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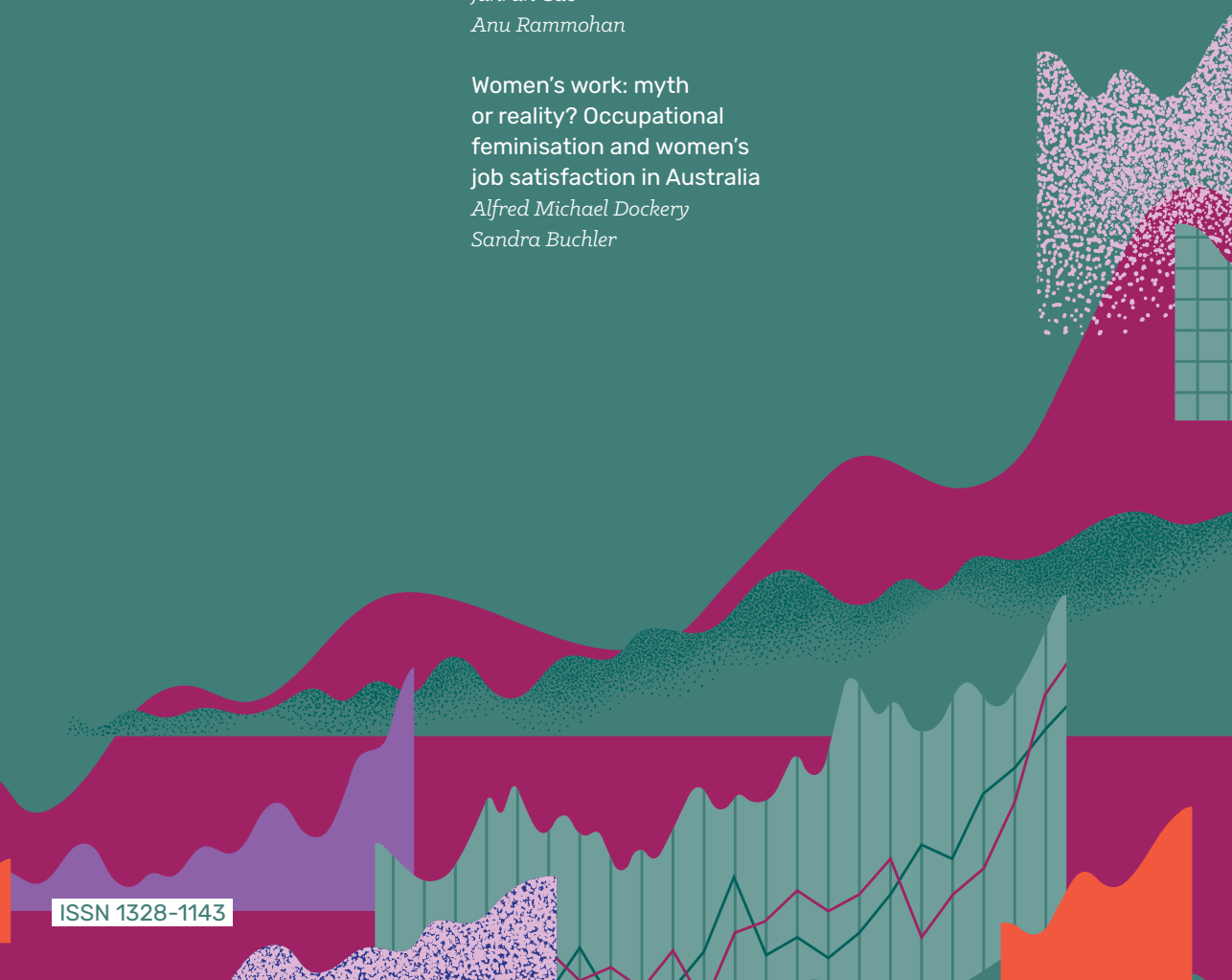

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From the Managing Editor

Welcome to the first issue the *Australian Journal of Labour Economics* (AJLE) for 2023. In this issue we have, as usual, a range of articles which will be of interest to our readers covering a range of labour market issues and using a variety of approaches to research. But first we have a paper in an occasional series covering a topic of general interest to readers. Andrew Leigh, well-known labour economist formerly from ANU but now an MP and Assistant Minister for Competition, Charities and Treasury, presents an overview of monopsony power in the Australian labour market in a paper entitled 'How uncompetitive markets hurt workers'. Monopsony is a somewhat neglected area of labour economics in Australia so this contribution is most welcome and hopefully will stir interest to readers and possibly suggest a research agenda for academics and practitioners.

