

# Mixed-methods research: What's in it for economists?

The Economic and  
Labour Relations Review  
2014, Vol. 25(2) 290–305  
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sagepub.co.uk/journalsPermissions.nav  
DOI: 10.1177/1035304614530819  
elrr.sagepub.com



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## Abstract

Empirical studies in economics traditionally use a limited range of methods, usually based on particular types of regression analysis. Increasingly, sophisticated regression techniques require the availability of appropriate data sets, often longitudinal and typically collected at a national level. This raises challenges for researchers seeking to investigate issues requiring data that are not typically included in regular large-scale data. It also raises questions of the adequacy of relying mainly or solely on regression analysis for investigating key issues of economic theory and policy. One way of addressing these issues is to employ a mixed-methods research framework to investigate important research questions. In this article, we provide an example of applying a mixed-methods design to investigate the employment decisions of mature age women working in the aged care sector. We outline the use of a coherent and robust framework to allow the integrated collection and analysis of quantitative and qualitative data. Drawing on particular examples from our analysis, we show how a mixed-methods approach facilitates richer insights, more finely grained understandings of causal relationships and identification of emergent issues. We conclude that mixed-methods research has the

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capacity to provide surprises and generate new insights through detailed exploratory data analysis.

**JEL Codes:** J21, J24

### **Keywords**

Employment conditions, gender, low-paid workers, mixed methods, research methodology

## **Introduction**

Mixed-methods research design has been debated and refined in disciplines other than economics, such as health and social sciences, for over 20 years (Creswell, 2009a, 2009b). In broad terms, it involves integrating different forms of data and analyses in parallel or sequential phases to meet the goals of a research project and answer specific research questions (Tashakkori and Teddlie, 2003: 11). Economists from heterodox schools of thought suggest mixed-methods research may also have relevance for economic inquiry and have identified how such approaches would address the limitations of economic analysis that is dominated by regression modelling (Downward and Mearman, 2007; Ziliak and McCloskey, 2004). However, to date, there have been limited guidance or examples of how to employ such an approach. Furthermore, there are important debates among those who support a mixed-methods approach about the appropriate roles for quantitative and qualitative data.

This article considers the need for new data and analytical techniques in economics and describes the effective implementation of a mixed-methods framework in labour market research. It draws on methodological insights from discussions of critical realist ontology and feminist economists' approaches to epistemology. In doing so, it demonstrates the capacity of mixed-methods research to enable the systematic development of analytical links between individual decisions and the social structures in which they are embedded and to include the views and understandings of participants, such as employees, within a particular field of study.

These aspects of mixed-methods research are discussed and demonstrated with reference to a study of the employment decisions of mature age women working in aged care. The key employment decision considered in this study is the decision to leave or remain in current employment aged care. It is shown that a mixed-methods approach can enable a depth and breadth of analysis and understanding that cannot be achieved by simply combining the findings from separate quantitative and qualitative analyses of employment and decision-making. It is argued that adopting a mixed-methods approach in this specific study contributed crucially to an understanding of the socially and institutionally embedded nature of individual employment decisions made by women working in aged care.

## **Mainstream economics and mixed methods**

Mainstream economic studies of employment decision-making are premised on the assumption that individuals make autonomous, rational decisions to enter, stay or leave

a particular employment prospect. Typically, the analyses use large quantitative data sets and Probit or Logit regression methods to test for correlations between an employment decision (such as to enter or leave employment) and selected explanatory variables. Wages are typically assumed to be a key motivating factor in an individual's employment decisions, but a range of other factors such as educational attainment, preferred working hours, household characteristics and industry or occupational characteristics might also be included. The inclusion of particular variables will generally reflect a combination of theory, findings from previous empirical analyses and availability of relevant measures in secondary data sets. Regression results are interpreted to make claims about the causal impact of various characteristics of an individual's personal and work environment on his or her employment status (Austen and Ong, 2013). Probit and Logit regression methods yield a measure of the overall 'explanatory' power of the set of measured characteristics included in the chosen model, as well as estimates of the effect of a change in each characteristic on employment status, *ceteris paribus*.

