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A Survey of Australian Demographic Projection Users

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A Survey of Australian Demographic Projection Users

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Abstract

Demographic projections are widely used by policymakers, planners, and researchers. They provide essential information for decision-making across sectors such as healthcare, education, and infrastructure. This study explores the use of demographic projections in Australia, focusing on government practitioners while also including respondents from academia and the private sector. Through a 15-minute online survey of 62 participants, the research identified who used projections, their purposes, and the features users valued most. Key findings highlighted significant differences in needs between government and academic users. Government practitioners prioritised medium-term horizons (10–19 years), national and state-level data, local-level data (e.g., SA2 and LGA), and frequent updates. Similarly, academic users in the small sample reported using national and state-level data but placed less emphasis on small-area projections. There is a strong demand for projections that include uncertainty ranges, yet many users reported limited confidence in interpreting and applying these measures. Additionally, government users emphasised the need for scenario-based projections to account for dynamic factors such as migration policies or economic shifts. Respondents also identified challenges, including insufficient granularity, infrequent updates, and limited transparency around projection assumptions. These findings underscore the importance of aligning research with the needs of government practitioners and fostering collaboration between researchers and policymakers. By addressing these gaps, this work aims to strengthen the usability of demographic projections and encourage future partnerships to enhance evidence-based policy and planning.

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1. Introduction

Demographic projections are essential tools for planners, policymakers, and researchers. They are used to make strategic decisions, particularly across sectors such as healthcare, education, and infrastructure. While the importance of these projections is well-recognised, the specific ways in which these projections are used, who uses them, and what features are most valued by users remain underexplored, especially in Australia. A key study by Diamond, Tesfaghiorghis, and Joshi (1990) provided a detailed examination of demographic projection usage in Australia in the late 1980s. Their survey revealed that projections were widely adopted not only by government agencies, but also by private industry and academic institutions, and that users increasingly sought finer geographic detail. When official projections did not meet their needs—be it in the level of detail, frequency of updates, or the incorporation of more nuanced assumptions—many practitioners resorted to producing their own custom projections. The authors highlighted user desires for enhanced granularity (age, sex, ethnicity, socio-economic groups), more frequent updates, additional scenario variants, and clearer assumptions, particularly around migration. However, there have been profound shifts in the demographic landscape and in forecasting methodologies since then. These shifts include innovations in data collection, processing, analysis, and numerous advances in projection methods (Booth & Tickle, 2008; de Valk et al., 2022; Keilman, 2020; Lee, 2024; Willekens & Putter, 2014; Wilson et al., 2022). These changes may reshape how projections are produced and applied, but there is limited scholarly research on user needs and uses of projections.

Subsequent studies, including those conducted by Joshi and Diamond (1990) in Australia and the United Kingdom and the recommendations of the United Nations Economic Commission for Europe (UNECE, 2018), have consistently underscored the importance of addressing diverse user requirements. Across different countries, agencies and analysts have emphasised the need for tailored, transparent, and scenario-rich projections that incorporate improved migration estimates and demographic detail. Studies such as research by Wilson and Shalley (2019) highlight that many users now also seek explicit guidance on uncertainty and probabilistic ranges. This indicates that today's demographic practitioners require not only data, but also interpretive tools and effective communication strategies. Taken together, these international findings reinforce the importance of engaging end-users throughout the projection development process to ensure that projections remain relevant and credible as foundational inputs to policy and planning.

Building on this tradition of inquiry, our research project aims to update and deepen our understanding of how demographic projections are currently used in Australia. By conducting a comprehensive survey of demographic projection users—focusing on government practitioners but also including participants from universities and the private sector — we examine which demographic characteristics, geographic scales, projection horizons, and data formats best meet contemporary needs. Our research addresses a critical gap in the literature, last addressed in detail by Diamond et al. (1990), and helps clarify how emerging methods, new data sources, and evolving user expectations shape the application of demographic projections. Our objectives are threefold:

(1) Identify who uses demographic projections and their specific purposes.

(2) Explore user preferences and unmet needs.

(3) Pinpoint where theory and practice diverge, highlighting opportunities to improve alignment between research outputs and real-world decision-making.

By addressing these objectives, we aim to ensure that future demographic projections in Australia are more closely aligned with the needs of end-users. Ultimately, we hope that this work will facilitate collaboration between government, industry, and academia and potentially improve the relevance and accuracy of demographic projections for public policy and resource planning in Australia.

The next section of this working paper explains the data and methods, the survey instrument (available in Appendix A), the topics covered, and the participants. Section 3 presents results for each of the modules, with tabulations presented for multiple choice questions and thematic analyses for the text responses. The paper concludes with the Discussion section which considers the findings of the paper, limitations, and pathways forward.

2. Data and Methods

2.1 Survey Design and Administration

This study employed a structured online survey, administered via Qualtrics, to understand how demographic projections are currently used, which types are most frequently employed, and what improvements users may desire. The survey link was distributed through established networks, including contacts at the Australian Population Association (APA), the ARC Centre of Excellence in Population Ageing Research (CEPAR), the Commonwealth Treasury, and State and Territory government representatives. These contacts forwarded the invitation to relevant stakeholders who rely on demographic projections in their work.

2.2 Survey Structure

The survey was designed to take approximately 15 minutes to complete and is provided in Appendix A. Participants who consented to partaking in the survey were then screened to confirm that they had used demographic projections in the last five years. Respondents answering "Yes" proceeded to a block of questions about their organisational affiliation (e.g., Commonwealth government, State/Territory government, private sector, academia), professional roles, and the types of projections they had employed in the past five years. They were then asked to identify the most recent type of demographic projection they had used, choosing from the following four categories:

- Population (including fertility, mortality, internal and international migration)
- Household/living arrangement
- Aboriginal and Torres Strait Islander population
- Other (with space to specify)

Depending on their selection, participants were directed towards an in-depth module tailored to that projection type. Each module included items that queried the specific components and characteristics of the projection (e.g., inclusion of fertility, mortality, or migration for population projections) and items that were general to all modules (e.g. geographical scales of the projections). Participants who selected "Other" for their most recent demographic projection type were asked to describe the purpose of those projections.

After completing the module related to their most recent projection type, all respondents were directed to subsequent sets of questions exploring broader preferences and needs. One question set inquired about the potential utility of incorporating gender identity categories into population projections and whether projections without any sex/gender breakdowns would still be useful. Another focused on future needs, including desired projection horizons, frequency of updates, preferred data formats (e.g., Excel, CSV, web-based dashboards, APIs), optimal geographic scales, and the usefulness of uncertainty intervals such as prediction intervals. Respondents were also asked which demographic variables (e.g., age, employment status, ethnicity, income level) they would like to have included in the projections which they use. Participants were also asked about any limitations or difficulties that they had encountered when using demographic projections, as well as their understanding and differentiation between "projections" and "forecasts." Respondents were also invited to provide additional feedback through an open-ended comment section. The survey was composed of the following seven modules:

1. Preliminary Questions
2. Population Projections Module
3. Households and Living Arrangements Projections Module
4. Aboriginal and Torres Strait Islander Population Projections Module
5. Other Projections Module
6. Sex and Gender Module
7. Desired Projection Features Module

Respondents were first presented with Module 1. They were then directed to one of Modules 2–5, based on the type of demographic projection they identified as their most recently used in the Preliminary Questions. Finally, all respondents completed Modules 6 and 7.

