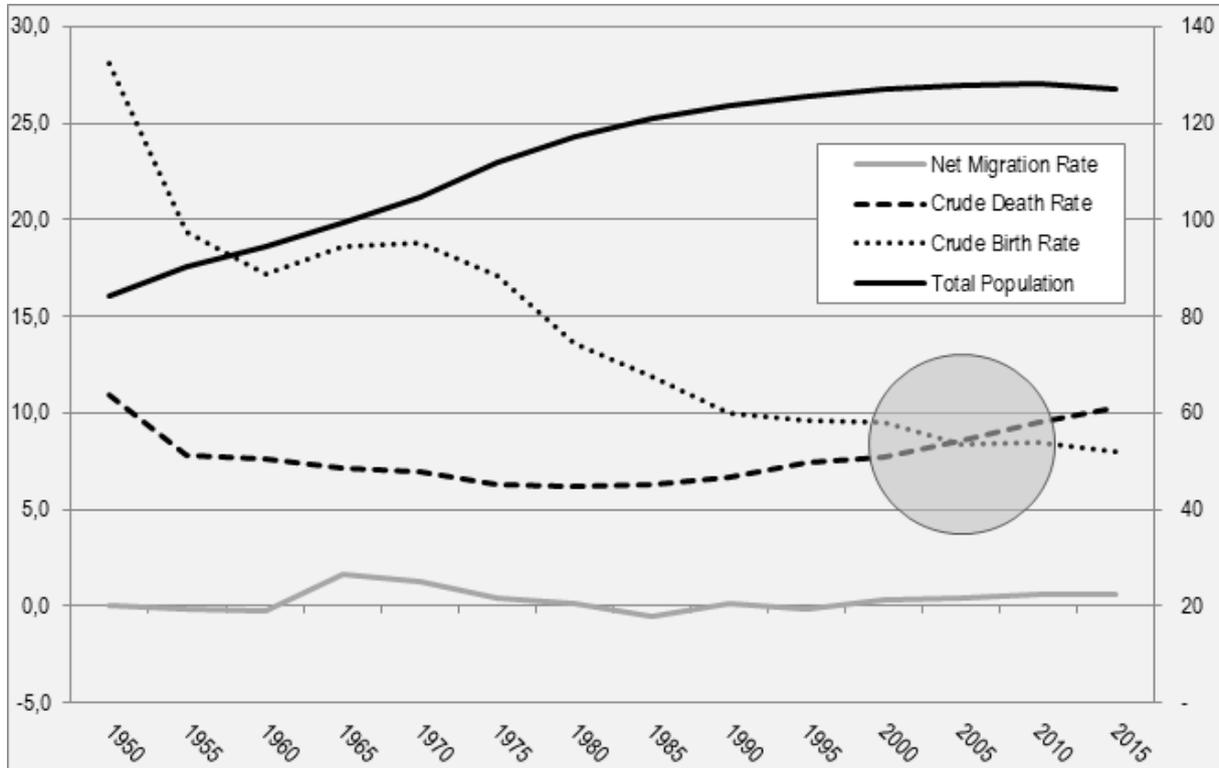


Figure 1. Japan's total population (millions; right hand scale), crude birth and death and net migration rates (per 1,000 people; left hand scale), 1950-2015. Source data: UNPD (2019).