When these outputs are reported, attention is usually focused on the sign and magnitude of *statistically significant* results. A statistically significant effect (estimated regression coefficient) for a characteristic is commonly interpreted as evidence of a causal link with employment status. In addition, a statistically significant likelihood ratio, which is the standard measure of fit used in a Probit or Logit model, is commonly interpreted as evidence that the factors in the model account for a high proportion of observed variation in employment status. Additional evaluation of the output from a regression analysis is usually limited to cross-references to the results of other empirical (usually regression) studies.

Regression methods have become increasingly sophisticated in recent years as researchers attempt to address key issues associated with inferring causation and the effects of missing data. For example, random and fixed effects panel models have been developed to reduce the impact of unobserved heterogeneity on estimated regression coefficients. Quasi-experimental models (or, where possible, randomised experiments) have also been developed to deal with problems of causality. Such innovations have enabled more precise estimates of relationships between employment status and individual and work characteristics. However, their effective implementation requires additional and often expensive sets of quantitative data. For example, a regression analysis of the factors affecting the chances of a mature age woman retaining employment requires longitudinal data on a large number of these women (so that women who stay and leave employment can be compared). The data set must also include good measures of relevant personal characteristics, such as health and informal care roles. To achieve a policy-relevant analysis, longitudinal data on work characteristics is also needed.

Publicly available data sets that satisfy these requirements are currently not available in Australia and new national, ongoing longitudinal data sets are costly to produce. Thus, the capacity to make knowledge claims about employment decision-making by mature age women and to ensure the issues affecting this important group are included in policy and theory are limited under this form of analysis.

The collection of new quantitative data on mature age women could improve the precision of regression analysis of their employment decision-making. However, this would only partially address the limitations of the standard economic analysis of

employment decision-making. This is because there are important limitations with the standard regression approach itself. Some of these limitations relate to the way regression analysis is both implemented and interpreted. However, a second, broader set of limitations relate to the relative neglect given to the socially and institutionally embedded nature of individual employment decisions (Delbridge and Edwards, 2013). Two separate but related critiques of mainstream economic method provide further insights into these limitations. Arguments that favour a critical realist approach to research demonstrate the need for methods that recognise the role of social structures in shaping individual decisions. Many of these arguments are particularly prominent in discussions among Post Keynesian economists. In a contrasting but overlapping set of literature, feminist economists' approaches to research methods give a high priority to acknowledging agents' own interpretations of their decision environment and causal processes.

### **Some limitations of mainstream regression analysis and some alternative approaches**

Ziliak and McCloskey (2004) highlight the current emphasis given to statistical significance in economic applications of regression analysis, which they describe as a 'bone-headedly misguided' way of assessing the nature of economic phenomena (p. 666). They point out that statistical significance simply indicates the likelihood that, *given limitations in the sample size*, a statistical proposition about a relationship between two particular variables is reasonable. However, statistical significance does *not* imply economic significance, which is about the practical consequences of particular relationships between economic variables. They emphasise that economists should be concerned with economic significance (what they term the 'oomph', or likely magnitude of a relationship), rather than statistical significance (which refers to the 'precision' of a particular, even if negligible, measured effect).

A further problem with economic analyses based on regression models is the tendency to focus on the measures of fit, such as the likelihood ratios, of alternative regression models. These tests only compare how well alternative models 'explain' observed patterns in the available (sample) data. They do not address the possibility that the available quantitative data might have only limited relevance to the phenomena of interest or concern. As Ziliak and McCloskey (2004) note,

'Fit' in a wider scientific sense ... cannot be brought solely and conveniently under the lamppost of sampling theory ... How well for example does the model (or parameter estimate) fit phenomena elsewhere? Are there entirely different sorts of evidence – experimental, historical, anecdotal, narrative, and formal – that tend to confirm it? Does it accord with careful introspections about ourselves? (p. 667)

This critique of standard economic analysis does not deny a role for regression analysis. Rather, it suggests improvements in the way regression results are interpreted and reported *and* an increased use of other types of data and analysis, where appropriate. This critique suggests one important reason for employing a mixed-methods approach.