The second paper, by Mike Dockery, Curtin University and Sandra Buchler, Goethe-University Frankfurt am Main, 'Women's work: myth or reality? Occupational feminisation and women's job satisfaction in Australia' examines the well-established phenomenon of concentration of women in particular occupation, often referred to as 'feminisation'. The paper provides evidence on the nature of occupational segregation and its role in shaping differential labour market outcomes for men and women using data from the HILDA survey. In their paper the authors have sought to explore the notion of 'women's work' as a factor contributing to occupational segregation – the idea that certain occupations are highly feminised because women have a strong preference for the type of work done in those occupations. The results are in contrast to much of the existing literature on the topic A particularly interesting result is that the evidence indicates that this notion of 'women's work' applies primarily to mothers.

The paper by Junran Cao and Anu Rammohan, The University of Western Australia, 'Relocation choices of Australian General Practitioners', contributes to the understanding of shortages of rural GPs. The aim of this paper is to use the longitudinal *Medicine in Australia: Balancing Employment and Life* (MABEL) dataset to examine the relocation choices of General Practitioners (GPs) in Australia, focusing on the role of household-related factors, specifically children's education, partner's employment and housing prices. The results suggest that the channel through which individual and professional circumstances lead to relocations is more nuanced than simply changes in earnings or workload. They also demonstrate that individual-level factors play a smaller role on relocation decisions relative to changes in the overall attractiveness of the location in question. This is because rarely are such decisions made in isolation; instead, relocation choices are typically made as a family such that the impacts on one's spouse or children are also non-negligible determinants. The findings have implications for policy since previous policy initiatives to improve rural doctor shortages have sought to design tailored incentive packages focusing on profession and individual-specific characteristics.

The final paper, 'How Australia's employment services system fails jobseekers: Insights from self-determination theory' by Cheryl Sykes of Curtin University, adopts an approach to examine the role and performance of active labour market programs (ALMP) quite different to that which has mostly been undertaken in labour economics. Little, if any, research in labour markets has considered the degree to which the motivation and mental health of unemployed people might be impacted by ALMPs more generally, and in particular, the Australian employment services system. In this paper a self-determination theory perspective is adopted, with analysis of longitudinal survey data of a sample of jobseekers in the 'jobactive' program examining how mental health was impacted as a consequence of their mandatory engagement with the frontline employees of employment services providers. The paper concludes that unemployed people experience the employment services system as unhelpful and ineffective in assisting them to secure employment, and that engagement with the system is more likely than not to have an adverse effect on their mental health. The results have important implications for policy.

Phil Lewis
Managing Editor

How uncompetitive markets hurt workers

ANDREW LEIGH *Assistant Minister for Competition, Charities and Treasury*

Abstract

From 2012 to 2022, average full-time wages grew by just 1 per cent in real terms. One possible contributing factor to slow wage growth is the combination of growing employer power and shrinking employee power. In 2022, the unionisation rate fell to 12 per cent, the lowest level since Federation. Work by Jonathan Hambur (2023) suggests that many Australian labour markets are concentrated, particularly in regional areas. Since the mid-2000s, the negative impact of concentration on wages has more than doubled. Monopsony power is also closely connected with firm entry. In areas with fewer new firms, people are less likely to switch jobs. Two contractual features that may entrench monopsony power are non-compete clauses that restrict employees from immediately switching to a competing employer; and no-poach clauses that restrain franchisees from hiring workers at competing outlets. By restricting labour market mobility, non-compete clauses and no-poach clauses may increase monopsony power.

JEL Codes: J41, J42
Keywords: monopsony power, unionisation, non-compete clauses, no-poach clauses

This article draws upon a speech delivered at a Per Capita / Maurice Blackburn event in Melbourne on 2 March 2023. My thanks to the officials in the Australian Treasury's Structural Analysis Branch for invaluable assistance in preparing these remarks, and to Editor Phil Lewis and two referees for their thoughtful feedback on an earlier version.