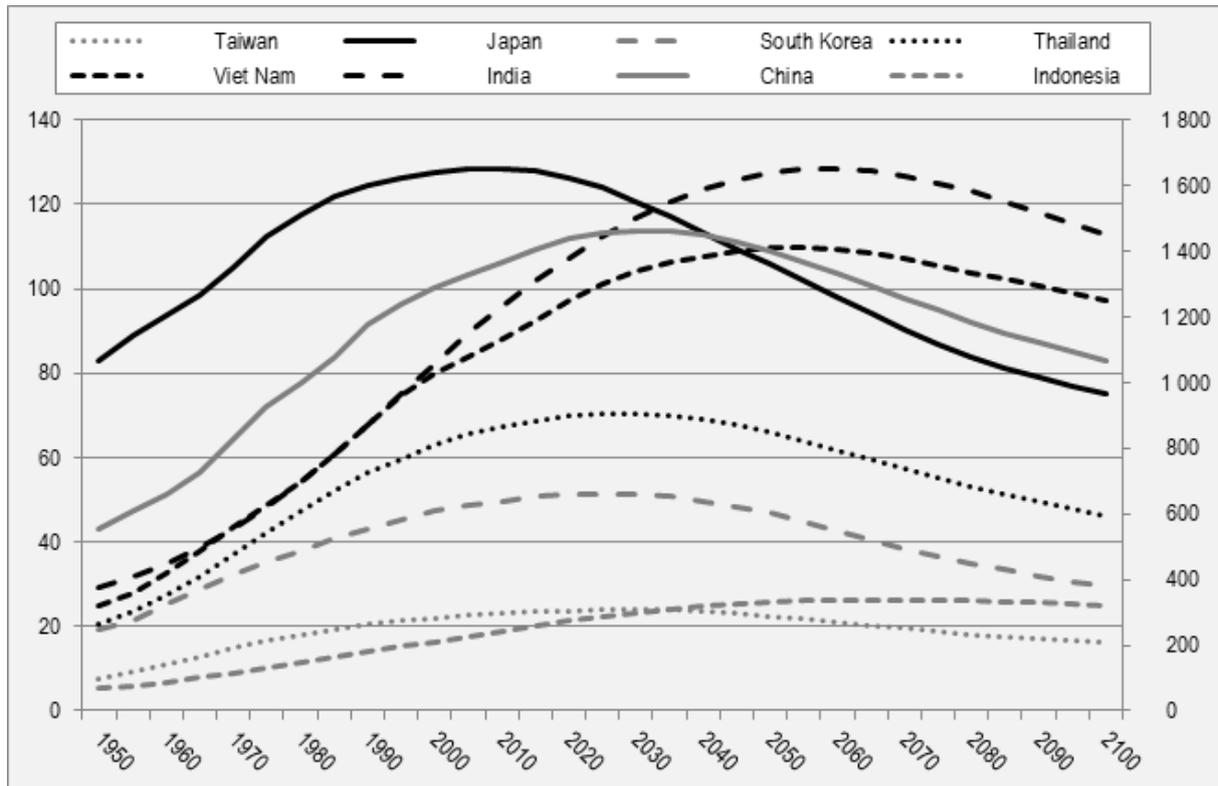


Figure 2. 150 years of growth and shrinkage in Asia: Actual and projected population change in selected Asian countries, 1950-2100 (China, India and Indonesia, right hand axis) (millions). Source data: UNPD (2019).

1. The (De)Population Problem

Depopulation is normally considered a socio-economic and political problem requiring a solution, which is inevitably more people, by increasing fertility, migration, or both. This is the predominant perspective in East Asia and Europe, where the impacts on labour supply, declining communities, and the costs of pensions and elderly-care are considered a 'crisis' or a 'disaster', even a 'catastrophe' (Campbell, 2008; Kassam et al. 2015; Kato, 2018).

Despite their obvious attraction to policymakers, simple solutions to complex problems are rare, however. Increasing fertility raises age-related dependency ratios, since children require twenty years or more to become economically productive. Moreover, the number of migrants needed for labour force stability is beyond many countries' capacity to absorb (See: UNPD, 2001). In Japan's case, the most that can be expected from migration is slower ageing and depopulation for a softer landing.

This is the preference of the current administration in trying to limit the decrease down to 100 million people by 2065 (instead of the projected 80-90 million) – though some question the government's realism (Mainichi, 2018). Significant, furthermore, is the fact that migrants to richer countries are usually moving from lower to higher resource consumption lifestyles, thereby increasing their environmental footprint (McNeill and Engelke, 2014), and many may prefer to settle in urban areas where employment and social opportunities tend to be more numerous, whereas depopulation is often most severe in rural and provincial regions (Matanle et al, 2011).

At the national level, conventional approaches to the relationship between population size and human wellbeing rest on assumptions that rapid population growth of the kind experienced by East and Southeast Asia in the 20th century – in the context of a well-managed development oriented political economy – produces a 'Demographic Dividend' of an expanded labour force and human capital, which in turn produces improved socio-economic development and human wellbeing (Bloom, Canning and Sevilla, 2003). Conversely, population shrinkage is assumed to deliver socio-economic decline, or at least stagnation and declines in wellbeing (Matsutani, 2006). Which is why growth is normally considered an unarguable good and should be maintained at all costs.

And 'at-all-costs' is the phrase to use. Because, globally speaking, anthropogenic environmental pressures have entered a catastrophic turn, which is at least in part due to the post-war population expansion and humanity's colonisation of the Earth's surface for settlement and agriculture (Crist, Mora and Engelman, 2017). Indeed, the majority of the damage to natural systems that humans have wrought has occurred since 1945. Hence the term 'The Great Acceleration' to describe the explosive increase in the rate of ecological destruction, greenhouse gas emissions, and pollution in recent decades (McNeill and Engelke, 2017). Earth has lost approximately 68% of its wildlife since 1970, with an astonishing 94% loss in Latin America (WWF, 2020). '[M]ore than half of the carbon exhaled into the atmosphere by the burning of fossil fuels has been emitted in just the past three decades' (Wallace-Wells, 2019: 8), causing the atmospheric concentration of CO₂ to rise from 310ppm in 1945 and pass the historically important level of 415ppm in May 2019; with population expansion responsible for about 37% of that accumulation (Goodell, 2019; McNeill and Engelke, 2014: 54; NOAA, 2019). And pollution is now so pervasive that it is literally embodied into the bio-chemistry of human life, beginning before people are even born (Bové et al, 2019; Walker, 2010).

Hence, though we acknowledge that the relationship between population increase and environmental damage is complex and non-linear, it is widely agreed that, in combination with economic expansion and the unequal distribution and inefficient consumption of natural resources, it has played a significant part in placing the stability and resilience of Earth systems in peril. In simple terms, we are literally overheating

the Earth and killing the life that sustains us (Eriksen, 2016). Would depopulation, therefore, help us to chart a more sustainable path into the future? What kinds of socio-environmental dividends from depopulation could we expect?

2. What is the 'Depopulation Dividend'?

Malthus is back (Sachs, 2008). After decades in the theoretical wilderness, resource and ecological perspectives are arguing more forcefully once again that reducing world population growth, or even achieving a reduction, is necessary for sustainable living on a planetary scale. In 2017, for example, BioScience published 'World Scientists' Warning to Humanity: A Second Notice' (Ripple et al, 2017). With 15,364 co-signatories from 184 countries, among the authors' recommendations are '(h) further reducing fertility rates by ensuring that women and men have access to education and voluntary family-planning services, especially where such resources are still lacking', and '(m) estimating a scientifically defensible, sustainable human population size for the long term while rallying nations and leaders to support that vital goal'.