2.3 Sampling and Inclusion Criteria

Eligible respondents were those who had used demographic projections in their professional work within the last five years. A total of 83 individuals reached the consent question, with 2 declining participation and thus excluded. Of the remaining 81 who agreed to participate, 18 progressed through less than 80% of the survey and were removed from the dataset. This process resulted in a final survey analysis sample of 62 respondents.

2.4 Data Management and Analysis

Survey data were exported from Qualtrics, cleaned, and analysed using R and Microsoft Excel. Descriptive statistics (e.g., frequency counts, proportions) were calculated for multiple-choice

items to summarise user characteristics and preferences. Open-ended responses were reviewed for recurring themes and insights, providing qualitative context to the quantitative findings.

Results are presented as totals, and by respondent sector, categorised as Academia, Government (including Commonwealth, State, Territory, and Local governments), and Other.

3. Results

In this section we present an overview of the responses to the modules of the survey of demographic projection users together with key findings. Results are presented for all participants, and for the 18 participants affiliated with Academic or Educational institutions and aggregated results for the 37 respondents working in Commonwealth, State and Territory and Local governments. Results are also presented for the 7 respondents who indicated that they were from the private sector or "other" sectors when asked about their organisation affiliation. We use the term "*Academia*" to refer to respondents from Academic and Educational institutions and "*Government*" to refer to respondents from the Commonwealth, State and Territory and Local governments. To maintain respondent confidentiality, when fewer than 5, but more than 0, respondents affirmed a multiple-choice item, we report the results as "<5" or describe it generally. Text responses are analysed by themes, paraphrased, or presented using word clouds.

3.1 Preliminary Questions

Of the 62 respondents in the survey analysis sample, 32.3% were employed by State or Territory governments, 29.0% worked in academic or educational institutions, and 24.2% were affiliated with Commonwealth government agencies. The remaining participants were from Local government (3.2%), private sector companies (4.8%) and other organizations (6.5%). In terms of professional roles that best described respondent involvement with demographic data and projections, the majority identified as Data Analysts (39 respondents, 62.9%), followed by Policymakers (13 respondents, 21.0%) and Urban Planners (9 respondents, 14.5%).

When asked about the types of projections that they have used in the last 5 years, 59 respondents (95.2%) reported using population projections, with rates of usage being similar for respondents from Government and Academia. 50% reported using Household/Living arrangement projections, with respondents from Government reporting greater usage than those from Academia (57% vs. 28%). 30.6% of respondents reported using Aboriginal and Torres Strait Islander population projections (38% from Government and 22.2% from Academia). 15% also reported using other types of projections.

When reporting on their most recently used projection, 79% of respondents stated that it was a Population Projection, 10% an Aboriginal and Torres Strait Islander population projections, 8% a

Household/Living arrangement projections. Respondents were presented with a set of questions based on their most recently used; their responses are presented below.

3.2 Population Projections Module

49 respondents specified that the most recent projection that they used was a Population projection. The majority of these respondents indicated that their population projection included components such as international migration (61%), mortality (61%), internal migration (59%), and fertility (55%). No respondents indicated that their projection focused only on population totals but 33% indicated that the projection was only of population structure.

3.2.1 Specific Aspects of Projected Components

This section report responses to the specific aspects of selected components of population change that were projected. These items were only presented to the respondents who indicated that these components of population change were considered in their most recently used population projection.

- **Fertility (B2.2.1):** Overall, the total fertility rate (78%), and the number of births (70.4%) were the most projected aspects. Government respondents were more likely to focus on number of births than those from Academia (74% vs. 57%), whilst those in Academia were more likely to focus on the Age-Specific Fertility Rate (71% vs. 58%).
- **Mortality (B2.2.2)**: Most users reported considering life expectancy (67%) and deaths (67%). 43% considered Age-Specific-Death-Rates and fewer than 5 respondents considered cause of death in their most recently used demographic projection. There were significant differences between Government and Academia, notably 90% of Government demographic projection users who considered mortality projections focused on deaths vs. only 30% of respondents from Academia.
- **Internal Migration (B2.2.3)**: Overall, respondents were most likely to focus Migration flows (83%) and Net migration (76%). 45% also considered the Demographic Characteristics of Migrants.
- **International Migration (B2.2.4)**: 90% of respondents indicated that they considered net migration, 67% considered migration flows and 43% focused on the demographic characteristics of migrants.

3.2.2 Applications and Usage

Respondents were asked what they used their most recently used population projection for and how they used it. The most reported use case for demographic projections was for “Other Demographic Projections or Forecasts” with 35% of respondents selecting this option. 33% indicated that projections were used for Economic Development and Labor Analysis, with this option being more commonly selected by Government projection users than Academia (38% vs. 13%). 24% of Government users also reported that the projection was used for Urban Planning and Infrastructure. 27% of respondents also indicated other use cases.

Respondents indicated several ways they used population projections. The most common application was for Scenario Analysis; 47% of respondents selected this option with Government users reporting this use at a higher rate (62%) than Academia (20%). Direct Policy Discussions were another significant use, cited by 37% of respondents, particularly by Government respondents (45% vs. 27% for Academia). Respondents from Academia were unsurprisingly more likely to indicate that the projections were used for Academic and Theoretical Research, with 80% affirming this option compared to fewer than 5 Government respondents. 29% of respondents integrated the population projections into GIS for Spatial Analysis. Projections were also used as inputs for Quantitative models by 20% of respondents; a word cloud of these responses is presented in Figure 1. This use case is particularly important as potential errors in the underlying population projections could have compounding impacts on downstream outputs. This highlights the importance of demographic data and accurate population projections, as inaccuracies in base data and projection outputs can ripple through interconnected models, systems and impact decision making across multiple sectors, potentially leading to misallocated resources and ineffective planning outcomes. When asked to specify the models into which the population projections were used as input, respondents provided a wide range of applications, including economic forecasting, labour market modelling, housing assistance planning, disease prevalence estimation, urban and transport planning, and microsimulation.

Figure 1. A Word Cloud Visualising the Applications of Population Projections in Quantitative Models

Notes. This word cloud highlights the models mentioned by respondents for which population projections were used as input. Created with the wordcloud2 package in R (Lang et al., 2018), common filler words were removed, plurals were made singular, and all terms with a frequency of 1 or above were included. Larger font sizes indicate more frequent mentions of a model in the survey responses.