Methodological debates about the relevance of critical realism for economic research highlight more severe critiques of standard economic analysis and elaborate on the potential role for mixed methods. A key area of debate concerns the implied assumptions, embedded within regression analysis, of a closed social system and a correspondence between sensory experiences and the objects of those experiences (Blaikie, 1993; Downward and Mearman, 2007: 85). Disputing both these propositions, critical realists argue that reality is a structured open system and that a distinction must be made between the 'real' and the 'empirical' dimensions of knowledge (Downward and Mearman, 2007: 88).

The discussions prompted by critical realist scholars emphasise the need for analyses that focus on the interaction of human agency with institutions or structures. Researchers are charged with the tasks of elaborating on the motivational dimension of agency, analysing the mechanisms that facilitate action or behaviour and accounting for the relational context of behaviour. This requires that they adopt methods that extend well beyond regression models and some (e.g. Downward and Mearman, 2007) identify mixed-methods techniques as particularly appropriate. In this context, qualitative methods are viewed as especially relevant because they can enable phenomena to be empirically elucidated in greater detail and thus help to reveal aspects of the constituency of phenomena and support theory development. Qualitative data analysis is also seen of particular value in helping to reveal the importance of countervailing influences because the focus is on the unit of analysis embedded within specific social and institutional settings. Among others, Downward and Mearman (2007) posit that quantitative data may be used to reveal patterns of occurrences among individual agents but add that interpretative research using qualitative methods can play a key role in exploring the processes and institutions associated with behaviours that produce particular empirical patterns. That is, distinct approaches to data collection and analysis are associated with gaining insights into individual decisions and the social and institutional contexts in which they are embedded.

The identification of some advantages from employing qualitative techniques does not deny a role for regression analysis and some critical realist scholars define a substantial role for quantitative methods within a mixed-methods framework. For example, Finch and McMaster (2002) emphasise the importance of 'demi-regularities' or partial event regularities which *prima facie* indicate the actualisation of a causal mechanism or tendency over a defined span of time and space. They focus on the potential for non-parametric techniques (especially measures of association between samples) to assist in the identification and analysis of demi-regularities from quantitative data. Qualitative data and analysis also play a role in the type of approach recommended by Finch and McMaster. They acknowledge that the process of generating claims about causal explanation needs to draw on much broader sets of information than the results of non-parametric techniques. Consistent with critical realist arguments, they give specific mention to retroductive reasoning. This involves the use of analogy and metaphor, among other techniques, to explore the mechanisms, structures or conditions that, at least in part, may be responsible for a particular phenomenon. This approach has key elements in common with critical realist literature on organisational research (see, for example, Delbridge and Edwards, 2013).

Debates continue, however, about the appropriate roles of quantitative and qualitative data in a mixed-methods approach in economic research. Lawson (1997), for example, has questioned the value of qualitative data derived from interviews or focus groups:

The usefulness of agents' understandings articulated as explanations is tempered for critical realists by the limited extent of that knowledge, and by difficulties in articulating its inevitable tacit and unreflective content, often summarised as agents' opaque understandings of the physical and social structural properties of their situations. (pp. 192–193)

In contrast with Lawson's argument, feminist economists place a high value on individuals' own understanding of phenomena and the causal processes affecting them. Feminist scholars have given extensive attention to the potential biases that arise by conducting research without the inclusion of the knowledge of those who are 'the subjects' of the research. This is particularly important when the research community itself draws from sectors of society which under-represent women. These are issues that have been discussed at length by feminist philosophers (e.g. Harding, 1987) at a general level and by feminist economists who have engaged directly with debates about critical realism and methodology in economics (see, for example, Barker, 2003; Berik, 1997; Harding, 2003; Nelson, 2003a, 2003b). Of particular concern is the invisibility of women's experiences and standpoints in the definition of research questions, design of data collection and analysis and the interpretation of results. These concerns are particularly relevant in the context of research methods such as regression which assume that agents' decisions are autonomous and rational rather than intrinsically embedded in social and institutional structures.