However, and despite the fact that governments routinely intervene to control or direct population size through family planning, childcare provision, fiscal incentives, immigration policies, and more, current orthodoxy continues to insist that market forces are the most efficient methods for allocating resources to where they will be most profitably employed. Yet, conventional political economy is geared towards reproducing perpetual growth and has never had to work long-term in a depopulating society (Matsutani, 2006). Consequently, we can already predict, theoretically at least, that left to markets depopulation might not produce the reverse image outcomes of growth. There is, for example, the role of infrastructure in raising total factor productivity under growth and its reverse under shrinkage (Siedentop and Fina, 2010; Sousa and Pinho, 2015).

Significant, also, is the matter of democratic consent and political will. In a society where even the language of political economy is prejudiced towards perpetual growth it is politically risky for campaigning politicians to advocate or plan for shrinkage. And the electoral horizons of politicians do not mesh with those of environmental thresholds, encouraging the trading of long-term sustainable living for short-term wealth accumulation. Although democratic governments have generally been less harmful to the environment than authoritarian regimes, we also know that there is a political deficit, or disequilibrium, between environmental needs and the preparedness of representative governments to deliver restorative outcomes when these are seen to conflict with economic wants such as, for example, the consequences of widening inequality (Downey, 2015; Liand Reuveny, 2006; Midlarsky, 1998).

Hence, targets aimed at achieving sustainability, like the 2030 Global Development Agenda, can be appropriated and rendered empty signifiers, a ‘fantasmatic narrative seeking to conceal the conflictual causes and the antagonistic origins of global development and sustainability’ (Tellería and García-Arias, 2022).

So, what do we mean by a ‘Depopulation Dividend’? At its simplest “it is the achievement from peaceful and non-coercive human depopulation of positive gains that contribute to socio-cultural, political-economic, and environmentally sustainable living” (Matanle, 2017). Without wishing to minimise the difficulties that depopulation processes present for policy-makers and planners in adjusting to a new equilibrium, there are potentially some significant gains to be had from reducing populations. Environmental dividends might include reductions in resource consumption, ecosystem and biodiversity restoration, or reduced emissions, waste, and pollution. Societal benefits could include a more comfortable and reorganised living space, reduced urban overcrowding, improved workplace opportunities for under-represented citizens, a slower and less stressful lifestyle, less crime and fewer wars.

Citizens might become more conscious of the roles they can play in smaller communities, and rediscover how it feels to be ‘the master of my fate ... the captain of my soul’ (Henley, 2018 [1875 / 1888]). A depopulation dividend would therefore imply a redefinition of development from welfare based on a deterministic consequence of the accumulation of goods and assets, to a capability approach (Nussbaum and Sen, 1993) focused on achieving valuable functioning. Despite the obvious links between growth and wellbeing, happiness depends much more on intangibles such as social and cultural capital, particularly at higher levels of per capita GDP (Bartolini and Sarracino, 2014; Yoshida et al, 2022).

Nevertheless, there is little evidence internationally to demonstrate what the benefits of depopulation could be, how they could occur, and what levels of depopulation are required for their achievement. Indeed, there are few countries where sufficient research and knowledge can be accumulated for systematic lessons to be learned, because depopulation is a recent phenomenon, most countries are still growing, it is local and regional in its progression, and the right questions are not being asked or their results measured. Consequently, demographic shrinkage is a wicked problem (Tietjen and Jøersen, 2016), which needs an adaptive, participatory, and transdisciplinary approach involving ‘collective learning, exploration and experimentation’ (Xiang, 2013).

Thus, many assumptions about whether depopulation will deliver environmental and social dividends remain untested and unproven. Some scholars, therefore, are delving into the historical record for real world examples. Research into the Great Dying in the Americas after 1492, where approximately ninety per cent of the pre-Columbian population died (10% of the world's population), indicates that the collapse of farming and the resultant regeneration of vegetation may have reduced global atmospheric concentrations of carbon dioxide by enough to have triggered the Little Ice Age in Europe (Koch et al, 2018; Loughlin et al, 2018).

Alternatively, focusing on the future requires theoretical or scenario modelling based on assumptions drawn from related phenomena, where data may be merely indicative, such as the International Energy Agency's 50-year forecasts for world energy demand. In these, although population densities and degree of urbanisation are included in the population component, equations assume a stochastic reversal of the growth effect, which has the potential to skew forecasts away from real outcomes (IEA, 2018). Interestingly, Colman and Rowthorn used a similar rationale to make predictions about the possible impacts of depopulation.

They observed that shrinkage might improve populations' per capita economic and material well-being (2011: 236-237) and that 'encroachment on countryside would cease ... emissions and pollutions of all kinds would fall, roughly pro rata with population size' (2011: 240). However, although Colman and Rowthorn welcome 'the projected diminution of Japanese, Russian and potentially Chinese populations ... for its effect on emissions, the consumption of hardwood forest products and many other causes of environmental degradation' they caution that 'the demographic effect is probably minor compared with the increase in purchasing power' (2011: 240).

Hence it is nearly impossible for politicians and planners to make an evidence-based case for a coherent set of policies and infrastructures that could extract benefits from shrinkage, particularly at the national level. This is despite the fact that in countries such as Japan and Spain depopulation is already occurring and its future continuation is more or less inevitable, and in countries such as New Zealand depopulation has been occurring at the regional level even as the nation continues to grow.