3.2.3 Production and Geographic Scale

Respondents indicated that the Australian Bureau of Statistics (ABS: 47%) and in-house production (43%) are leading producers, followed by State and Territory governments (35%) and Academic Institutions (25%). Predictably Academia relied on Academics to produce their population projections more commonly than Government respondents (47% vs. 17%). Interestingly respondents from Academia were more likely to indicate that their most recently used population projection was produced by the ABS than Government users (67% vs. 38%), however it is important to note that the survey analysis sample included users from the ABS, who may have indicated that their projection was prepared in-house rather than selecting ABS.

Geographically, 57% of the projections were at the national level, while 63% were at the state/territory level. Government users showed significantly higher reliance on state/territory projections (83%) compared to Academia, where fewer than 5 respondents affirmed this option. However, this may reflect the sample composition, which included a notable proportion of state and territory government users of demographic projections. At more localised levels, there was relatively limited representation of government users in the sample, though 35% of government respondents reported using SA2-level projections, compared to fewer than 5 respondents from Academia. This suggests a possible mismatch between academic research efforts and the localised planning needs of government users, pointing to opportunities for better alignment between research outputs and practical applications

3.2.4 Projection Horizon and Age Groups

The projection horizons most selected by respondents were 10–19 years and 30–49 years, with each option chosen by 37% of respondents. However, notable differences were observed between Government and Academia. Government users were more likely to use 10–19 year horizons (38%) compared to fewer than 5 respondents from Academia, reflecting a focus on medium-term planning typical of government operational timelines. In contrast, Academic respondents showed a stronger preference for 30–49 year horizons (53% vs. 31% for Government), likely reflecting the longer-term focus of research-oriented analyses. These patterns highlight differing priorities between practical policy applications and academic exploration of longer-term demographic trends.

65% of population projection users reported using five-year age groups in their projections, with this option more frequently selected by Academia (73%) compared to Government (59%). In contrast, Government users were more likely to report using single years of age in their projections (55% vs. 40% for Academia). A smaller proportion of respondents (10%) used projections that provided only total population figures without age group breakdowns.

3.2.5 Projection Satisfaction

Most respondents (78%) indicated that the population projection they used satisfactorily met their needs, including 79% of Government respondents and 67% from Academia. Notably, no

respondents indicated that the projection did not satisfy their needs; however, 20% reported being only somewhat satisfied and provided valuable insights into current user needs.

The nine respondents who provided details on their "somewhat" satisfaction cited a range of limitations, but several key themes stood out. Some respondents noted a lack of granularity in the data, such as the need for single-year of age estimates, ethnicity and race categories, and upper age groups beyond 85 years for small-area analyses. Other concerns included the need for and unreliability of single-year estimates at the oldest ages, and issues with spatial resolution, with some respondents needing more detailed outputs and relying on commercial providers to fill this gap. There were also comments on the limitations of trend-based projections, with calls for scenario-based models to account for dynamic and policy-driven factors like international migration or unexpected events such as a global pandemic. These responses highlight areas where projections could better meet user needs by balancing detail, reliability, and flexibility.

3.3 Household and Living Arrangements Projections Module

Only five respondents indicated that their most recently used demographic projection was for households and living arrangements. Due to the small sample size, and to preserve confidentiality, we present the results generally and in an aggregated form.

Respondents reported that their household and living arrangements projections focused on household composition and types, average household size, dwelling types, and the number of households. The projections were mainly used for urban planning and infrastructure. Projections were produced by a variety of sources, including the ABS, State or Territory governments, academics, the Centre for Population in Commonwealth Treasury, and in-house preparation. Respondents reported using these projections across a range of geographical scales, from National to Local government area and smaller SA2 levels, showing their flexibility for different planning needs. Projection horizons varied, with respondents indicating both short-term use (1–4 years and 5–9 years) and longer-term horizons (20–29 years and up to 50–99 years).

In this small sample, most respondents said they were only “somewhat” satisfied with the household and living arrangements projections. When asked to explain their partial satisfaction with the projections, respondents highlighted limitations in capturing regional changes and a lack of detail at finer geographical scales. Suggestions included incorporating more granular data, such as dwelling types aligned with household composition, to better meet their needs.

3.4 Aboriginal and Torres Strait Islander Population Projections Module

Six respondents indicated that their most recent demographic projection focused on the Aboriginal and Torres Strait Islander populations. Due to the small sample size and to preserve confidentiality, results are presented in aggregated and generalised form.

Most respondents reported that their projections focused on population size and structure and geographic distribution. Some respondents also considered components of population change (e.g., births, deaths, migration) and health and wellbeing indicators. Projections were used for a variety of purposes including for other demographic projections or forecasts. When asked how the projections were used, respondents gave a diverse range of responses including as the Basis for Scenario Analysis and in Policy and Program Evaluation.

The ABS was the most commonly reported producer of these projections, followed by in-house production and other sources, including academics, State/Territory governments, and commercial providers. Projections were used at multiple geographical scales. State and Territory levels were the most common. Other geographical scales used included National, Local government, SA2, SA3, SA4, remoteness areas, and Indigenous Regions. Projection horizons varied, with most respondents using mid-range horizons of 10–19 years, while others worked with shorter (5–9 years and 1–4 years) or longer horizons (20–29 years and 30–49 years).

Most respondents were satisfied with the Aboriginal and Torres Strait Islander population projections they used. However, a small number reported being only “somewhat” satisfied. Feedback pointed to limitations such as a lack of geographic detail and insufficient specificity in the projections, which led some users to rely on in-house modelling to refine and maintain consistency with published materials.

3.5 ‘Other’ Demographic Projections Module

Two respondents indicated that their most recently used projection fell into the "other" category. Due to the small sample size, results are discussed broadly. The projections addressed highly specific topics, with applications in health policy advocacy, population-focused policy development, and research purposes. Respondents reported using the projections for scenario analysis and direct policy discussions. The geographical levels considered in the projections included National, State/Territory, and Local government levels. The projection horizons ranged from short-term to long-term, suggesting adaptability to both immediate and future planning and advocacy needs. Respondents used five-year age groups, with some adjustments to suit the specific focus areas of their projections. Respondents were satisfied with their projections, reflecting the value of targeted projections in addressing specific user groups and needs.

3.6 The Sex and Gender Module

The Sex and Gender Module was presented to all survey respondents. This module explored the utility of incorporating gender identity categories into population projections and examined preferences for sex and gender classifications.

