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Can We Have the Population Statistics We Need Without a Regular Census?

Time to engage with statisticians

Abstract

As the New Zealand government is progressing plans for substituting the census as we know it for information held in state agency records, the huge gap between what we need population statistics for, and the scope and quality of existing statistics stays under the radar. The scale and volatility of migration, the impact of increased longevity and the different demographic dynamics of fast-growing ethnic communities must be continually measured in ways we can trust. Confidence that the statistical qualities of the census would be replicated requires transparency, validation and independent peer review if trust is to be maintained.

Keywords census, migration, longevity, investment, trust

What we need a census and population statistics for

This short article was stimulated by the publication of advice by the government statistician that the five-yearly census of population and dwellings for 2028 will be replaced by the administrative records long held by the Crown.¹ The census night enumeration we have become used

to would cease. More recently, it was announced that the Living in Aotearoa Survey would no longer be implemented. There was no opportunity provided for expert consideration of the implications of this decision. Our population statistics are too important, in so many ways, for this to happen to the population census. In the current climate, where the balance between

expert advice and political expediency is not transparent, the downstream implications may not be fully recognised, and risks protected against.

As with many other items of public expenditure, the prospect of cutting statistical activity, however well embedded, is not new in times of fiscal stress. Indeed, it was the norm for some 25 years after the 1974 oil crisis. However, there are two serious limitations to informed decision making when urgent budget cuts to statistics are required. First, neither Statistics New Zealand nor the Treasury are likely to be aware of the majority of the uses to which official statistics are put. Second, those who use official statistics do not invest enough in influencing how statistics can be developed to provide further value. Expert users themselves may be unaware of the scale of decisions in their sector which depend on the scope, frequency and quality of population statistics. It may well be that the loss in recent years of long-standing engagement mechanisms have distanced official statisticians from the emerging needs of users.

There is a need for all users to be provoked into acting as the proper investors in the statistical system. A need for users

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to think deeply was signalled by the advice in 2023 that the 2028 population census could take a different form. Raising concerns after decisions are made will be of little value to Statistics New Zealand. As far back as 2017 Statistics New Zealand had identified some of the foundation stones of such a change, including a national population register.

I cannot recall any time over the past 50 years when the scope and quality of population statistics have been of such importance in public life. The long-term insights briefings of government departments and the strategic documents of agencies highlight the broad range of uses to which population statistics are put in New Zealand. Although collectively weak in how population issues are considered, a few documents are excellent, and enable a spotlight to be put on long-term limitations of population statistics.

- First, and most significant, is the rigidity with which place is acknowledged and supported in population statistics.
- Second, the integration of population statistics with other information about place needs to be systematised and to influence the population statistics infrastructure, rather than requiring ad hoc analysis for each application.
- Third, the age structures of places across New Zealand are diverging in such a way that an increasing share of local authorities have fewer people of the age when people usually enter the labour force compared to the number exiting through retirement. The increased need for migrant workers varies place by place.
- Fourth, the huge shift in the contribution of migration to population change has not influenced the frequency, timeliness or measures of reliability of population estimates and projections; without this information they are out of date when released.
- Fifth, increased longevity is set to challenge how far monetised measures of employment, productivity, and fiscal costs and benefits can inform policy, particularly in the areas of retirement provision, health, education, housing and care.
- Sixth, the huge shift in the share of the population from ethnic communities with very different demographic

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dynamics challenges the evidence used to develop universal responses.

There are many other issues of comparable importance, and these need to be transparent to those who will be reshaping New Zealand's system of population statistics, both those with appropriate statistical expertise, and those charged with the unenviable task of advising on difficult fiscal trade-offs with limited information and time. Some statistical measures bring legal obligations, as will the population statistics that will be used by local bodies in the new 30-year time frame for planning for housing needs.

Pressure points in population statistics

Population statistics are a critical part of our national infrastructure. In different ways, the greater variability and volatility of demographic, social, economic and environmental change in each place in New Zealand, and their collective impact, have increased the difficulty of planning for whatever mix of people will live there in the future, and monitoring their quality of life. The public reports by the parliamentary commissioner for the environment, the New Zealand Infrastructure Commission,

the Ministry of Housing and Urban Development, the Ministry for Pacific Peoples and the auditor-general highlight deep concerns about the current quality of population statistics.