Introduction

Sixteen Tons was written by Merle Travis in 1946. It has been covered many times, most famously by Johnny Cash. It is about a real group of coal miners who lived and worked in a company town in Muhlenberg County, Kentucky. The chorus goes:

> *You load 16 tons, what do you get?*
> *Another day older and deeper in debt*
> *St. Peter, don't you call me 'cause I can't go*
> *I owe my soul to the company store* (Travis 1946)

To Merle Travis, those words were personal. The first two lines came from his brother. The last two lines came from his father. Both had experienced what it felt like to work all day and get paid not in cash, but in scrip – redeemable only at the company store.

Folk music fans might also be familiar with Pete Seeger's 'Homestead Strike Song' (Seeger, 1980), written about another company town. Homestead, Pennsylvania was a company town built in the 1880s to supply workers to Andrew Carnegie's steel mills. The men worked in the foundries and raised their families in the purpose-built town. They made railway lines and bridges and steel for the Empire State building (Russell, 1992).

A contract between the Amalgamated Association of Iron and Steel Workers union and Carnegie Steel was due to expire on 1 July 1892. Carnegie gave his operations manager permission to break the union before the contract ended. Wages were cut and workers were locked out of the plant. They went on strike and all 3,800 were fired the following day. On 6 July 1892, the steel workers fought for control of the factory and the town against strike breakers shipped in under cover of night by Carnegie's managers. In a 12-hour gun battle and its aftermath three strike breakers and seven workers died. Ultimately, the strike failed, and the plant was operational again within days.

Another company town that inspired ballads was Pullman, Illinois. It was developed outside Chicago in the 1880s by George Pullman who made his fortune building train carriages, specialising in luxury sleeper cars. The Pullman strike is considered one of the great turning points in US industrial history. Pullman built his model town to house workers for his train carriage manufacturing business. He owned it all: the houses, the market, library, church, and schools. The town was home to 6,000 employees and their families who rented from the Pullman Company.

Demand for Pullman cars tanked during a depression that followed the economic panic of 1893. The company laid off hundreds of workers and switched many more to pay-per-piece work. But the rents did not go down. Discontent had been brewing in Pullman. There was resentment over the boss's paternalistic control of workers' lives, the prices charged for services, high rents and because they were not allowed to own their own houses (Almont, 1942).

First came a strike by the American Railway Union in spring 1894. When that failed, the union launched a national boycott of trains pulling Pullman carriages. The

boycott lasted two months and ended only after the federal government and military intervened. A national strike commission that later investigated the causes of the strikes and found Pullman Company partly to blame, labelling its actions 'Un-American' (Buder, 1967). Pullman was meant to be the model town watched over by a benevolent boss. But in 1898 the Pullman Company was ordered to divest ownership of the town and it was annexed to Chicago.

Company towns peaked around the late 19th and early 20th centuries (Boyd, 2003). But it seems such utopian dreams linger, even today. In March 2021, Elon Musk announced plans to incorporate the site of a SpaceX rocket manufacturing and launch facility, with a city called Starbase. Presumably it is a trial run for SpaceX company towns on Mars.

The story of the company town in Australia is a bit different. Here they were usually established to accommodate workforces in remote places. Roxby Downs in South Australia was built for the development of the Olympic Dam mine. Mount Beauty and Bogong Village in north east Victoria were built by the State Electricity Commission for Kiewa Hydroelectric Scheme construction workers. Useless Loop on the West Australian coast is a closed company town owned by Japan's Mitsui Group. Incidentally, the town's name came from a French explorer who disliked the harbour (Bilson, 2015), not from an economist analysing the way that money typically flows around a company town. And then there are the Australian company towns that operate with a fly-in, fly-out workforce, such as Newman and Barrow Island.

While company towns have declined in advanced economies, concerns about employer market power have been gaining traction in recent years. Some see wannabe 'modern company towns' in situations where a single employer dominates a large portion of a local labour force (Willingham and Aijilore, 2019). This is where monopoly and monopsony meet.

The origins of monopsony

The trailblazing Cambridge University economist Joan Robinson – who should have been the first woman to win the economics Nobel Prize – is credited with popularising the term monopsony. Building on Adam Smith's concerns over monopoly, Robinson challenged accepted wisdom in her male-dominated profession by rejecting the idea of perfect markets.