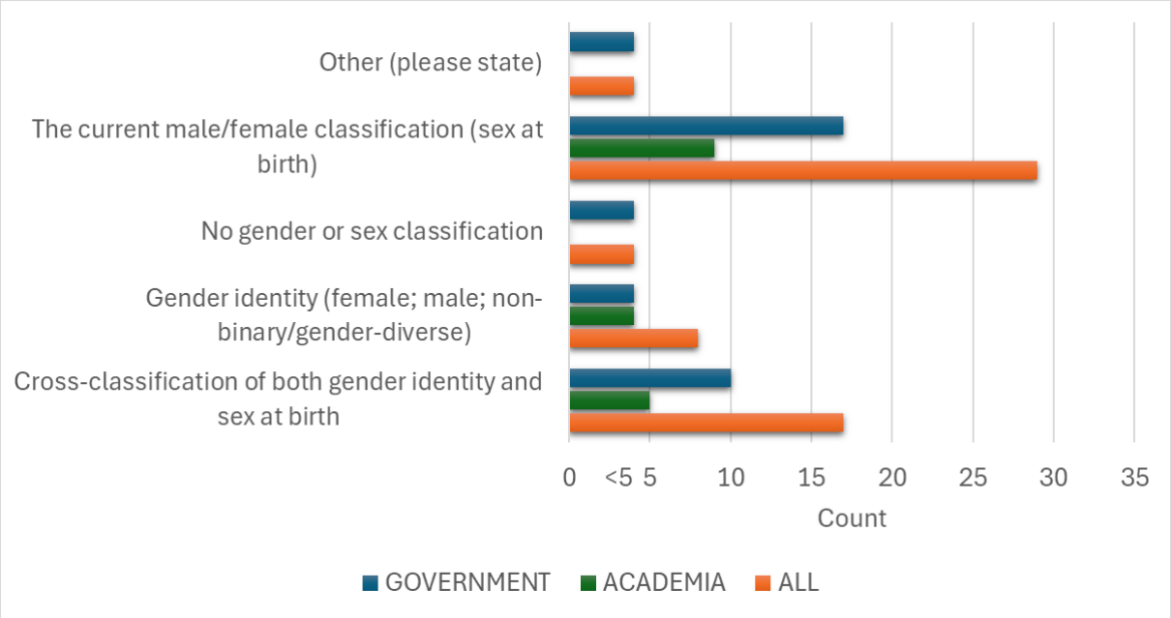
When asked whether projections with gender identity categories (e.g., female, male, non-binary/gender-diverse) would be useful, 42% of respondents indicated that they would.

Academics were more likely to affirm this (67%) compared to Government users (32%). Respondents who reported that the inclusion of gender identity categories would be useful for them identified applications such as policy development, assessing gender-specific health conditions, understanding retirement impacts, and planning services. There was also interest in educational and advocacy uses. Some text responses reflected a focus on traditional male/female classifications, indicating varied interpretations of the question.

When asked if projections without gender/sex breakdowns (i.e., projections for persons) would still be useful, 65% of respondents indicated that they would, while 24% said they would not, and 10% selected the "other" options. Comments revealed that the usefulness of such projections depends on their application. Gender-agnostic projections were considered appropriate for some areas, such as migration or labour market analysis, but less so for topics like health or fertility, where sex-specific data is essential.

When asked about the most useful way to incorporate sex or gender in projections, 47% of respondents preferred the current male/female classification based on sex at birth. Another 27% supported a cross-classification of gender identity and sex at birth, and 13% preferred projections based solely on gender identity (Figure 2).

Figure 2. Most Useful Approaches to Incorporating Sex/Gender in Population Projections



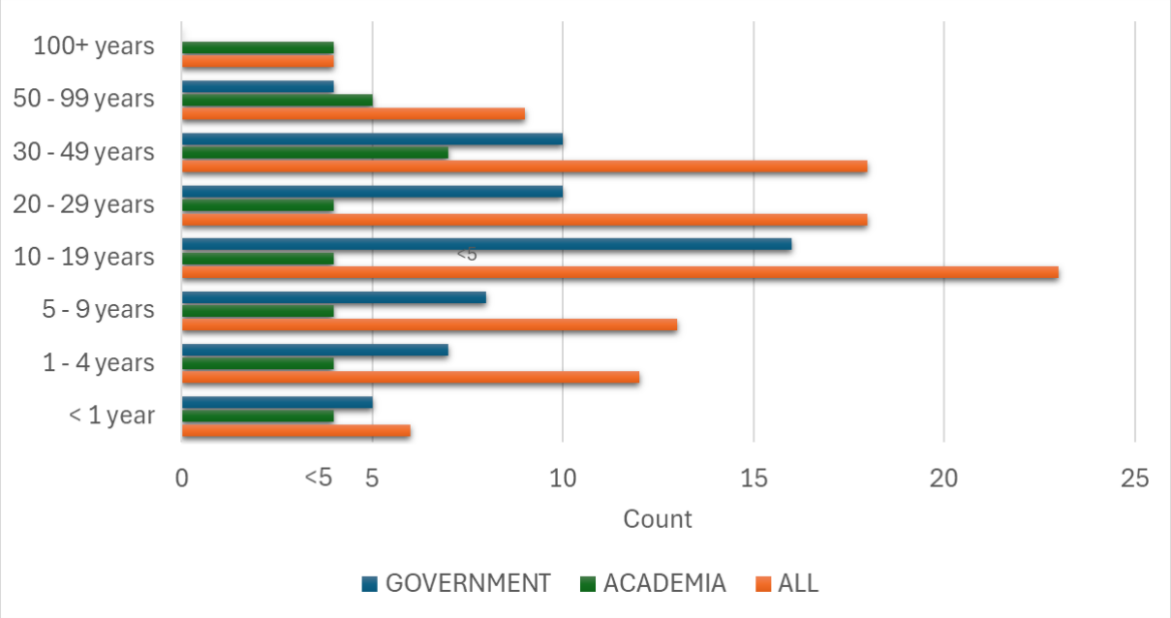
3.7 Desired Projection Features

The Desired Projection Features module examined user preferences for the characteristics, formats, and usability of demographic projections. Respondents shared insights into ideal projection time horizons, update frequencies, data delivery formats, geographical scales, variables of interest, and additional needs, along with their experiences of limitations and perceptions of projections versus forecasts.

3.7.1 Projection Time Horizons

Respondents expressed diverse preferences for projection time horizons, with significant variation across user groups (Figure 3). The most frequently preferred horizons were 10–19 years and 30–49 years, each chosen by 37% and 29% of respondents, respectively. Preferences for shorter horizons (1–4 years and 5–9 years) were more common among Government and "Other" users, reflecting their focus on medium-term planning and operational decision-making. Academia exhibited stronger preferences for longer horizons (30–49 years, 50–99 years, and 100+ years), consistent with a research-oriented emphasis on longer-term trends and impacts.