The population statistics and projections based on the information obtained from the regular censuses of population and dwellings were developed to measure and predict population change of a different kind than we now face. Before the 1990s, population growth could be crudely characterised by, first, a significant period of high fertility, building up to a steady flow of births at a level that continues to this day. Where people lived was influenced by urbanisation, and where significant industries were placed. International migration flows during much of that period tended to cancel out, except for a net loss of people in their twenties. This crude characterisation is no longer the case.

Ways of regaining universal public support for population statistics

Just as the field enumeration of a census requires public acceptance, so will the proposed alternative of linking of records obtained by government for taxation, justice, social welfare and other statutory processes. The census enumeration failure of 2018 undoubtedly damaged public trust, and the confidence of population experts, in future censuses. Before 2018, the census enumeration was managed and conducted locally by local people, and nationwide promotion focused on local resources, in health, education and security. This focus could be regained. Census forms could be shortened. Statistics New Zealand has always had very limited ways of enabling the ordinary citizen to come into contact with official statistics, except by media releases, which are less well publicised than previously. However, without significant pilot testing, we will not know if such actions will increase response rates and reverse a decline.

The United Kingdom, Australia and Canada have not experienced response rate declines in their most recent censuses, but all are examining how far administrative records can substitute for a full enumeration. The UK is the most aggressive in this, and has published methodological studies that enable the statistical and

analytical limitations of substituting administrative records for a field enumeration to be evaluated. Such studies have yet to be undertaken in New Zealand.

The absence of such studies for a statistically complex change that affects so many and so much resource allocation, along with limited user consultation, evades the degree of transparency which is essential given the scale of investment risk from population statistics of unknown quality. The degree of informed endorsement by users of population statistics will underpin the extent of public support and implicit endorsement of the linking of administrative records, and the quality of the resulting statistical measures. Civil society organisations and those who act as guardians of the public interest will need to have confidence in those statistical practices, which they will not have the expertise to evaluate themselves.

How the quality of public policy and investment is vulnerable to population change

There has been weak interest in and understanding of how change in population structures and population dynamics are measured and reported in New Zealand. By 2040 the population of New Zealand is likely to have trebled in size since 1960, while the number of births will probably continue to vary by around 60,000 per year over that whole 80-year period. The potential number of new entrants to the workforce will be fewer than those who exit from the workforce through retirement. There are parts of New Zealand where this has already occurred. The available population statistics have signalled such change for several decades. Public policy has been blind to the growing training needs of doctors and nurses, and in many trades the passing on of skills by the training of a share of each generation has slipped by. Similarly, the massive infrastructure needs for a growing and ageing population have not been made visible. Population projections for local authorities have become unreliable because of the huge local volatility in international and interregional migration flows, now common in many places for the last three decades.

Over the past 30 years, the scale, volatility and composition of migration flows has

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dominated population change enough for existing methods to bring too much uncertainty for planning population-based investment in public housing, infrastructure, health, education or the environment. As the scale of immigration and emigration has increased, the heterogeneity of these population groups cannot be ignored, as migrant communities are homogeneous neither in age distribution, fertility, their propensity to join existing communities, nor the nature and likely end point of their migration journeys.

Of local significance, the shifts in age structure from increased longevity have led to the ageing of the population at a national level being amplified or offset in places by migration, often in response to the local needs of the economic base for people of working age. The variability in historical birth trends adds later complexity to the relationships between cohorts, as it too influences shifts in the age structure of the population. The demographic dynamics of Māori, the different Pasifika populations and other ethnic groups all differ from those of Europeans.

The long-standing approach of preparing a set of population projections provides users with a set of alternative scenarios for fertility, mortality and migration every five years. But more intensive use is now possible of an expanded knowledge base about any place from both government and other records,

of varying granularity and frequency. This has become vital since, along with the increased longevity of the retired, international immigration and emigration and migration within New Zealand have displaced births as the most critical cause of population change.