This meant contradicting the formidable Alfred Marshall, who had long dominated economics at Cambridge. He argued that supply and demand could meet in perfect equilibrium when workers were paid precisely the value of their contribution to production. This, Marshall argued, gave consumers the upper hand because companies had to compete on price and quality in a competitive market. The problem was Marshall's conviction that monopoly was a passing flaw that would correct itself over time. Robinson disagreed (Carter, 2021).

In 1933, at the age of thirty, Robinson published her landmark book *The Economics of Imperfect Competition* (Robinson, 1933). By coincidence, this was also the year when Harvard's Edward Chamberlain published *The Theory of Monopolistic Competition* (Chamberlain, 1933). Both books analyse monopoly, though Chamberlain was more sanguine about its effects, expecting new firms to enter the market and drive the equilibrium towards perfect competition.

Robinson saw monopoly as potentially pernicious and enduring. She also saw how the harms of monopoly power could extend to suppliers as well as consumers. In a monopoly the consumer pays the price set by the supplier. In a monopsony the supplier accepts the price set by the buyer. Monopolies hurt consumers. Monopsonies hurt suppliers.

In the labour market, workers are suppliers. The service they supply is their labour. Robinson argued that monopsony was endemic in the labour market and employers were using it to keep wages low. If there are a small number of employers competing for workers, those workers have fewer outside options. Their bargaining power is limited. Therefore, employers have the power to set lower wages.

In the extreme case, think of the plight of employees in Muhlenberg, Homestead, Pullman and those other one company towns. Workers benefit when there are more employers in the labour market. More employment options mean greater bargaining power. Workers can swap jobs and move on to better pay and conditions with another employer. I discuss below how important this is in the Australian context.

Monopsony roars back

Joan Robinson died in 1983, by which time monopsony had fallen out of favour among many economists. As one labour economics textbook of the era put it, 'we feel confident that monopsony is not a widespread phenomenon today' (Fleisher and Kniesner, 1980, 203). This blunt conclusion seems at odds with the reality of the employment market, such as the fact that firms often have the power to set wages. Moreover, monopsony power helps explain a range of features of the labour market, including firms' willingness to pay for general training, the fact that equal pay legislation did not lead to mass unemployment of women, and the prevalence of jobs with longer working hours than employees prefer (see Manning, 2003 for an excellent overview).

In recent years, Robinson and monopsony have made a return to the economic big time. In 2022, the *Journal of Human Resources* released a special issue focused on monopsony in the labour market. It was an acknowledgement of the growing focus of market power in economic literature (Ashenfelter *et al.*, 2022). As the editors of the special issue argued:

> 'The idea that firms have some market power in wage-setting has been slow to gain acceptance in economics.

> 'Indeed, until relatively recently, the textbooks viewed monopsony power as either a theoretical curiosum, or a concept limited to a handful of company towns in the past.
>
> 'This view has been changing rapidly, driven by a combination of theoretical innovations, empirical findings, dramatic legal cases, and new data sets that make it possible to measure the degree of market power in different ways.' (Ashenfelter *et al.*, 2022)

The concept has also caught the attention of competition lawyers. Monopsony was cited in a ruling against Apple in the US Supreme Court in 2019. The Court found:

> 'A retailer who is both a monopolist and a monopsonist may be liable to different classes of plaintiffs — both to downstream consumers and to upstream suppliers — when the retailer's unlawful conduct affects both the downstream and upstream markets.' (US Supreme Court, 2019)

Think of iPhone users as consumers in a monopoly market. They are likely to pay more for a product because of the seller's market dominance. When the iPhone 15 hits the shelves in September 2023, there is only one company that will sell it to you.

But you can also think of Apple's app developers as suppliers to a monopsony. They are likely to get less for the product they are selling because Apple has the monopsony on which apps run on its systems. There is a reason that Apple can take a cut of 30 per cent on most in-app purchases: because there is only one way of getting an app onto an Apple phone. Both consumers and suppliers lose. Monopoly meets monopsony.

A report by US House Democrats accused Amazon of using monopsony power in its warehouses to 'depress wages' in local markets (Nadler and Cicilline, 2020, 303-304). They described Amazon as acting like a monopsony because of the way it pressured third-party suppliers to lower their prices if they wanted to sell products through the behemoth's platform. These were the characteristics of a monopsony, according to the Democrats, because of Amazon's market dominance, interactions with suppliers and behaviour in the labour market. Perhaps this is a case of the company town gone global.