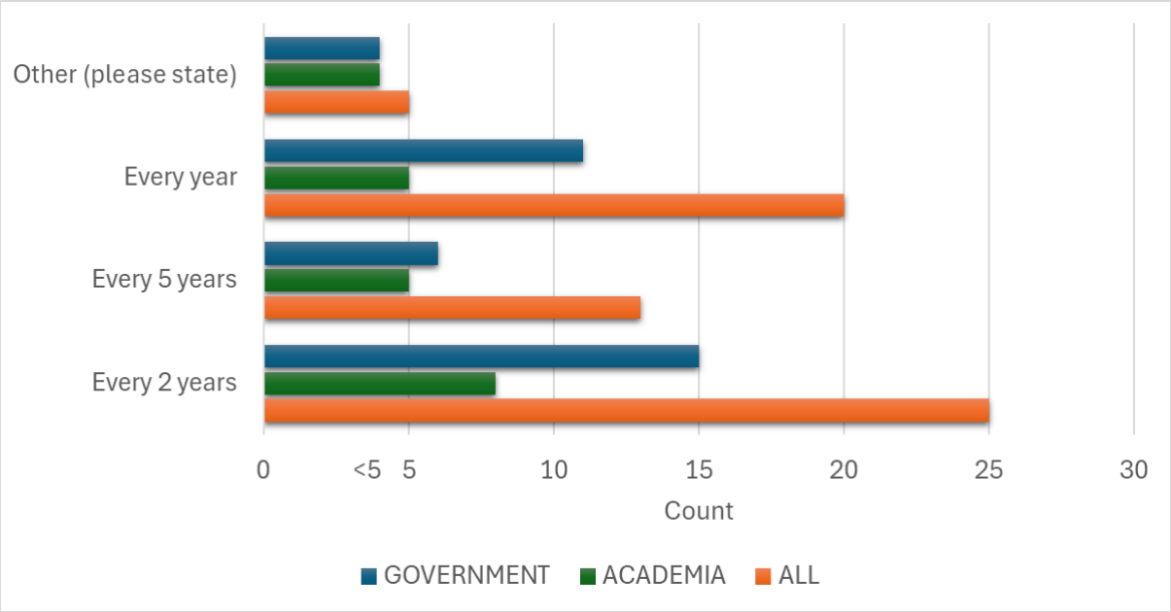
Figure 3. Desired Projection Horizon



3.7.2 Update Frequency

40% of respondents indicated that they wanted demographic projections to be updated every two years and 32% preferred annual updates (Figure 4). Quarterly updates were noted as an "other" option.

Figure 4. Desired Update Frequency



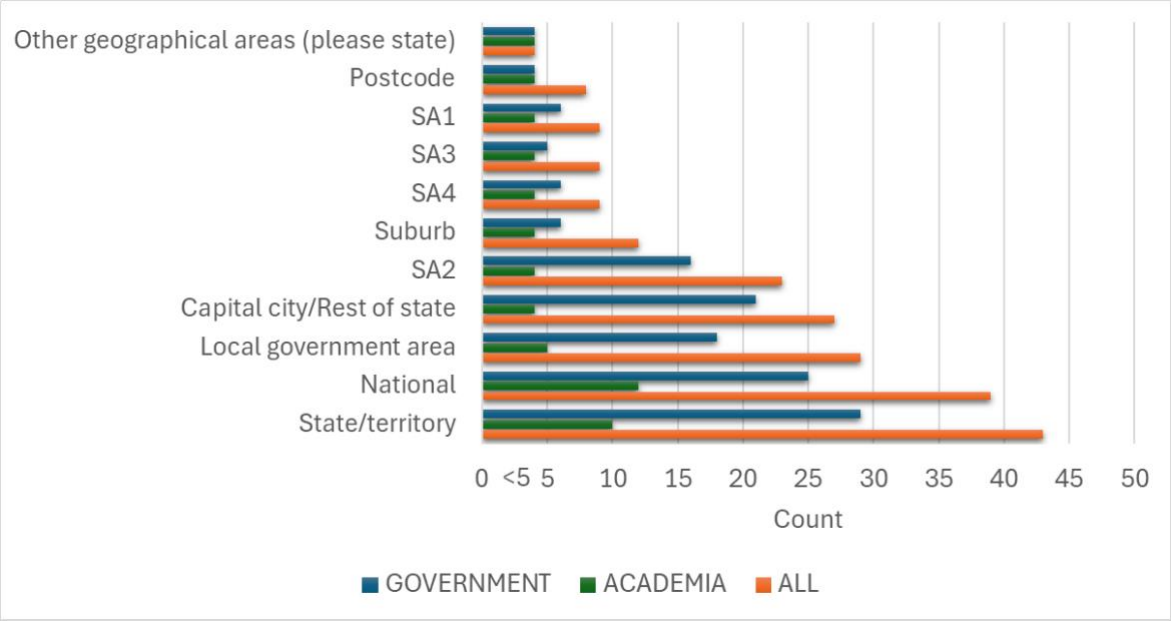
3.7.3 Preferred Data Delivery Formats

The preferred formats for receiving projection data varied, reflecting the diversity of user needs and technical capacities. The most selected formats were Microsoft Excel files (65%) and CSV files (60%). APIs (21%) and web-based dashboards (27%) were less commonly preferred but noted as valuable by technologically advanced users or those requiring real-time integration. Other responses included formats suitable for geographic analysis and summarised data in physical formats.

3.7.4 Geographical Scale of Projections

Respondents demonstrated strong preferences for projections at national (63%) and state/territory levels (69%; Figure 5). Government users, also emphasized the need for more detailed projections, with 43% selecting SA2 level and 49% selecting Local government area level. Academia showed lower interest in finer geographic scales. "Other" respondents, representing private and "other" users, expressed high demand for localised outputs, including suburb-level and postcode-level projections. Other geographical areas suggested included Indigenous Regions, remoteness areas, and Primary Health Networks.