Bringing together such a range of information for places, regions and New Zealand as a whole requires a statistical structure which is strongly integrated, and determined by knowledge of what the key uses of official statistics will be in the future. Major users are not sufficiently attached to priority setting by Statistics New Zealand, and they must be prepared to invest in consultation when it occurs. We need assurance that we can have the population statistics about people, places, communities and their demographic dynamics that are up to the task. The opportunity cost from potential investment failures far exceeds the statistics budget. Governments do not have endless resources for producing statistics; nor is public trust in statistical enquiries a bottomless well. The statistical and administrative data gathered by governments not only need to have a purpose; they must be fit for purpose.

Beyond the precipice: where could we be making decisions soon with inadequate information?

Governments need to determine now where to place some \$200 billion of infrastructure investment planned for the next decade. Central and local government policies need to set the context for where and what type of house building is to be undertaken, given the huge needs of individuals, government, communities and business investors. The adjustment of human settlements for climate change appears to be potentially massive, involving huge losses by individuals and businesses, and large financial commitments by central and local government. Furthermore, under the current fiscal policy settings, population ageing is likely to reduce the economic potential of New Zealand's population by over 25% within 20 years.

When population statistics are used in public policy, there are policy and implementation decisions that are vital for how future governments serve society. New Zealand is poorly served by the reporting of

population issues, by official statisticians, government departments, universities and independent agencies. This limits the extent to which discourse on long-term issues can be well informed. The false starts in the enumeration of the population censuses of 2018 and 2023 must lead to greater consultation and an enriched understanding of user needs. The information obtained uniquely in population censuses provides the knowledge about family and household structures and housing quality that have informed the development of the taxation system, the form of welfare benefits, housing, transportation and infrastructure investment.

Given the little interest of users of statistics in how they are prepared, engaging users may require a structured consultation process, perhaps supported by independent reviewers. Without this, the changes already signalled by Statistics New Zealand could well escape the broad-based scrutiny that all public investments need. Whatever is to happen in the future must be informed in advance by those with the needed expertise. This would span public sector organisations, local government, universities and non-government bodies.

Birth, death, emigration and immigration, along with family, whānau, ethnicity, ancestry, generational and community connection and urbanisation can be critical demographic elements of population change, depending on the place. People are also connected by occupation, employment and education. The combined impact of the increasing life expectancy of older New Zealanders coinciding with declining fertility means that without major policy change, the financial flexibility in public spending by future governments is now on a steady and significant decline. Embedded ethnic disparities, retirement provision needs, access to universal health services and access to tertiary education will all be affected by the same demographic forces. These are now exemplified in a series of policy reversals and failures which have resulted from poorly informed, quickfire attempts at housing the population and in reducing child poverty. What remains unknown, despite its political significance, is the extent to which the inequalities in

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service delivery that are inherent across many sectors, including education and health, are predominant in the places of highest economic disadvantage. These may be where user-pays services have replaced previously universal services.

A statistical agenda for revitalising the population statistics infrastructure

A major rethink and redirection of population statistics, and the associated information sources and infrastructure is required. This needs to be comparable to that which took place with macroeconomic statistics during the 1990s after the major restructuring of the New Zealand economy. Such a rethink and redirection of population statistics must have several focal points.

Developing the capability to expand scope of information to be integrated

- The official infrastructure for population statistics needs to be able to include climate, topographic and biosystem information about place, with diverse approaches to areal mapping supporting the current area classifications. This will involve information of varied

granularity, frequency and quality about ecosystems, climate, hazards and habitation for any places where communities have formed.