Do we need another approach? What if we could gather evidence at the sub-national level, learn from the experiences of shrinking regions around the world, and share the lessons internationally? Where are these places, and what can they tell us? With environmental crises becoming more urgent, should we trust that markets will autonomically deliver socio-environmental dividends in shrinking countries? Or is intervention required? To find out, in the next section we bring together real-world evidence from shrinking regions in three countries.

3. Shrinking Regions in Japan, Spain, and New Zealand

3.1. Japan – Resource Consumption

From our academic vantages located in (mostly) developed growing cities it is difficult to imagine what a depopulating society might look and feel like to live within, still less how to identify its potential socio-environmental dividends and achieve their realisation. Western people who visit Asia tend to frequent urban centres, and the images of Asia that western media feeds its consumers are often scenes from dynamic and relentlessly expanding megacities. Nevertheless, in Japan more than half of the country's 47 prefectures have been shrinking since at least as far back as 1990. It is a good example, therefore, for researching the outcomes of depopulation, not least because the Japanese government is assiduous in gathering data on a broad range of socio-environmental issues. What do we know so far?

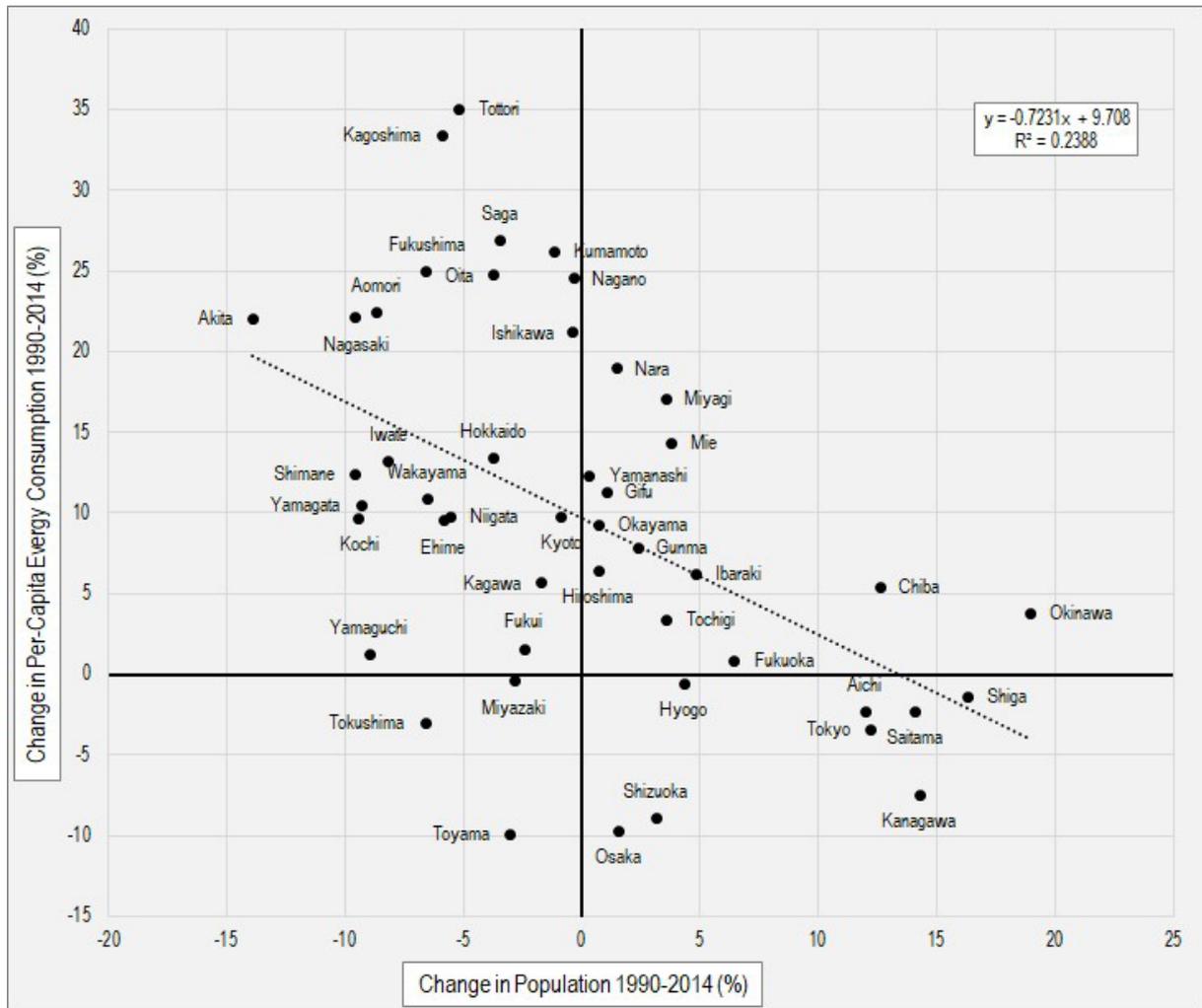


Figure 3. Population Change and Change in Per-Capita Energy Consumption in Japan, by prefecture 1990-2014. Data source: MIC (2022); METI (2022).

