Searching for a Depopulation Dividend in the 21st Century: Perspectives from Japan, Spain and New Zealand

21世紀における人口減少ボーナスの探求：日本，スペイン，ニュージーランドの事例

ピーター マタンレ *Peter MATANLE*
英国 シェフィールド大学社会科学部東ドアジア学科

ルイス-アントニオ サエス-ペレス *Luis-Antonio SÁEZ-PÉREZ*
スペイン　サラゴサ大学経済史・公共経済学部

1. Introduction

The world is experiencing unprecedented demographic transformation. In the second half of the 20th century human populations expanded more rapidly than at any time in our history – from approximately 2.6 billion people in 1950 to 6.1 billion by 2000. Current estimates project that by the close of the 21st century there may be around 11 billion people alive on Earth (UNPD, 2017).

Nevertheless, there is another story taking place behind this extraordinary growth. In 2018 nearly half of the world's countries show lower than replacement human fertility, and 33 countries are experiencing decreasing populations (GBD 2017 Collaborators, 2018). This turnaround is mainly associated with a combination of higher levels of development and increasing urbanisation. In Asia, Japan is in the vanguard. Its Total Fertility Rate (TFR) has remained below population replacement since 1974 (MIC, 2019). Demographers knew then that, if conditions persisted and without replacement migration, Japan would experience ageing and, eventually, population decrease. Conditions have persisted and, sure enough, in 2008 Japan's population began to decrease.

Currently Japan is the only shrinking country in Asia, but others are following, including China and South Korea. Beyond Asia, much of Eastern Europe is shrinking, and the European Union is ageing and, cumulatively, anticipated to start shrinking before mid-century. Even immigration friendly countries such as New Zealand and Canada are experiencing sub-national processes of ageing and shrinkage (Jackson & Cameron, 2018; Sims & Ward, 2017) and some Latin American countries – Costa Rica, Chile and Cuba – now report below replacement fertility (UNPD, 2017).

Figure 1: Tokyo

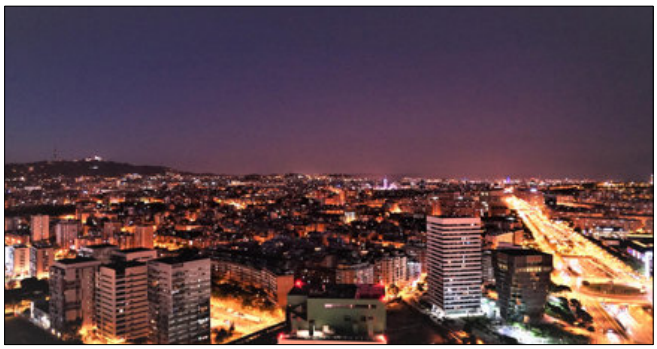

Figure 2: Barcelona

Figure 3: Auckland

2. The (De)Population Problem

Ageing and depopulation are normally considered socio-economic problems requiring a solution, which is usually more people, by increasing fertility or migration, or both. This is the predominant perspective in Japan, where it is considered a national crisis by some (Kato, 2018). However, increasing fertility raises age-related dependency ratios, since children require twenty years or more to become economically productive; and the number of migrants needed for labour force stability is beyond many countries' capacity to absorb (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 to 100 million people by 2065 (instead of the projected 80-90 million) – though some question the government's realism (Mainichi, 2018). Significant, also, is the fact that migrants tend to move from lower to higher resource consumption countries, increasing their environmental footprint in the process (McNeill & Engelke, 2014).

Conventional approaches to the relationship between population size and human wellbeing rest on assumptions that population growth – in the context of a well-managed political economy – produces a 'Demographic Dividend' of improved socio-economic development (Bloom, Canning & Sevilla, 2003). Conversely, shrinkage – or degrowth – is assumed to deliver decline or, at the very least, stagnation. This is why growth is considered an unarguable good and should therefore be maintained at all costs.

And 'at-all-costs' is exactly the phrase to use, because anthropogenic environmental pressures have entered a catastrophic turn, with much of this due to increasing human numbers and our migration across the Earth's surface. Earth has lost approximately 60% of its wildlife since 1970 (WWF, 2018). Atmospheric CO2 has risen from 310ppm in 1945 to more than 410ppm in June 2018 (CO2.earth, 2018), with population expansion being responsible for about 37% of that accumulation (McNeill & Engelke, 2014: 54). And pollution is now so pervasive that it is literally embodied into the bio-chemistry of human life (Walker, 2010).