Given their concern with the nature and production of knowledge, feminist scholars have engaged with literature examining the use of specific research methods, including mixed-methods investigation. This has partly been necessitated by institutional concerns associated with the funding and authority given to traditional quantitative techniques and partly motivated by the insights that can be gained by using mixed methods to explore women's economic and social experiences. Particular attention has been given to the need for the use of multiple types of data and analysis to gain insights into 'complex and multi-dimensional issues' (Hesse-Biber, 2008: 360). This has been coupled with awareness that specific types of data collection provide a particular lens on people's perceptions of the issues under investigation. Furthermore, different accounts of social phenomena are generated by different media of data collection (Irwin, 2008: 415–416). In short, there is a perceived need, particularly among various schools of heterodox economics, to broaden the data and methods of economic research to overcome (1) inherent limitations of regression analysis, (2) the relative neglect of women and women's standpoints in economic knowledge creation and (3) an almost singular focus on individual decision-making to the neglect of the social and institutional context in which decisions are embedded.

### **An example of mixed-methods research: Mature age women working in aged care**

The key argument here is that mixed-methods research offers one strategy for economists both to address the shortcoming of regression analysis as a single analytical tool and to investigate individual decision-making embedded within specific social

and institutional contexts. These advantages are demonstrated in our particular research project on employment decision-making by mature age women working in Australia's aged care sector.

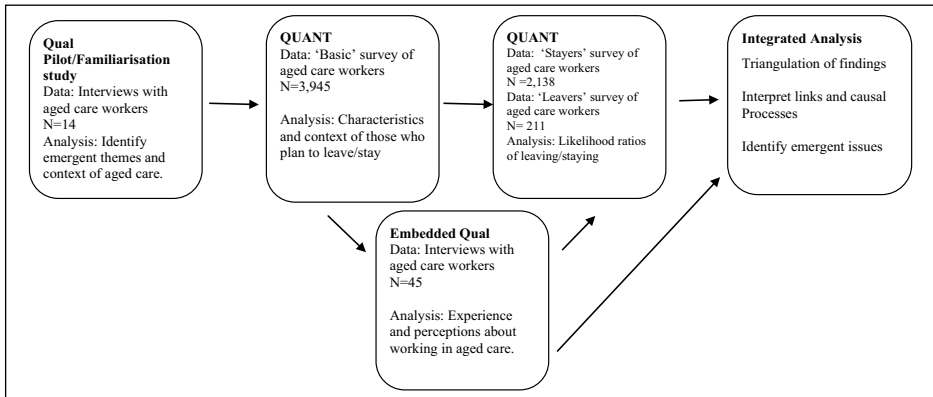
The context of this mixed-methods study is an ageing population and, associated with this, an increased need for aged care workers, the majority of whom are likely to be women. The Productivity Commission (2011) inquiry into aged care projected that the number of older Australians needing aged care will more than triple from around 1 million to 3.5 million in 2050, necessitating a quadrupling of the aged care workforce by the same year. Mature age women are a crucial component of Australia's future labour supply, but are largely missing from data and analyses of employment. The current invisibility of mature age women in analyses of mature age workers' employment undermines the capacity of Australia and similar countries to meet critical community needs as the population ages (Austen and Ong, 2013; Productivity Commission, 2011; Treasury Commonwealth of Australia, 2010). The importance of addressing this knowledge gap is particularly high in the aged care sector where women comprise 90% of the workforce and the median age of this workforce is 48 years for residential aged care and 50 years for community care (King et al., 2012).

The study in question is the first to focus on the unique employment experiences of mature age women in the aged care sector and on the decisions that these women make about their continued involvement in paid work. By addressing aspects of the work environment in aged care that impede mature age women's ability to remain employed in the sector, this project also has the potential to affect the financial, physical and emotional wellbeing of approximately 25% of all employed mature age Australian women to a significant degree. These impacts will be felt while the women are employed. They will also affect the women's retirement incomes and, thus, their ability to afford high-quality care for themselves in later life. The project was designed to facilitate the development of sound policy and practice on labour security in the aged care and related sectors.