International evidence on employer power

Evidence from the US, UK and Europe has demonstrated that increases in labour market concentration are associated with lower wages (Benmelech, Bergman and Kim, 2022; Azar, Marinescu and Steinbaum, 2022; Abel, Tenreyro and Thwaites, 2018; Jarosch, Nimczik and Sorkin, 2019).

Without market power, economic theory would predict that wages are equal to a worker's marginal product of labour – the increase in output as additional labour is used. With market power, an employer can set lower wages, meaning a worker is producing at a higher level than they are being paid. Studies of the US and Europe find that the impact is larger in rural labour markets, potentially reflecting fewer opportunities and larger employer power outside metropolitan areas.

Economists have long noted that people in cities tend to earn more than those in regional areas. My own research finds that when someone moves from a rural area to a major Australian city, their annual income rises by 8 per cent (Leigh, 2014, 84-85). The economics of monopsony suggests that an important part of the urban wage premium can be explained by greater employer competition in denser labour markets (Hirsch *et al*., 2022).

Strikingly, while Adam Smith did not devote much attention to the issue of monopsony power, he did highlight this particular issue. In *The Wealth of Nations*, Smith wrote:

> 'It generally requires a greater stock to carry on any sort of trade in a great town than in a country village. The great stocks employed in every branch of trade, and the number of rich competitors, generally reduce the rate of profit in the former below what it is in the latter. But the wages of labour are generally higher in a great town than in a country village. In a thriving town the people who have great stocks to employ frequently cannot get the number of workmen they want, and therefore bid against one another in order to get as many as they can, which raises the wages of labour, and lowers the profits of stock. In the remote parts of the country there is frequently not stock sufficient to employ all the people, who therefore bid against one another in order to get employment, which lowers the wages of labour and raises the profits of stock.' (Smith, 1776, Ch 9).

In aggregate, monopsony power may have a large impact. A recent US paper found that workers produce 21 per cent more than they earn, suggesting significant monopsony power (Azar, Berry and Marinescu, 2022). In other words, for every $1.21 of value that employees produce, they are paid $1 in wages. While the level of employer concentration appears to be fairly stable over time in the US, the negative relation between concentration and wages has been increasing in magnitude over time (Benmelech, Bergman and Kim, 2022). In areas with few employers, those firms are increasingly wielding their power to suppress wages.

Australian evidence on employer power

In Australia, as in many other nations, wage growth has been slow. The average weekly full-time wage in November 2022 was $1,808 a week. In 2022 dollars, the average wage in November 2012 was $1,790 a week. In other words, after inflation, Australian workers earned only 1 per cent more in November 2022 than they did in November 2012. Fundamental determinants such as productivity and inflation expectations have played a role, but even so growth has still been lower than expected (Andrews *et al.*, 2019).

At the same time, the rate at which people move between employers has also fallen. Forget what you have heard about the joys of a 'job for life'. Across a career, the biggest average wage gains come when people switch employers. For a worker who is keen for a pay rise, the best chance is to get a new job – or at least a new job offer (Deutscher, 2019).

Incidentally, people who switch roles will not be hurting their co-workers. When some employees switch jobs, it also tends to mean better wages for stayers, as they can leverage the option to switch when negotiating with their employers.

Why have job switching rates fallen? And why has wage growth been so slow? Increases in employer concentration, and larger impacts of employer concentration on wages could explain both phenomena. Research by Jonathan Hambur considers whether labour market concentration lowered wages growth pre-COVID-19. The paper explores the trends in and impacts of monopsony power in Australia (Hambur, 2023).