Thus, although the relationship between population and environment is non-linear, it is widely agreed that population increase, in combination with economic expansion and the inefficient consumption of natural resources, has placed the stability and resilience of Earth systems in peril. We are literally overheating the Earth system and killing the life that sustains us (Eriksen, 2016). Does depopulation, therefore, help us to chart a more sustainable path into the future? What kinds of socio-environmental dividends from depopulation can we expect to achieve?

3. What is the 'Depopulation Dividend'?

Malthusian and deep ecology perspectives posit that population reduction is necessary for sustainable living to be achieved on a planetary scale. Yet their assumptions about whether depopulation will deliver such dividends remain largely untested and unproven.

So, what do I 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). Environmental dividends might include reductions in resource consumption, ecosystem and biodiversity restoration, reduced waste and pollution. Societal benefits could encompass a more comfortable and reorganised living space, reduced urban overcrowding, improved workplace opportunities for under-represented citizens, a slower and less stressful lifestyle, and less crime and fewer wars.

Even so, current neoliberal orthodoxy maintains that market forces are the best and most efficient methods for allocating resources to where they are needed and, consequently, where they will be most profitably employed. However, conventional economics is geared towards reproducing growth and has never had to work long-term in a depopulating society (Matsutani, 2006). We already know, theoretically at least, that left to markets depopulation will not produce the reverse mirror of growth. With environmental crises becoming more urgent, will markets automatically deliver a depopulation dividend?

Significant, also, is the matter of democratic consent and political will. In a society organised around the principle of perpetual growth it is hard for election candidates to campaign on slogans advocating shrinkage. Even the language of political-economy is prejudiced towards growth as 'good' and shrinkage 'bad'. And the time-limited electoral horizons of politicians do not mesh with the temporal horizons of environmental thresholds, trading long-term sustainable living for short-term wealth accumulation.

Consequently it's nearly impossible for politicians and planners to make a case for a coherent set of policies and infrastructures that

extract benefits from shrinkage. This is despite the fact that in countries such as Japan depopulation is already occurring and its future continuation is inevitable. Do we need another approach, therefore? What if we could learn from the experiences of shrinking regions around the world? Where are these places, and what can they tell us?

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

Japan

It's difficult to imagine what a depopulating society might look and feel like to live within, still less how to identify its potential dividends and their realisation. Western people who visit Asia tend to frequent political and business capitals and the images of Asia that western media feeds its consumers is often dynamic and relentlessly expanding megacities. Nevertheless, in Japan more than half of the country's 47 prefectures have been shrinking since 1990, and it's a good place to study the outcomes of depopulation because the government has been assiduous in gathering data on a broad range of socio-environmental issues. What do we know so far?

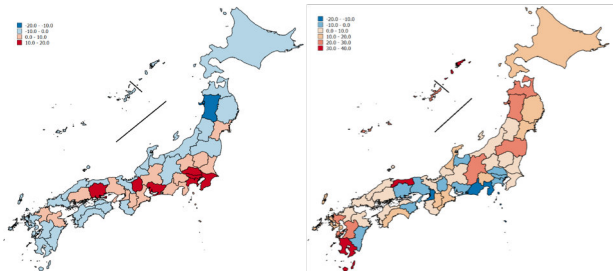

Figure 4: Population Change in Japan by Prefecture (left hand map), and Change in Per-Capita Energy Consumption in Japan (right hand map), 1990-2014. (Source: MIC, 2019).

Using energy as a key indicator, a significant environmental dividend is yet to appear in Japan's shrinking regions. For example, the biggest per capita reductions in carbon output from fossil fuel consumption are generally being achieved in growing regions (Figure 4). And biodiversity bounce back is more difficult to achieve than thought.

There are good reasons why environmental dividends might be more difficult to achieve than expected, and knowing about them will help to identify how to extract greater dividends. For example, 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! Hence, even as communities resolutely age and depopulate, regional spending is usually geared towards expansion, which inevitably fails because the country as a whole is shrinking and the capital region is still growing.

Figure 5: An example of the satoyama agricultural system in Niigata Prefecture, Japan, where traditional wet rice farming meets the forest edge.

With biodiversity, in areas where human populations are reducing and withdrawing spontaneous rewilding is often not occurring – and may be hindered as farmland is abandoned or consolidated (Normile, 2016; Uchida & Ushimaru, 2014). Research in Japan's satoyama areas, where traditional farming meets the forest edge and which have been losing human population for decades, indicates that 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. Often land is abandoned in a 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 chaotic, resulting in numerous areas where authorities are unable to locate the owners, so land consolidation or change of use is increasingly difficult to achieve.

Approximately 11% of Japan's total land area lies currently unclaimed (Economist, 2018).