Figure 3 shows prefectural change in population and per capita energy consumption in Japan in the 25-year period between 1990 and 2014. Twenty-four prefectures' populations decreased in the period, while 23 grew – approximately a 50/50 ratio. Reflecting the continuing urbanisation of Japan and notwithstanding Hokkaido and Sapporo, shrinking regions are normally geographically peripheral provincial prefectures with capital cities of under one million people, while growing prefectures are either highly urbanised with large cities of one million plus, or adjacent to them. In this respect it is important to note that depopulation resumed in rural regions in the early post-war period due to out-migration of younger people to urban regions and a decreasing fertility rate, with both being a cause and consequence of Japan's rapid economic expansion – its demographic dividend. Urban areas, in particular prefectural capitals, continued to grow due to substantial in-migration from the rural periphery despite a decreasing fertility rate. More recently, however, the impacts of lower fertility have become more pronounced in all regions and fewer prefectures are growing as domestic inter-prefectural migration also slows (Matanle and Rausch et al, 2011). The outcome is that if we extend the time period, instead of 23 growing and 24 shrinking prefectures in 1990-2014, as of 1 October 2020 there are 35 shrinking and 12 growing prefectures since 1990 (MIC, 2022).

Using energy as the key indicator for overall resource consumption, figure 3 indicates that Colman and Rowthorn's (2011) expectation of pro-rata linear reductions in resource consumption as population decreases is not occurring in Japan. Rather, the biggest per capita reductions in energy consumption are generally being achieved in regions where the population is growing, with per capita increases in regions where the population is decreasing. Not unexpectedly the data on carbon dioxide emissions closely matches the trends in energy consumption, and depopulation is consequently not yet achieving the kinds of environmental dividends in terms of mitigating climate change that some anticipate.

There are good reasons why environmental dividends may be more difficult to achieve than expected, and knowing about them will help to identify how to extract greater dividends. Decreasing population may cause higher per capita energy consumption due to lower residential and commercial building occupancy rates, reduced infrastructure efficiency, and delayed replacement for old and inefficient equipment and buildings. Significant also is government support for regional revitalisation strategies. Fiscal incentives and grants, as well as political interference, have resulted in some perverse outcomes – for example employers moving to economically and environmentally sub-optimal rural locations, municipalities trying to shrink faster to receive so-called 'kaso' (depopulation) subsidies, or infrastructure being built in the wrong place or at the wrong scale – or at all (Mizohata, 2010)! Hence, even as communities resolutely age and depopulate, regional spending is usually geared towards expansion, which inevitably fails in most cases because the country as a whole is shrinking and the capital region is still growing.

3.1.1. Japan – Biodiversity



Figure 4. Sado Island, Niigata Prefecture. The satoyama agricultural system, where traditional wet rice farming meets the forest edge.

With respect to the potential for biodiversity restoration, in areas where human populations are reducing and withdrawing research is showing that spontaneous ecosystem regeneration is not occurring as some might expect – and may be hindered as farmland is abandoned or consolidated (Normile, 2016; Uchida and Ushimaru, 2014). In Japan’s satoyama areas, where traditional farming meets the forest edge, and which have been losing human population for decades, human withdrawal from agriculture, forestry, and land management may reduce biodiversity or change the ecosystem in unpredictable ways. Species may decline because they depend on the agricultural system (Katayama et al, 2015), or land becomes clogged with invasive species. Usually, land is abandoned in a piecemeal and chaotic manner, so it may not be contiguous with forested areas and prevent species from achieving their range. Furthermore, mainly for reasons of tax differentials on land use, or feelings of ancestral rootedness and familial nostalgia, abandoned or under-used houses, schools, offices, car parks, petrol stations, factories, roads, etc. may remain in place for years, hindering plant growth, on which insects, birds and mammals depend. And Japan’s land registration system is confusing, resulting in many areas where authorities are unable to locate the owners, making land consolidation or change of use difficult. Approximately 11% of Japan’s total land area already lies unclaimed and an accumulated area approximately the size of Austria may be rendered vacant by 2030 (Economist, 2018).

The Japanese archipelago has been designated by Conservation International as a global biodiversity hotspot, because of the number of endemic species in its widely dispersed small island habitats, but which have suffered severe damage during Japan's period of modernisation and industrialisation (Mittermeier et al, 2005; Tyner, 2015). The International Union for Conservation of Nature and Natural Resources lists 13 animal species extinct in Japan, including both the Honshu and Hokkaido wolves (*Canis lupus hodophilax* and *Canis lupus hattai*), and 459 (404 in 2016) species threatened with extinction (including 29 mammals, 49 birds, 25 reptiles, 20 amphibians and 100 fishes [28, 45, 14, 20, and 77 in 2016 respectively]). Among Japan's endemic species 17 out of 43 mammals, 8 out of 24 birds, and 18 out of 46 amphibians are threatened with extinction (IUCN, 2016 and 2019). However, even as Japan's rural areas and small island communities empty out, the number of species under threat continues to rise, by 13.6 per cent in three years between 2016 and 2019, indicating that biodiversity losses are continuing under depopulation.

Despite the lack of a clear environmental dividend for depopulation in Japan, there are some indications that societal dividends are appearing in rural areas as residents acknowledge the inevitability of shrinkage. Often links between residents' personal, social and environmental preferences indicate a desire to find alternatives to growth, which is still the overwhelming policy priority driven by central government. Research in Niigata Prefecture, for example, finds a turn towards ecological, community, cultural and personal values (Klien, 2010; Matanle and Sato, 2010). There is, moreover, a growing number of examples of social and cultural regeneration within shrinking communities being mentioned in Japanese and international mass media (See: Jones, 2019; Ujikane, 2017). And some shrinking communities destroyed in the 2011 tsunami are eschewing growth first values and preferencing quality of life in their post-disaster recovery (Klien, 2016; Kurochkina, 2022). And it is to cases of social, cultural and economic dividends that we now briefly introduce from Spain and New Zealand.