The invisibility of mature age women care workers is a reflection of limitations in current economic theorising about employment decision-making and the methods used in associated empirical analysis. Influenced by debates in heterodox economics about the links between theory and methods, our study was designed to address three research questions which placed mature age women workers' experiences at the centre of the project:

1. What are the key economic, social and demographic characteristics associated with mature age women who decide to maintain or leave employment in Australia's aged care sector?
2. How do mature age women workers describe their experiences and perceptions of work and reasons for staying employed in or considering exit from Australia's aged care sector?
3. What do findings relevant to questions 1 and 2 suggest for economic theory and policy relevant to the attraction and retention of mature age women workers in Australia's aged care sector?

These questions required a mixed-methods approach that incorporated a significant role for qualitative data. The first question is associated with exploring and measuring the possible causal relationships between individuals' planned employment decisions



**Figure 1.** Study design using an explanatory, sequential mixed-methods framework.

and their individual, household and workplace characteristics. This question is relatively consistent with the types of regression analysis usually employed in quantitative economic studies. The second question considers issues of experience and perception which are not readily measured or observed but are embodied in the lived experiences of aged care workers. It is consistent with qualitative approaches of investigation more commonly used in areas of social research outside of economics. It includes considerable scope for interview participants to discuss the social and institutional processes that inform their decisions to remain in or exit work in aged care. The third question requires that the findings relevant to each of the first two questions will be considered in an integrated manner in order to develop theoretical and policy conclusions that at a minimum are not mutually exclusive and, more usefully, that are consistent and mutually reinforcing.

A range of mixed-methods research designs are available, and the challenge for the research team was to develop a research framework that facilitated a combination of data and analytical approaches that not only identified causal relationships but also drew on carers' knowledge of their particular social context as part of the explanation of how and why these causal relationships might arise. The broad approach was to adopt an embedded mixed-methods framework of enquiry, which utilised both survey and semi-structured interview data collection and analysis (Creswell and Plano Clark, 2011). The particular model of mixed methods was 'explanatory' in that it sought to identify potential causal links between specific individual and contextual characteristics in which workers' employment decisions are embedded. It was also 'sequential' because the different research steps were designed to occur in a specific order, with each earlier episode of data collection and analysis informing later data collection and analysis tasks throughout the project. Our selected mixed-methods approach is represented in Figure 1.

Prior to large-scale data collection, a pilot programme of interviews was initiated to gain familiarity with the sector and some of the broad issues that may be of concern to employees. To address the first research question, and to address the current lack of quantitative data on mature age Australian women, we designed a programme of primary



data collection that featured a large-scale survey of women aged 45 and over and working in aged care.

This stage involved two waves of data collection via the Mature Age Women in Aged Care (MAWAC) Survey. This was designed to meet the requirement that longitudinal data address issues of potential endogeneity. With assistance from Aged and Community Care Australia, survey forms were distributed to 6867 women aged 45 years or over working in 19 aged care organisations, spread across all Australian states. An online survey was also made available via the Australian Nursing Federation website. In total, 3945 women responded to the survey for the first wave of data collection. In the second wave, the same 6867 women were sent a 'leavers' and a 'stayers' questionnaire and asked to complete the relevant document. A total of 2138 'stayers' (who were still working in the aged care sector) and 211 'leavers' responded to these surveys.

A programme of qualitative data collection was designed to address the second research question. Recruitment of interview participants was achieved by purposefully asking participants in the initial survey whether they were prepared to participate in an interview to further discuss their experiences of working in aged care. Potential interview participants were selected to ensure a diversity of carers in terms of occupation, residential and community care roles, intentions to stay or leave aged care and geographic location. The interviews were held between the two waves of survey data collection. A total of 43 semi-structured interviews were conducted to provide detailed case descriptions of how and why elements of a mature age woman's personal life and/or work circumstances affect her chances of remaining in paid work.