Despite the lack of a clear environmental dividend, there are some indications that societal dividends are appearing in Japan's rural areas as residents acknowledge the inevitability of shrinkage. Often links between residents' social and environmental preferences indicate a desire to find alternatives to growth. Research in Sado Island, Niigata Prefecture, finds a turn towards ecological, community, and personal values, for example (Matanle & Sato, 2010). And it is this that we now survey in the cases of Spain and New Zealand.

Spain

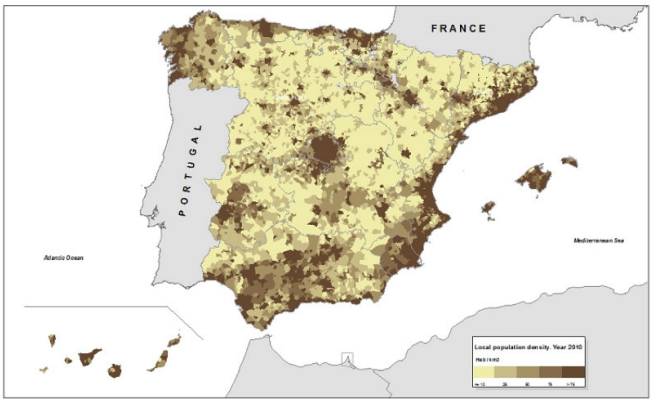

Figure 6: Population density in Spain by local area.

Like Japan, Spain is an urbanised country with a long history and made a dramatic transformation to modernity in the 20th century. It too has major territorial imbalances due in part to demographic processes associated with rapid development. Madrid and Barcelona are the third and sixth most populous urban areas in the European Union, and its 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, these 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, and many have come to Spain from comparatively lower resource consumption countries. Surprisingly, migrants' fertility rates are lower even than those of resident populations, meaning that international migration is not a solution to low fertility in the longer term search for socio-environmental sustainability.

Figure 7: 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.

Recently, however, Spain has been experiencing limited domestic migration towards rural regions. which may point towards a socio-cultural depopulation dividend. As towns and villages have hollowed out, some rural locales are simultaneously becoming repositories of authentic values which represent 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, 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; which combines a bohemian rural residential experience with a skilled professional urban career, and is facilitated by flexible commuting using rapid transportation and information and communications technology.

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. 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 & Sen (eds), 1993). We will explore this notion some more by introducing the case of New Zealand.

New Zealand

Figure 8: Lake Wakatipu, Queenstown, South Island, New Zealand. Queenstown has expanded rapidly due to its reputation as a hub for tourism and outdoor adventure sports.

Compared to Japan and Spain, New Zealand has a small and growing population of 4.8 million. With a higher but nevertheless falling total fertility rate of 1.8 children per woman, and significant immigration, New Zealand will continue to grow for the foreseeable future (Stats NZ, 2018). 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).

New Zealand's demographic imbalances are discernible sub-nationally, however, with ageing and depopulation intensifying in rural districts, prompting some demographers to herald the 'end of population growth' (Jackson & Cameron, 2018). As in Spain, current levels of international migration, albeit high already, are unlikely to make the prospect of depopulation 'go away' (Jackson & Cameron, 2018; Nel 2015).

Unlike Japan, in New Zealand growth remains a theoretical and practical expectation in nearly every community, despite its long-term population dynamics, because the country as a whole is still growing. Even as many rural areas have been ageing towards shrinkage, many have seen the re-emergence of a productivist agricultural sector under a deregulated national economic regime, with the replacement of sheep by dairy farming and its growth into a major contributor to New Zealand's international trade balance.

Notable for some New Zealand communities has been a recasting of their remoteness and marginality as advantages in response to deregulation, globalization, and rural change, through the development of a new cultural economy, including tourism, viticulture, and sports. In particular the country's spectacular and clean natural environment has helped the cultivation of community reinvention around social and cultural participation, high quality food and drink, good health and fitness, and a friendly and welcoming atmosphere. Public art, also, has helped some communities develop distinctive and cohesive identities which they then project outwardly to attract visitors and migrants, and restore vitality. In these cases a socio-cultural dividend is appearing. Although there are now strong incentives towards wilderness and wildlife conservation, it is arguable whether an environmental dividend is appearing, given the distance that international visitors travel to New Zealand.

Figure 9: 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.

5. Conclusion

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

Shrinkage is a new post-developmental phenomenon being experienced by increasing numbers of regions and countries around the world as they encounter low fertility and ageing transitions 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.

Just as economic and technological development have delivered tremendous improvements to material living standards, they have caused enormous damage to Earth systems and our capacity to live sustainably. But, sustainability must also encompass the human,

social and emotional dimensions which are essential to living well. Currently there is a feeling of emptiness in our overall quality of life that the technocratic growth-first mentality fails to address or resolve.