3.2. Spain

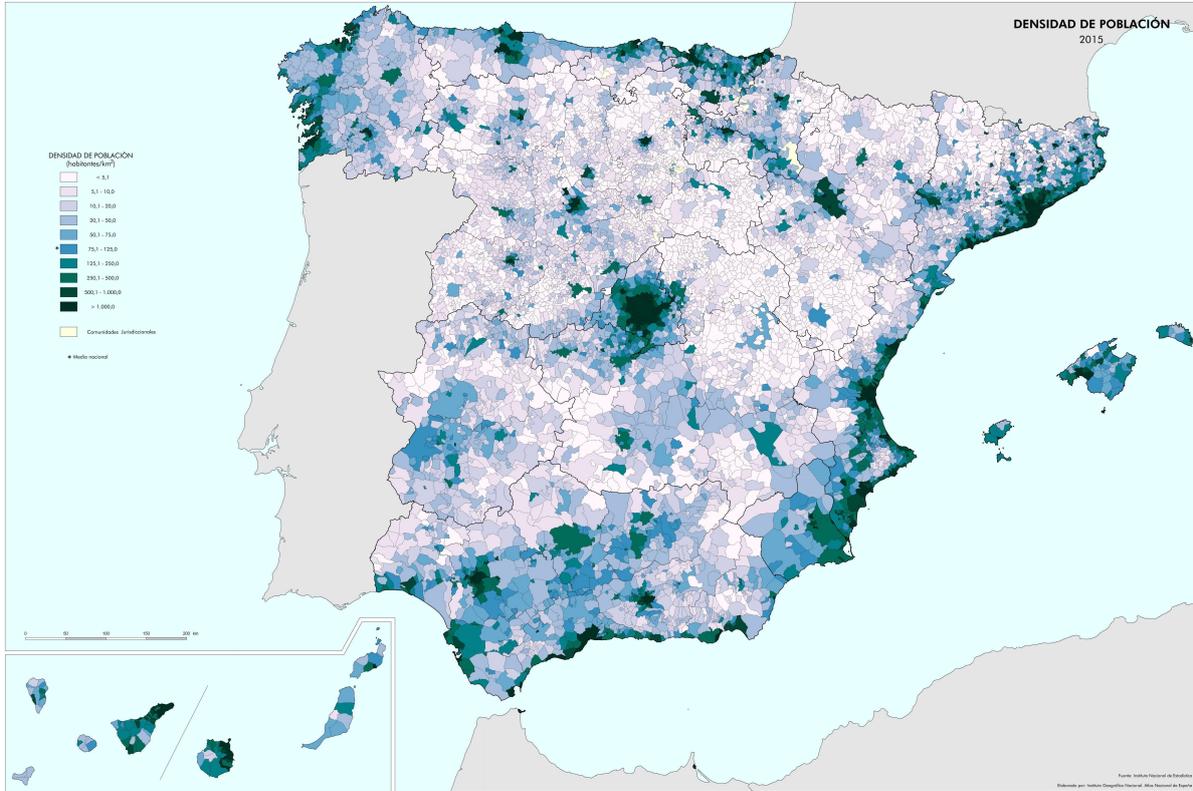


Figure 5. Population density in Spain by local area. Data Source: INE (2018).

Like Japan, Spain is an urbanised country with a long history and which made an accelerated transformation to modernity in the 20th century. Again like Japan, Spain has experienced dramatic population change, with rapid growth and urban concentration in the 20th century, and the beginnings of depopulation in the 21st (Collantes and Pinilla, 2011). It too has major territorial imbalances due in part to demographic processes associated with economic development. Madrid and Barcelona are the third and sixth most populous urban areas in the European Union, and Spain's Mediterranean coast is an axis of high urban density possessing a complex set of infrastructures (Serrano-Martínez, 1993). At the same time its interior is where some of Europe's demographic deserts can be found. Of the European Union's 271 regions, Spain has four out of the twenty least densely populated. Like Japan, depopulating regions occupy over half its territorial area.

In an example for Japan, international migration has softened Spain's demographic transformation due to a sustained period of below replacement fertility since 1981, even reversing it in some provinces, and has injected renewed economic vitality into some declining rural towns and villages (Collantes et al, 2014). However, this is not so much evidence of a depopulation dividend as it is a reinforcement of growth-first values. Migrants have settled predominantly in economically prosperous regions and/or areas within reach of transportation gateways (Gil et al, 2015), and many have come to Spain from comparatively lower resource consumption countries. Although overall national fertility has risen by a meagre three per cent as a result of inward migration, in some regions migrants' fertility rates are lower than resident populations, showing that international migration is no longer a solution to low fertility in the search for socio-environmental sustainability (Bagavos, 2019).