Research question 3 was addressed by integrating the collection and analysis of both waves of the MAWAC Survey data and the interviews. The arrows in Figure 1 show the intended sequence of the data collection and analysis. In practice, the nexus between the MAWAC surveys and the collection of interview data became an iterative process.

### **Integrating data and analysis: Embedded decisions, emergent issues and causal explanations**

As the above description indicates, the project generated a large amount of data and analysis. Here, the example of 'recognition' is used to demonstrate some of the advantages of the mixed-methods approach in economic research, with particular reference to its capacity to raise the visibility of the organisational and social context in which mature age women's employment decisions are embedded. Recognition in the context of the following discussion refers to a sociological concept of the acknowledgement of individuals for their contribution to the social project. It links with Honneth's (2003) notion that status is defined relationally or 'intersubjectively', and Fraser's (2000) arguments that recognition is embedded in 'institutionalised patterns of cultural value [that] constitute some actors as inferior, excluded, wholly or other, or simply invisible, hence as less than full partners in social interaction' (pp. 113–114). In this study, it provides an important example of the potential links between individual employment decisions, the social and institutional context in which these decisions are made and the potential for linking economic analyses with previous studies of care and community services in Australia and elsewhere (see, for example, Cortis, 2007; Meagher and Cortis, 2009).

In this analysis of employment decisions, the theme of recognition first emerged in the pilot qualitative study. The interview schedule broadly explored the nature of aged care work and included questions about the aspect of work the carers enjoyed and what made their work difficult. In data from the set of 14 familiarisation interviews, it was apparent that both intersubjective and social and institutional aspects of recognition were relevant to the carers' experiences of their work. Care workers understood the importance of their work to the wellbeing of the aged:

... [we, care workers, are] really trying hard, working at jobs and doing personal care that a lot of people would not ever touch, that needs someone who is very good at being with people, who does not make that person feel as though they're a nuisance or a pain in the butt or just a waste of space ... (Interview, pilot project)

However, in these discussions, it was apparent that some carers did not perceive that their work was valued. A care worker commented, 'my sons think it's demeaning', adding, 'I think that's what most people think'. Some perceived that the very low wages indicated their work was not valued and indeed was (mis)recognised. As expressed by one care worker, 'We get paid [as if] we're just peasants'. In short, the data indicated that there may be a link between institutional factors, including money, and the recognition that carers perceived that they gained from their work. The pilot qualitative stage of the study was central to the inclusion of recognition as a key issue for further investigation in this study. Importantly, because it emerged early in a study employing a mixed-methods approach, it was possible to make recognition an integral part of the study.

The quantitative stages of the study were designed to include measures of the prevalence and magnitude of perceptions of (mis)recognition among aged care workers. This stage was designed to assess the importance of recognition for intentions to remain in aged care work. A range of potential recognition sources was identified, based on different actors within the work context, family, households and broader community. From the identification in the pilot findings of institutional factors such as low wages as a possible source of misrecognition, the survey instrument included questions relevant to both individual and socially embedded aspects of the workers' decision-making context.

The survey data indicated that only 1% of the care workers reported that their work was not at all valued by their clients and only 3% reported that their work was not at all valued by the families of their clients. However, organisational and institutional aspects of recognition provided a strong contrast. Just over 20% of the respondents felt that the value of their contributions was 'not at all' recognised by high-level managers in their organisation. Community support was also not widely perceived, with 18.1% of the respondents stating that their work was not valued at all in the community.

These perceptions existed alongside a high level of dissatisfaction with pay, with 38.1% of the respondents reporting that they were 'not at all' satisfied with their current rate of pay (almost half the women in our survey had an hourly pay rate between AUD15 and AUD20, where the Australian national minimum rate in 2012 was AUD15.96). The low recognition expressed by the low rate of pay was a particular source of dissatisfaction. More than 50% of respondents rated their pay as 'not at all' satisfactory in relation to the importance of their work to society. The data revealed links between a perceived

lack of recognition and intentions to leave, with ‘my work is not valued’ rating as one of the most common reasons for thoughts about leaving; 19.3% of the respondents reporting that they were thinking of leaving aged care gave this factor as a reason.