- An investment in demographic analysis is needed to understand the complexity of New Zealand's distinctive population dynamics. Without this, the nature of the variability over time in age structures could lead to unnecessary policy volatility, and planning and investment decisions cannot be adequately informed (Pool, 1999). The current housing bottlenecks signal the future risks when failing to anticipate migration effects that have now become such a large and highly variable contributor to population change.
- The official statistics infrastructure needs to be able to adapt to the existence of statistics about place that are not universally relevant in all places, and which may be determined locally rather than centrally, as at present. There must be capacity to recognise the great variety of localised impacts of greatly different age structures that result from fertility, mortality, emigration and immigration. The information from each census of population has long been a key element of the population statistics infrastructure, without which the integration of other statistical sources and administrative records would be less likely.
- There is a need to be able to use available information-rich sources to not only inform projections and predictions, but indicate their reliability. The timeliness and accuracy of population estimates of places should be given primacy in extending the use of this information.
- The immigrant population has a very different age structure from the New Zealand resident population, and both its contributions to the economy and demands on public services are not only different, but vary over time and among the different ethnic migrant communities. The very different demographic dynamics, location and social structures of both migrant and ethnic communities compared to the European population need to be understood. We have weak understanding of the medium- to long-term implications of this for investment

in public services in education, health, social services and public safety.

Recognising the statistical limitations of administrative records as sources for official statistics

- Administrative records have an important part to play, given the need to radically expand the capability to integrate place-based information from many sources with population statistics, to remedy the existing serious issues with population estimates and projections. Whereas the coherence and compatibility of the information from a census of population or other statistical sources are anchored in the rich global infrastructure of population statistics, the qualities of each administrative record are unique and unrelated. They lack the adaptability, collective coherence, comparability and consistency that comes from information sources designed with the infrastructure of official statistics. It is quite rare for the information contained in administrative records to be designed to meet even a few of the long-standing standards and definitions on which official statistics are based; this means that the quality of the information created by their integration not only with official statistics but with other administrative records cannot be assured. This narrows their use for multivariate measures, while their ever-expanding accessibility lifts our understanding of where and how change is occurring in a way that statistical sources usually cannot do. This is especially important for integrating information about place.
- The statistical information gathered in the enumeration of the five-yearly census of population is fundamental to the Integrated Data Infrastructure (IDI), given the large share of valued analyses

that need variables found only in the population census (e.g., housing quality), and which no administrative agency is likely to see a need to collect.

- The capacity of the government to survey local or national populations at short notice needs to be reinforced. Both of these needs can take advantage of technological innovations which will most likely challenge received wisdom.

Protecting the integrity of the information regularly obtained from the five-yearly programme of population censuses

- Ministers must have independent expert endorsement that the information found in five-yearly censuses can be obtained in the future. The failures in the censuses of population and dwellings for 2018 and 2023 leave little room for untested initiatives at this time of continued massive disruption to historic patterns of demographic change.
- Independent expert confirmation must leave no doubt about the statutory obligations for the setting of electoral boundaries and determining Māori electorates as defined in the Electoral Act 1993, section 35 (division of New Zealand into general electoral districts) and section 45 (Māori representation).
- To ensure the continued relevance of population statistics, the producers and users must engage vigorously at a time of any change, to enable the benefits of such transformation to be realised.
- A radical uplift in the scope and frequency of independent reporting and analysing of population trends is essential.

A call for a population policy and more strategic thinking about population statistics

Recognition of the critical population transitions that we are experiencing is at a

low ebb. The broad scope of the last report on population policy in New Zealand (Department of Statistics, 1990) has yet to be repeated. Pool (1999) outlined why it would be important when considering demographic pressures over the coming decades not to ignore the continuing shifts in the age structure of those below retirement age when responding to population ageing. Jackson (2015) added arguments about regional impacts, calling for clarity in population goals. The Royal Society of New Zealand continued the analysis and reflections in *Our Futures Te Pae Tāwhiti* (2014).

The lack of response to any of these documents may not be surprising in view of the advice of the public service commissioner to the Governance and Administration Committee in April 2023 that there has been a loss of strategic capability across the public service. There is now a need to increase and broaden the quantitative and qualitative analytical competence among public officials, particularly about population trends and dynamics, with less managerial and political indifference to the sources of ‘facts’ that support policy. The capacity for intergenerational analysis must be designed into statistical sources. It may be that the public sector overall is poorly equipped to advise ministers of the consequences of substituting administrative records long held by the Crown for the five-yearly census of population and dwellings for 2028. Clearly, ministers would be grossly unwise to act without good independent advice that is informed by both statistical expertise, and a proper appreciation of the reasons for which population statistics will be needed.

¹ For a more detailed analysis, see Cook, 2024.

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