Figure 5. Desired Geographical Scale

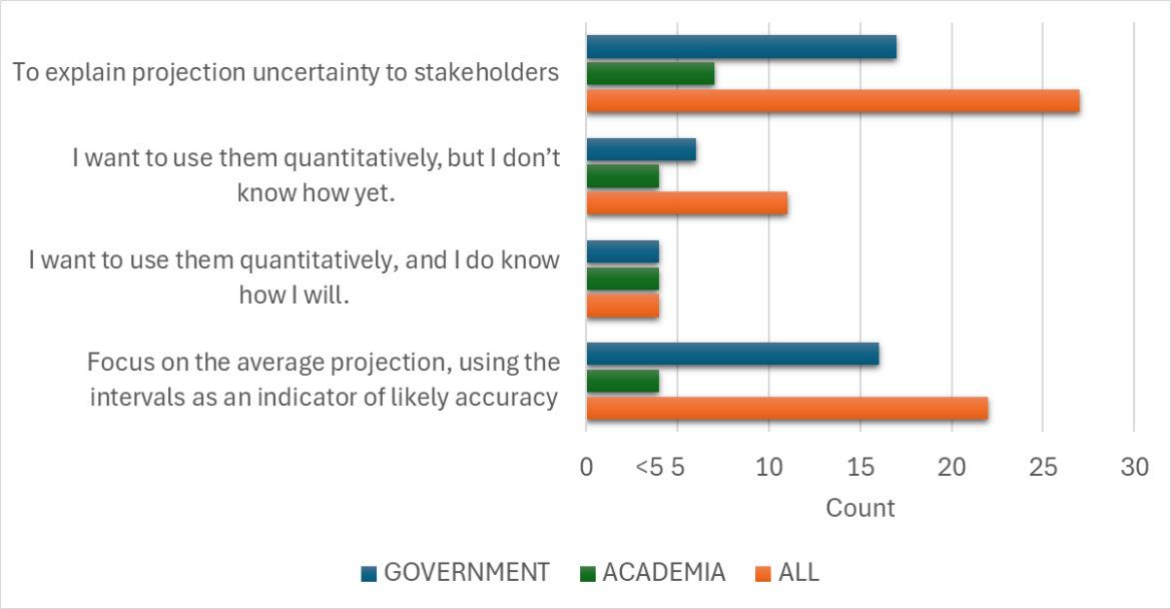


3.7.5 Uncertainty Ranges

Most respondents (71%) expressed a preference for demographic projections to include uncertainty ranges, such as prediction intervals. This preference was particularly strong among Government respondents (78%), compared to 61% of respondents from Academia. The 44 respondents who indicated that they would like projections to be accompanied by uncertainty ranges were asked a follow up question about how they would use the uncertainty intervals.

61% stated that they used prediction intervals to explain uncertainty. 50% focused on the average projection, using intervals to gauge accuracy; this option was selected more routinely by respondents from Government than from Academia (55% vs. 36%). 25% of respondents stated that they wanted to use prediction intervals quantitatively, but that they did not know how yet. Few respondents stated that they wanted to use prediction intervals quantitatively and that they did know how they would (Figure 6).

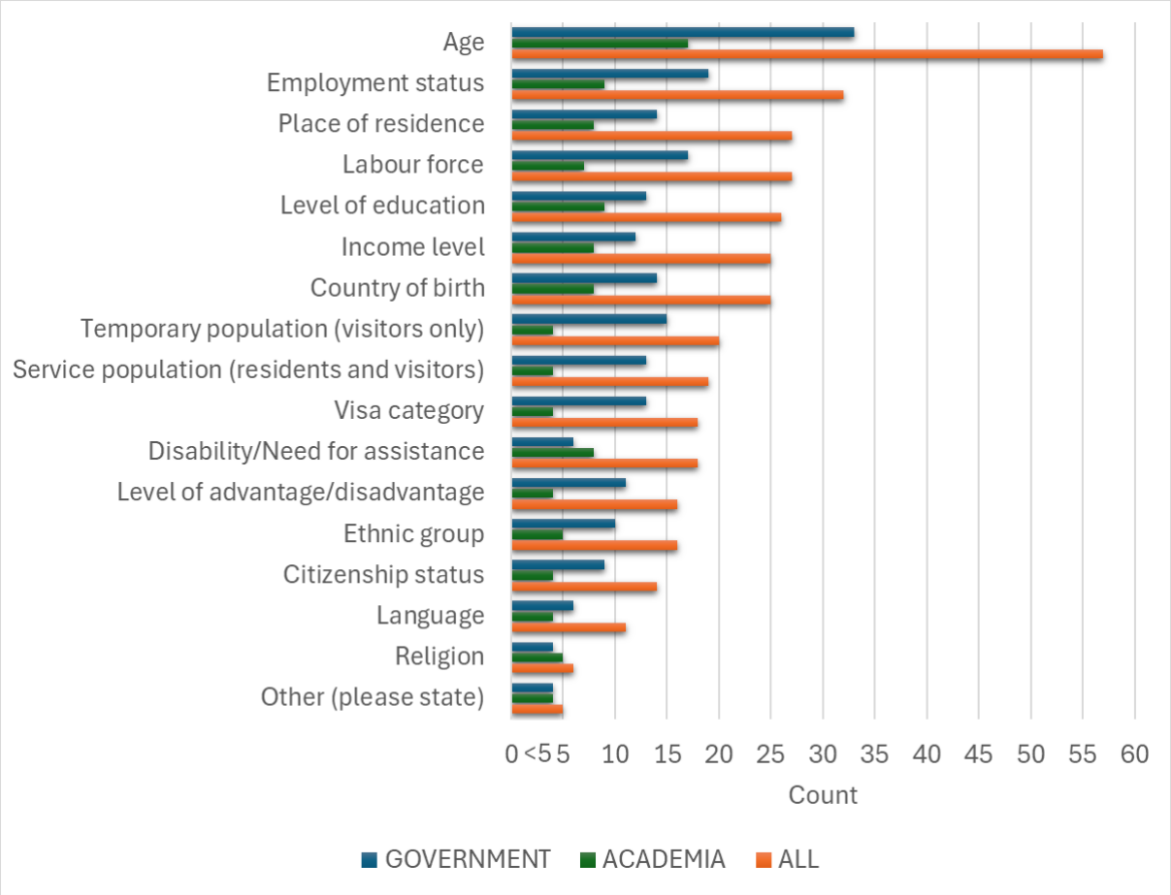
Figure 6. How Respondents Who Desire Prediction Intervals Plan to Use Them



3.7.6 Variables Respondents Want Included in Demographic Projections

When asked about desired variables to include in projections, respondents prioritised age (92%), employment status (52%), place of residence (44%), Labour force (44%), level of education (42%), country of birth (40%) and income level (40%). Several respondents suggested additional variables, including Aboriginal and Torres Strait Islander status, household status, and skill level (Figure 7).

Figure 7. Desired Variables for Inclusion in Demographic Projections



3.7.7 Challenges and Limitations

Respondents identified several limitations and challenges associated with using demographic projections. The most commonly reported issues were difficulties in accessing detailed assumption information (36%) and the infrequent updates to projections (36%). Additional concerns included insufficient documentation of methodologies (19%) and the lack of relevancy or specificity in the projections (21%).

Approximately 13% of respondents cited "Other" challenges, which encompassed various factors. These included the impact of policy changes, overseas migration trends, and shocks related to COVID-19 on projections. Respondents also highlighted challenges in adapting base geographies to custom boundaries, obtaining detailed data for older age groups (particularly single-year data up to age 100 and beyond), and adjusting projections to accommodate rapid changes. Examples of such changes included shifting electoral boundaries, evolving demographic trends, and advancements in medical care and technology. These responses highlighted the importance of regularly updating methodologies and having timely, detailed data to ensure projections remain reliable and relevant.