Nevertheless, the complexity of the individual, organisational and social dimensions of recognition could not be captured within the bounded responses of survey questions. To explore the ways in which social structures shaped perceptions of recognition, the researchers turned to interview data and analysis. To complement the survey data analysis, the qualitative data collection of the project included two questions designed to allow participants to raise questions of pay and recognition if they wished:

- Aged care work is widely known to be low paid. What effect do you think this has for the provision of aged care generally?
- What effect does low pay have for you as a worker?

The more extensive and richer body of data collected through these interviews allowed for a more finely grained appreciation of the institutional and social factors relevant to carers’ perceptions of recognition for their work and its potential influence on a woman’s decision to stay or leave aged care work. Interview data were coded using two strategies. First, open coding was used to identify and explore emergent themes. Second, data were coded to explore links between specific variables embedded in the survey and interview questionnaire design.

The interview data produced deeper insights into how and why low wages contribute to perceptions of (mis)recognition among the participants in this study. While wages again emerged as a key institutional factor, they were often discussed not in terms of the absolute level or purchasing power but with respect to their relativities to other jobs and how this linked with workers’ perceptions about the status of their job. Some participants used comparisons with other younger workers to provide a sense of their low pay relative to those with less experience or fewer skills/qualifications. One university-educated registered nurse noted that she was earning only AUD4 per hour more than her 24-year-old son: her tertiary education appeared irrelevant to her skills and earnings in aged care work. Other participants drew comparisons with other low-paid jobs, such as factory work, which they felt did not require the same level of emotional and communicative skills. The wage rate was also an issue for another registered nurse who earned less working in aged care than she would earn working in a public hospital. She linked this wage rate disparity to ageism in Australian society:

I guess a reflection of society as much as anything, because we don’t value our old people.  
(Interview # 10)

The participants described complex links between recognition, low absolute wage levels and future work decisions. Household composition and intra-household decision-making emerged as particularly important factors in this complex environment. Care work was perceived positively as offering flexibility to accommodate unpaid household responsibilities, including care for family members. Practices such as pooling household resources affected their perceptions of economic vulnerability and capacity to live

adequately on low pay. While some participants perceived their wages were too low, their household context enabled them to choose to stay in aged care:

I accept the fact that I'm low paid. I have a husband that provides reasonably well for us, you know, we can't do without my wage, but I don't have to have big money so I can do something I love ... (Interview # 43)

In contrast, another personal carer spoke about a former colleague who, despite enjoying her work in aged care, had decided to pursue employment on a checkout at a supermarket to secure higher wages.

In short, the emphasis on autonomous, rational decisions assumed in mainstream economic theory provided a stark contrast with the embedded and complex decisions demonstrated in this study. Regression analysis, in combination with detailed qualitative data collection and analysis provided nuanced account of how low wages interact with social and institutional context to facilitate specific decisions to leave or stay in aged care work.

The advantage of mixed methods in enabling the identification of issues directly from the data was further highlighted in the results from the qualitative data collection and analysis. Although there were no specific questions that related to working with carers from culturally and linguistically diverse (CaLD) backgrounds, many interview participants commented on its importance. These issues first emerged during analysis of the interview data when it was found that 28 interviewees spoke about this issue. Perceptions of growing rates of employment of staff from CaLD backgrounds were talked about across states and in both metropolitan and regional areas. These issues concerned matters of training and workload, reactions of residents and clients to carers from some particular CaLD backgrounds and challenges associated with working with new staff with English as a second language. The emergence of these particular issues was, to some extent, surprising. While the percentage of carers with CaLD backgrounds grew from 25% to 33% between 2003 and 2007, the percentage had changed little between 2007 and the period of our data collection. Furthermore, more than half of the carers with CaLD backgrounds have been resident in Australia for 10 years or longer (King et al., 2012: 15).

Data from the pilot programme had not alerted the researchers to specific concerns about carers from CaLD backgrounds. However, they were again evident in the MAWAC Survey 2 when participants responded in free text to questions about the issues that they most liked or disliked about their work. The emergence of data relating to perceptions of a quickly growing CaLD workforce in two different data collections suggests an important area for future research.