In a reversal of the notion that urban life is more advanced, could it be that small is the easier way to be both smart and beautiful? Could small rural towns and villages begin to teach cities how to live better and more sustainably?

Japan, Spain and New Zealand show that we have a long road to travel before a depopulation dividend can be achieved. What we are learning, however, is that an emerging rururbanity is perhaps achievable in many of these places and there are potentially examples to be followed by countries and regions with similar characteristics, in Asia, Europe and the Anglophone world.

Acknowledgements

This publication was partly supported by the FEAST project (No. 14200116), Research Institute for Humanity and Nature (RIHN).

References

Bloom, D., Canning, D. & Sevilla, J. (2003) The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change, Santa Monica, CA: The Rand Corporation. Online: https://tinyurl.com/y7mgcf6j.

CO2. Earth (2018) CO2.earth Homepage. Online: https://www.co2.earth/.

Collantes, F., et al (2014) Reducing Depopulation in Rural Spain: The Impact of Immigration, Population, Space and Place, 20 (7): 606-621.

Economist (2018) A startling amount of land in Japan has no official owner, 17 May.

Eriksen, T.H. (2016) Overheating: An Anthropology of Accelerated Change, London: Pluto Press.

GBD 2017 Collaborators (2018) Population and fertility by age and sex for 195 countries and territories, 1950–2017: a systematic analysis for the Global Burden of Disease Study 2017, The Lancet, 392: 1995-2051.

Jackson, N. & Cameron, M.P. (2018) The Unavoidable Nature of Population Ageing and the Ageing-Driven End of Growth – an Update for New Zealand, Journal of Population Ageing, 11 (3): 239-264.

Katayama, N. et al (2015) A review of post-war changes in rice farming and biodiversity in Japan, Agricultural Systems, 132: 73-84.

Kato, H. (2018) We need a sense of crisis over depopulation, Japan Times, 5 September. Online: https://tinyurl.com/ybvyngpm.

Mainichi (The) (2018) Editorial: Population of 100 million in 50 years a fantasy requiring a shift in thinking, The Mainichi, 16 July. Online: https://tinyurl.com/y8koes9q.

Matanle, P. (2017) Towards an Asia-Pacific Depopulation Dividend in the 21st Century: Regional Growth and Shrinkage in Japan and New Zealand, The Asia-Pacific Journal: Japan Focus, 15 (6) 5: Online: https://apjjf.org/2017/06/Matanle.html.

Matanle, P. and Sato, Y. (2010) Coming Soon to a City Near You! Learning to Live 'Beyond Growth' in Japan's Shrinking Regions, Social Science Japan Journal, 13 (2): 187-210.

Matsutani, A. (2006) Shrinking Population Economics: Lessons from Japan, Tokyo: International House of Japan.

McNeill, J.R. & Engelke, P. (2014) The Great Acceleration: An Environmental History of the Anthropocene since 1945, Cambridge, Mass: Harvard University Press.

MIC (2019) Japan Statistical Yearbook, Ministry of Internal Affairs and Communications Statistics Bureau. Online: https://tinyurl.com/ycpzt4jm.

Nel, E. (2015) Recent Trends in Regional and Local Demographic and Economic Inequality in New Zealand and Associated Regional Development Implications, Local Economy, 30 (1): 12-20.

Normile, D. (2016) Nature from Nurture, Science, 351 (6276): 908-910.

Nussbaum, M.C. & Sen, A. (eds) (1993) The Quality of Life, Oxford: Clarendon Press.

Serrano Martínez, J.M. (1993). Estructura y dinámica del sistema urbano del eje mediterráneo español, Papeles de geografía, 19: 157-181.

Sims, A. & Ward, J. (2017) Regional Population Projections for Newfoundland and Labrador 2016-2036, Memorial University of Newfoundland Harris Centre Regional Analytics Laboratory, September. Online: https://tinyurl.com/ychmuovp.

Stats NZ (2018) Birth rate down to record low, 18 February. Online: https://tinyurl.com/yb6dufk2.

Uchida, K. & Ushimaru, A. (2014) Biodiversity declines due to abandonment and intensification of agricultural lands: patterns and mechanisms, Ecological Monographs, 84 (4): 637-658.

UNPD (2001) Replacement Migration: Is It a Solution to Declining and Ageing Populations? United Nations Population Division. Online: https://tinyurl.com/m8jpuhp.

UNPD (2017) World Population Prospects – The 2017 Revision, United Nations Population Division. Online: https://population.un.org/wpp/.

Walker, B. (2010) Toxic Archipelago: A History of Industrial Disease in Japan, Seattle, WA: University of Washington Press.

WWF (2018) Living Planet Report - 2018: Aiming Higher, WWF. Online: https://tinyurl.com/ybq3eqml.