Like Japan, recently Spain has been experiencing limited domestic migration towards rural regions, which may indicate a socio-cultural depopulation dividend (Klien, 2020). As towns and villages have hollowed out, some rural locales are simultaneously becoming repositories of authentic values representing a desire for prioritising quality of life with reduced consumption. This development is felt as much by nostalgic baby boomers who were at the centre of the intensive rural-urban migrations of the 20th century as for younger millennials who are encountering labour precariousness, high housing prices and stress in a heavily urbanized 21st century. Statistically not yet significant, and similar to Japan, a kind of rural idyll is in formation, with some small and well-connected villages becoming attractive and affordable places for those constructing a double 'rururban' lifestyle combining a bohemian rural residential experience with a skilled professional urban career, and facilitated by flexible commuting using rapid transportation and information and communications technology (Valle, 2021).



Figure 6. Gandesa, Catalunya, Spain. Historically famous as a battle site in the Spanish Civil War, this 'wine town' and rural idyll has good transportation links with Taragona, Lleida, Zaragoza, and Barcelona.

Politically, like Japan, in Spain and the European Union development remains synonymous with growth such that shrinkage is still generally understood as its antithesis – a sort of degenerative decline (Sáez, 2021). Indeed, the association between depopulation and decline can become a self-fulfilling prophecy as public spending and fiscal policies are geared towards ‘smart growth’ that will never be achieved, and shrinking regions are starved of financial and intellectual investment required to establish sustainability beyond growth. Hence, because it lacks a sense of authentic human values, the neoliberal technocratic regime rests on a philosophical contradiction. On the one hand, liberal individualism invites assumptions that shrinking regions are responsible for their own decline and, therefore, welfare. On the other hand, government remains technocratic and dirigiste, neglecting to acknowledge that people can realistically evaluate their situations, implement a way of life appropriate to their values, and be the architects of their own destiny (Nussbaum and Sen, 1993). We will explore this notion some more by introducing the case of New Zealand.

3.3. New Zealand



Figure 7. Lake Wakatipu, Queenstown, South Island, New Zealand. Queenstown has expanded rapidly due to its reputation as a hub for tourism and outdoor adventure sports.

Contrasting with Japan and Spain, New Zealand has a small and growing population of 5.13 million as of December 2021. With a higher but nevertheless falling total fertility rate of 1.64 children per woman, but – notwithstanding covid's temporary impacts – significant net inward migration over the long term, New Zealand will continue to grow for the foreseeable future (Stats NZ, 2022). However, like Japan and Spain, New Zealand is heavily urbanised and there is a strong unipolar concentration around Auckland, which accounts for one third of the country's population and 35% of its GDP. Wellington, Christchurch and Hamilton are also growing. Taken together these four cities make up 66% of New Zealand's population and 71% of its economic output (Nel, 2015).

Although all except one of New Zealand's 16 sub-national regions experienced economic and demographic expansion through to 2018 (Stats NZ, 2022), it is at the sub-regional, or district, level where demographic imbalances and economic inequalities are most discernible (Jackson, 2014; Nel, 2015). Between 2006 and 2013, 343 of 983 statistical area units (34.9%) experienced depopulation (Nel, 2015). Since 2013 net inward migration to New Zealand has increased substantially, partly as a government response to ageing and shrinkage, and regional development policy has focused strongly on agricultural and economic transformation for growth. Compared to Japan and Spain, New Zealand's smaller national and sub-national populations mean that immigration can make a substantially greater difference in mitigating ageing and shrinkage. National, regional and district population counts are therefore showing more demographic stability than previously. Nevertheless, unlike in previous eras, not only do migrants have a tendency to adjust their fertility decisions to normative patterns in receiving countries, migrants to New Zealand are more often themselves from low-fertility societies such as China and Australia. Hence, as in Spain and even including higher levels of inward migration, the long term low fertility rate and ageing of the rural population mean that the prospect of rural depopulation is unlikely to 'go away' (Jackson and Cameron, 2018; Nel, 2015).

Economically and societally, in recent decades provincial communities in New Zealand have been heavily buffeted by the winds of globalization; not least because, since 1984, the government has embraced an open neo-liberal economic and administrative reform programme (Boston and Eichbaum 2014; Nel and Stevenson 2014). Among the signature policies have been deregulation of economic functions, the ending of industrial and agricultural subsidies, and the implementation of a free trade regime. In New Zealand's regions we can observe human-environmental values being expressed through activities that do not prioritize growth. Certainly environmental, cultural, and artistic values are expressed throughout the country's many Maori communities, as well as an increasing recognition and incorporation of Maori values and language into New Zealand's politics, law, education, and ways of life.

Though this is less due to demographic changes than the policy of developing New Zealand's ongoing emergence in the 21st century as a country with its own distinct Anglo-Pacific culture and identity. Moreover, despite rural decline and shrinkage in more remote areas, New Zealand's overall situation is unlike Japan's or Spain's; until covid national population growth was accelerating and, despite a reduction in new migrant numbers, in a reversal of long-term patterns, growth has been maintained by an increase in return migration among New Zealanders previously resident overseas (Stats NZ, 2022). Government policy, too, has compelled regional and local actors to be more economically competitive and self-reliant than Japan and Spain, where central government and EU controlled spatial redistribution of taxation continues.

Unlike Japan and Spain, where proximity and/or access to urban agglomerations is, generally speaking, important for community stability and remote areas have suffered, notably some of New Zealand's more distant provincial communities have recast their remoteness and marginality as advantages in response to deregulation, globalization, and rural change. This is being achieved through the development of new regional cultural economies, including tourism, viticulture, and sports. In particular, the push-pull combination of the government's neoliberal economic agenda, a long history of self-reliance due to remoteness, and the country's spectacular and clean natural environment, have helped the cultivation of community reinvention around regionalism and localism, social and cultural participation, high quality food and drink, good health and fitness, and a friendly and welcoming atmosphere.