## Lessons and conclusions

As illustrated in this study of aged care workers, a mixed-methods framework can be used effectively to address the lack of suitable data in existing collections, as well as the limitations of relying solely on regression analysis to examine mature age women's labour supply decisions. However, several other lessons arise from the use of mixed methods in a labour market study.

One key lesson was the importance of a research team with the skills for data collection and analysis required for successful implementation and integration of the different phases of the project. This aspect of the project developed somewhat fortuitously from the history of the project team's collaboration and engagement in the early pilot study interviews and the research grant process. While all team members had worked with at least some other team members prior to this project, the team as a cohesive unit had not worked together prior to this study. The importance of collaborative research team members with complementary skills and a depth of knowledge in both quantitative and qualitative methods is a 'finding' from the project which should not be understated.

This experience also reinforces the advantages of small qualitative studies that inform large-scale survey data collection. The issue of value recognition might not have been explored had the study begun with large-scale survey data collection. However, the mixed-methods study led to the inclusion of some relevant questions about recognition in the quantitative study, and this provided some broad indications of the magnitude of the importance of different sources of recognition. The project's embedded schedule of qualitative data collection then made it possible to explore why recognition was important and how issues of recognition were conveyed to aged care workers. This generated insights into how low wages can communicate misrecognition and into some causal factors potentially linking misrecognition to decisions to leave aged care employment. The second wave of MAWAC Survey data will provide further opportunity to explore how changes in recognition influence changes in intention to leave. The combination of data and analyses will also allow a more systematic exploration of the implications of recognition for both theory and policy.

A further lesson from the project was way in which mixed-methods research provides flexibility for exploratory data analysis and for integrating emergent findings into the analysis and findings of an economic research programme. The initial analysis suggested that the major study needed to accommodate the possibility that recognition may be linked with social and institutional processes, including meanings attached to wages. As a result, questions on recognition were included in the survey design and subsequent analyses suggested the importance of these non-economic factors. Linked questions in the interview schedule and qualitative analysis suggest that the relationship between recognition and likelihood of staying or leaving aged care was linked with the social meaning of wages, intra-household decision-making contexts and pooled household resources. The flexibility for emergent issues to be explored through different forms of data and analysis was a key strength of the mixed-methods approach and allowed causal processes that were relevant to individual decision-making, institutions and social processes to be considered in a coherent manner.

A fourth lesson related to misgivings, apparently common within economics, about the limitations of qualitative research data and analysis. For example, reference was made earlier in the article to Lawson's concerns about the 'usefulness of agents' understandings' to generate insights into broader structural processes underlying their experiences. This project suggests that Lawson has paid limited attention to the role that researchers potentially play in the analysis and theorising processes involved in qualitative research. Furthermore, the mixed-methods design provided a capacity for findings to be triangulated through different types of data analysis and facilitated the development

of inferences that may contribute to understanding broader patterns of mature age women's employment decisions. In short, arguments such as Lawson's would have greater validity if it were proposed that agents' understandings were to be accepted as authoritative accounts of causal processes of social events outside of their own immediate experience. The purpose of qualitative data in a larger research agenda, however, may be to provide one type of data that are analysed and interpreted with the aim of producing explanations of complex, multi-dimensional social and economic events.

The overriding lesson, however, was that the combination of survey data and qualitative interview transcripts provided insights into the employment decisions and contexts of women working in aged care, including the links between low wages, recognition and the capacity of mature age women to retain employment in the aged care sector. The combination provided insights into the ways in which institutions such as households and social processes such as income pooling shape the capacity of aged care workers to remain in low-paid employment, regardless of individual motivations. These are findings not readily gained through analysis based entirely on individual utility functions and regression analysis. Furthermore, the research design allowed new and relevant issues to emerge.

### Acknowledgements

The authors gratefully acknowledge the contributions of two anonymous reviewers.

### Funding

This study was funded by the Australian Research Council for project DP110102728 'Missing workers: Retaining mature age women workers to ensure future labour security'.

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