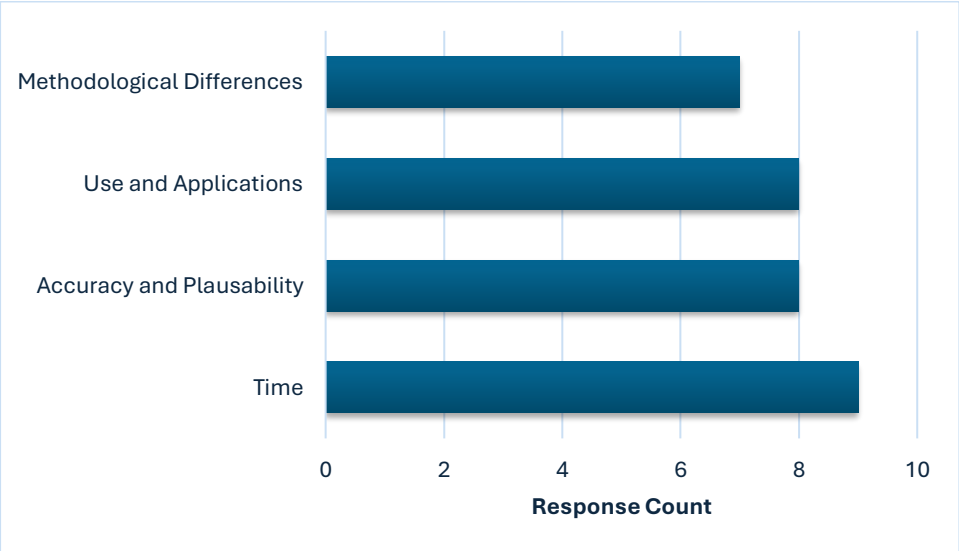
3.7.8 Differentiating Projections and Forecasts

Respondents were divided on whether they differentiate between "projections" and "forecasts" in their work. Across all organisational categories, 45% of respondents reported making a distinction, whilst 44% treated projections and forecasts the same. We conducted a thematic analysis of the 25 respondents who affirmed differentiating projections and forecasts and provided details on how they did so (Figure 8). These themes included:

- **Time Horizons:** Forecasts were consistently associated with short-term horizons (typically 1–5 years), while projections were described as longer-term tools, often starting at 6+ years. Respondents noted that forecasts address immediate planning needs, whereas projections support broader, long-term considerations.
- **Accuracy and Plausibility:** Forecasts were described as aiming for accuracy, using current data and trends to predict likely outcomes. Projections, by contrast, were seen as exploring plausible futures based on assumptions and scenario variations.
- **Use and Applications:** Respondents highlighted differences in application. Forecasts were linked to operational planning and decision-making over short timeframes, while projections were used for scenario analysis and strategic policy planning to explore alternative possibilities.
- **Methodological Differences:** Several responses pointed to differences in methods. Forecasts were associated with trend-based statistical models and more precise approaches, whereas projections often relied on assumption-driven models to account for uncertainties and varying demographic components.

Among those who differentiated, forecasts were generally associated with short-term horizons (1–5 years) and emphasised accuracy. Projections, in contrast, were described as longer-term (6+ years) and focused on exploring plausible futures under specific assumptions, frequently for scenario analysis or policy planning. Some respondents highlighted that projections tend to assume continuity in trends, while forecasts incorporate dynamic changes such as shifts in fertility, migration, or policy impacts. The comments also underscored the importance of clearly communicating uncertainty and tailoring methodologies to specific decision-making contexts.

Figure 8. Analysis of Themes for Differentiating Forecasts and Projections



3.7.9 Additional Comments

Respondents provided a range of comments emphasising the importance of demographic projections and offering specific suggestions for improvement. The word cloud (Figure 9) highlights key themes raised, with words presented in larger text, reflecting the items which appeared most frequently. Themes raised included the volatility of net overseas migration, with suggestions for scenario-based projections that account for different global and local migration drivers and economic conditions. The need for projections to address temporary populations, such as seasonal workers and visitors, was also noted, with particular reference to their impact on workforce planning and service delivery. The importance of incorporating the Housing Unit Method and giving greater focus to the role of new housing supply in population redistribution was raised. Clearer communication of projection uncertainty was called for, particularly for non-technical users, to improve understanding and usability. The value of producing multiple projection sets with different assumptions and methodologies was highlighted to encourage informed discussions among stakeholders. Long-term projections were identified as needing to consider climate change impacts, including exposure to climate variability and its implications for population distribution and health. The importance of regular updates to short-term projections was emphasised to maintain relevance, particularly during the first 1–3 years. Supporting projections with detailed analysis of underlying assumptions and key variables was also suggested to improve transparency and understanding.

Figure 9. A Word Cloud of Key Themes from Respondent Comments on Demographic Projections

Notes. The word cloud visualizes the key themes raised in the "Other Comments" section. Words appear larger in the word cloud based on their frequency across responses. Only words with a frequency greater than 1 have been included to highlight more prominent themes. Common filler words (e.g., "may," "also," "however") and trailing "s" on plural words have been removed to focus on meaningful content. The word cloud was created using the wordcloud2 (Lang et al., 2018) package in R.

4. Discussion

4.1 Summary of Key Findings

This survey provides an updated understanding of uses and users of demographic projections in Australia, highlighting the diversity in their needs, preferences, and applications. The sample size was relatively small (62 respondents), therefore the results should be interpreted with caution. However, the responses are still valuable given that the sample included key stakeholders from Commonwealth, State, and Local Governments, academia, and the private sector. These participants, many of whom may be directly involved in producing, using, or interpreting demographic projections, provide insights that are valuable for improving projections to meet real-world demands.

Key findings which emerged from the survey include:

- Differences Between Government and Academia: Government users prioritised medium-term horizons (10–19 years), frequent updates (annually or biennially), and detailed outputs at local scales (e.g., SA2 and Local government areas). In contrast, the Academics who participated in this study, preferred longer-term horizons (30–49 years and beyond), and broader outputs at the national or state level. These differences highlight the need for flexible projection products that cater to the unique requirements of diverse user groups.
- Need for Uncertainty Intervals and Methods and Training to Use Them: A significant proportion of respondents (71%) expressed a preference for projections to include uncertainty ranges, such as prediction intervals. However, few users (6.8%) felt confident in applying these quantitatively, with most identifying their primary value as tools for communicating uncertainty to stakeholders. This suggests a need for guidance and training to improve the practical application of uncertainty intervals.
- Demand for Greater Granularity and Timeliness: Frequent updates and detailed outputs were recurring themes among user feedback. Our sampled government users emphasised the need for fine-grained geographic projections (e.g., SA2 and Local government levels) and more regular updates, reflecting their operational focus and reliance on projections for planning and resource allocation.
- Clarification Between Projections and Forecasts: Approximately 45% of respondents differentiated between projections and forecasts, while others used the terms interchangeably. This indicates a need for clearer definitions and education to ensure consistency in their application.
- Incorporation of Emerging Variables: Many respondents highlighted the importance of including variables such as temporary populations, employment status, visa categories, and socioeconomic indicators to better align projections with contemporary planning and policy challenges.
- Approaches to Sex and Gender Classification: While 65% of respondents reported that projections without any sex or gender breakdowns were still useful, opinions varied on how best to incorporate classification. Nearly half (49%) preferred the traditional male/female (sex at birth) classification, while smaller shares reported that cross-classification (25%) or gender identity-only categories (14%) would be useful. Academics were somewhat more interested than government users in exploring a broader range of classification options.