These developments are very evident in South Island, for example with the expansion of Queenstown as a globally famous destination for adventure sports; the careful renovation of formerly abandoned Arrowtown as a heritage and tourism centre for celebrating Chinese labourers' contributions to New Zealand's early mining economy; the creation of a vibrant viticulture around Cromwell in Central Otago; and the conversion of the Central Otago railway into an idyllic cycle path with renovated cafes and inns as stopover locations to revive tired cyclists. Public art, also, has helped communities develop distinctive and cohesive identities which they then project outwardly to attract visitors and migrants, and restore vitality, such as the annual mural competition in the North Island community of Katikati, painted bus stops and railway sheds between Dunedin and Port Chalmers, giant paintings and installations in Macraes, and the mural tour of Dunedin's former warehousing district (Matanle, 2017).

In these cases a socio-cultural dividend is appearing as communities are transforming themselves in response to a complex set of development challenges, including ageing and depopulation.



Figure 8. Otago Central Rail Trail, New Zealand, a popular attraction for tourists to experience the peaceful scenery and clean fresh air of South Island by bicycle.

Conclusion

The world is changing at an unprecedented rate. Even as population growth is considered an environmental crisis of global proportions its apparent antidote – depopulation – is judged a socio-economic and political disaster. How are we to deal with the ambiguities that these contradictions raise?

Demographic shrinkage is a comparatively recent post-developmental phenomenon; but it is one experienced by increasing numbers of regions and countries as low fertility and ageing transition into depopulation. As yet there is little research into its outcomes, and assumptions about its potential to help resolve socio-environmental crises are rooted in our experiences and expectations of growth. Here we have compared and contrasted research from three countries located in different world regions, all experiencing demographic shrinkage at differing scales of spatial analysis. We show how depopulation produces variation in responses between and within countries, and we reveal the contradictions in its meaning locally, regionally, nationally and internationally.

Of the three examples presented, Japan exhibits the longest and deepest experience with depopulation. We show that expectations of environmental gains proportional to the extent of population loss are difficult to achieve. Then, as an example from Southern Europe, Spain demonstrates that international migration might provide a softer landing from the impacts of depopulation, but it is unlikely to reverse the process. Indeed, by clinging on to technocratic and dirigiste approaches the country may be delaying a resolution of the socio-economic impacts of population loss, perhaps deepening their eventual outcome. Finally, as the smallest country of the three by population, New Zealand demonstrates the greatest capability to mitigate depopulation via migration, but these processes are proving to be volatile and unpredictable. Moreover, in the South Island where local depopulation processes have been strongest, policies sensitive to the values and characteristics of their locales have generated some economic, socio-cultural and environmental transformations, particularly when recasting local and regional attributes and identities.

Economic and technological development and international cooperation have enabled tremendous improvements to material living standards, particularly since the start of the 'Great Acceleration' after 1945. Yet the expansion of human economic activity across the Earth has caused terrible damage to natural systems and our capacity to live sustainably. Sustainable living necessarily also encompasses the human, social and emotional dimensions which are essential to wellbeing. Currently there is a feeling of emptiness in our overall quality of life that the technocratic growth-first mentality fails to address or resolve, whose roots lie in our abuse of the very thing that sustains all our lives. In a reversal of the prevailing notion that urban life is more advanced than its rural counterpart, could it be that small and simple is the easier way to be both smart and beautiful? Could small rural towns and villages teach cities how to live better and more sustainably with and within nature?

Japan, Spain and New Zealand remain committed to a conventional growth-first pathway, and show that we have a long road to travel before significant socio-environmental gains can be achieved from depopulation. Arguably, at the national level the commitment to growth appears to be strengthening, perhaps as a response to the socio-economic and political shifts occurring as these countries transition from growing to shrinking societies and attempt to respond to the multiple crises engulfing 21st century humanity. Simultaneously, however, they demonstrate that depopulation is both a local and a global phenomenon with a variety of manifestations, interpretations, and possible outcomes.

Japan's spectacular postwar economic expansion was a seminal moment in human history, and one of the best 'good news' stories of the 20th century. Its success excited considerable interest around the world, not least in East and Southeast Asia where its example has inspired – consciously or unconsciously – successive generations to achieve their own 'economic miracles' and lift millions of people out of poverty and into prosperity and longer, healthier lives. As such Japan fulfilled Akamatsu's (1962) suggestion that it be the 'lead goose' in Asia, initiating a continent-wide accelerated development process. In the 21st century, with the world beset by global crises of increasing severity there is a need for leadership, cooperation and innovation in charting a new path towards socio-environmental sustainability.

Depopulation need not be seen as a crisis. Indeed, it could be part of the solution. What we are learning is that an emerging rururbanity is achievable and, with planned interventions, socio-environmental dividends are possible. The three countries presented here all possess experiences with shrinkage that are applicable in other countries as they encounter similar circumstances. The confluence of these factors in such diverse locations, and their increasing prevalence, presents scholars and practitioners with the opportunity, even requirement, for localising and globalising our understanding in order to contribute to resolving some of the major challenges of the 21st century. Once more in Asia, where the problems of population, development and environment collide more vigorously than anywhere else on Earth, Japan has the greatest potential for leading cooperation on demographic and environmental change.

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