- User Satisfaction: While a majority of respondents (78%) reported that their most recent population projections met their needs, a notable portion (20%) were only somewhat satisfied, citing issues such as insufficient detail or lack of flexibility. Satisfaction was mixed among users of Aboriginal and Torres Strait Islander projections, with 67% reporting satisfaction and 33% indicating partial satisfaction, often due to limitations in geographic detail or specificity. Dissatisfaction was most pronounced for household and living arrangement projections, where 80% of users reported being only somewhat satisfied, reflecting concerns about inadequate granularity and the ability to account for regional variations or dynamic demographic changes.

- Distinguishing Projections and Forecasts: Approximately 45% of respondents differentiated between "projections" and "forecasts," while 44% treated them interchangeably. Those who distinguished between the two typically viewed forecasts as short-term, accuracy-focused estimates intended for near-term decision-making, and projections as longer-term, scenario-based exercises that embrace greater uncertainty and provide strategic insights. This near-even split underscores the need for clearer definitions and educational efforts to ensure consistent application and understanding across user groups. Clarifying these distinctions can enable practitioners to better align their tools with specific policy or planning horizons, thereby enhancing the strategic value of demographic information in decision-making processes.

4.2 Alignment with Previous Research

This study builds on the foundational work of Diamond et al. (1990), revealing both enduring similarities and notable differences in the use and users of demographic projections in Australia. Both studies highlight the critical reliance on ABS projections and the importance of population projections for planning across government, academia, and private sectors. However, today's projection users benefit from a more expansive data ecosystem and methodological tools that were less accessible or underdeveloped in 1990. While Diamond et al. (1990) noted the rising demand for small-area projections and reliance on in-house modifications to official data, contemporary users have access to more detailed outputs, such as SA2-level projections, and advanced techniques like GIS integration and Housing Unit Methods, allowing for more precise local planning and tailored analyses. While dissatisfaction with subnational data persists, particularly regarding update frequency and granularity, respondents today engage with projections as part of more interconnected systems, integrating outputs into dynamic models and quantitative tools. These shifts suggest that while the core challenges of flexibility, timeliness, and localisation identified by Diamond et al. remain relevant, advances in technology and broader sectoral engagement have transformed the scope and expectations of demographic projection users.

A significant evolution is the broader and more integrated use of projections. In 1990, government users primarily applied projections to planning and policy development in areas like housing, education, and welfare (Diamond et al., 1990). While planning and development remain central uses today, our study reveals a wide array of applications, including economic

development and labour analysis, urban planning and infrastructure, welfare and social services, and integration into other demographic models and quantitative analyses. This reflects the demands of a more data-driven environment, where projections address increasingly diverse and interdisciplinary challenges. Moreover, scenario-based approaches and explicit uncertainty ranges, now widely valued, highlight the sophistication of user expectations.

Our findings align with Wilson and Shalley's (2019) survey of subnational population forecast users, which explored whether users want information on forecast uncertainty, their understanding of it, and preferences for communicating this uncertainty. Like Wilson and Shalley, we found strong user demand for explicit uncertainty information, with 90% of their survey respondents expressing interest in such data. However, while their study identified that many users understood basic uncertainty concepts and often interpreted high and low forecast variants as uncertainty ranges, it also revealed persistent confusion about probabilistic terms and graphical representations, such as prediction intervals. Similarly, our research confirms a broad desire for the inclusion of indicators of uncertainty but highlights that users frequently lack the skills or frameworks to effectively integrate this understanding into decision-making processes. This finding also aligns with the UNECE (2018) survey of users of national and international population projections, where 69% of respondents indicated that quantifying projection uncertainty was important or very important, while only 1% considered it unimportant.

This underscores a key gap in current practice: the need for targeted training materials and methods to support user competence in navigating demographic uncertainty. As highlighted by UNECE (2018), addressing uncertainty explicitly requires providing standardised materials, including strategies such as prediction intervals, sensitivity analysis, and uncertainty analysis, along with clear explanations of their derivation and implications. The UNECE report also emphasised the importance of fostering direct engagement with users through initiatives like outreach activities. Bridging these gaps will be critical to maximizing the utility of demographic projections in addressing Australia's complex and evolving planning challenges.

4.3 Limitations

While this study provides valuable insights into the use and users of demographic projections in Australia, several limitations warrant discussion. The sample size of 62 respondents, though meaningful, is modest and may restrict the generalisability of the findings. However, this challenge is not unique; Diamond et al. (1990) surveyed 167 respondents, Wilson and Shalley (2019) received 82 responses, and UNECE (2018) gathered 151 respondents for its international survey. These figures reflect the inherent difficulties of obtaining large participation in specialised surveys, particularly in an environment where professionals face competing demands for their attention. Another limitation lies in the reliance on self-reported data, which can introduce biases such as overrepresentation of highly engaged users or selective memory in reporting practices. Additionally, the sample may not fully capture the perspectives of less frequent or emerging users of demographic projections, who could hold distinct needs and challenges. These limitations suggest a need for ongoing efforts to engage a broader and more

representative sample of users, potentially through incentivised participation or integrated feedback mechanisms during routine projection dissemination processes.

4.4 Conclusion and Recommendations

This study highlights the vital role of demographic projections in supporting planning and policy development across diverse sectors in Australia. It also reveals gaps and opportunities for enhancing their utility and relevance. Addressing these issues requires targeted and collaborative efforts. Based on this survey, we make the following recommendations:

1. Establish Regular Feedback Mechanisms: A key recommendation is the development of consistent, structured mechanisms to engage users directly in the process of projection development and refinement. These mechanisms can include user surveys, advisory panels, or participatory workshops. Such engagement will help ensure projections align with real-world needs and address gaps effectively.

2. Enhance User Training and Education: Providing targeted training to improve user understanding of uncertainty intervals and their practical applications is essential. Accessible resources, such as guidelines, interactive tools, and workshops, can empower users to integrate projections more effectively into decision-making.

3. Increase Frequency of Updates: Regular updates, particularly in response to major policy changes or external shocks, are crucial to maintaining the relevance and reliability of demographic projections. Establishing a predictable update schedule can address user concerns about timeliness.

4. Expand Variables in Projections: Users consistently highlighted the importance of incorporating new variables, such as temporary populations, visa categories, and other socio-economic factors, to address contemporary challenges. Including these variables can make projections more responsive to dynamic policy needs.

5. Develop Scenario-Based Models: Incorporating scenario-based models that account for uncertainties such as policy shifts or global events can provide users with flexible tools to explore multiple possible futures. These models should be presented in accessible formats to accommodate diverse user capabilities.

6. Improve Data Granularity: Detailed outputs, particularly at local scales such as SA2 and SA1 levels, are vital for operational and strategic planning. Investment in methodologies and data systems that support greater granularity will enhance the practical utility of projections.

7. Clarify Terminology: Clear definitions and distinctions between terms such as "projections" and "forecasts" should be embedded in dissemination materials. This will help users interpret data consistently and avoid misapplication of demographic insights.

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