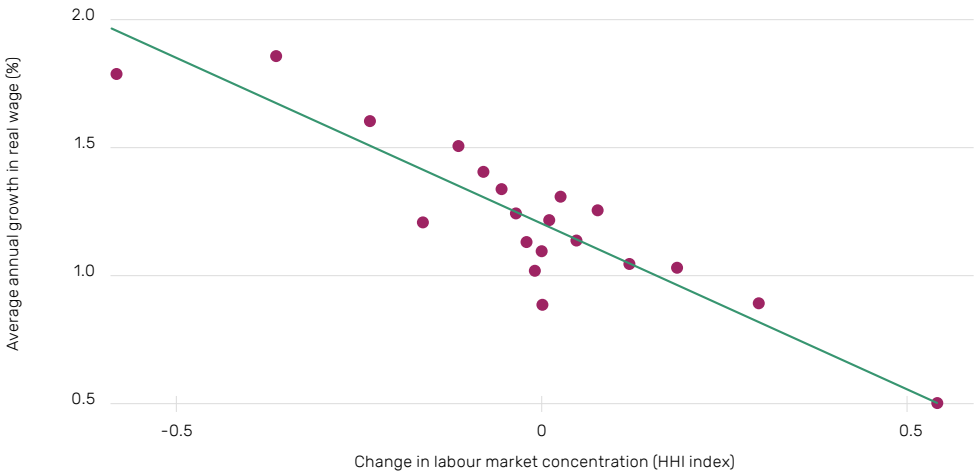
Defining a labour market as the intersection of a region, and an industry, the study uses the comprehensive de-identified Linked Employer-Employee Dataset (LEED), which contains the near universe of employees, linked to their employers via annual Pay-As-You-Go (PAYG) statements. The data contain earnings, industry, location and other demographic characteristics. Hambur's analysis spans the period 2005 to 2016. It covers the market sector, dropping the health, education and public administration industries.

In order to measure concentration in labour markets across the country, the analysis separates Australia into 290 working zones (for example Canberra, Kalgoorlie, and Townsville) and 190 industries (for example coal mining, residential building construction, and life insurance). For example, it might look at the concentration of grocery store employers in Wagga Wagga. Altogether, the analysis separates Australia into around 25,000 local labour markets per year.

Employment concentration is measured using the Herfindahl-Hirschman Index (HHI), which is calculated by squaring each firm's market share and then summing all the squares. The HHI ranges from zero for a perfectly competitive market to one for a monopsony employer (such as a one-company town). Where the data permits the calculation of the HHI, it is generally regarded as being more informative than the market share of the largest firms. This is because the four firm concentration ratio is insensitive to concentration within the top four firms, and is similarly insensitive to concentration within the remaining firms in the industry.

Hambur's research reveals that in Australia, wages tend to be lower in more concentrated markets. Within markets where concentration rose, real wage growth over the decade was significantly lower (Figure 1).

Figure 1: Employment market concentration and wage growth, change from 2005 to 2016



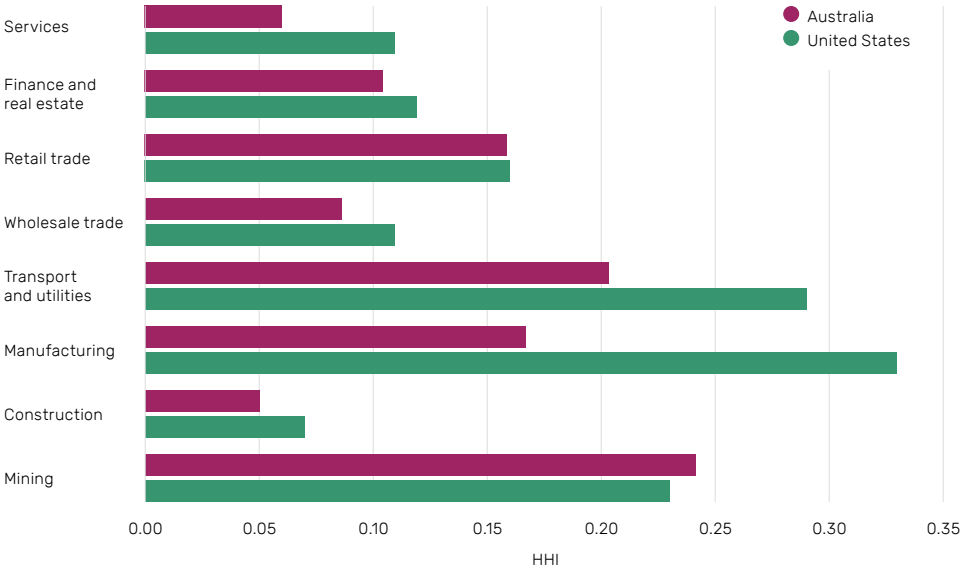
Source: Hambur (2023)

On average, larger firms are more productive. The turnover per employee is likely to be lower at a corner store than at a big supermarket. Thanks to more capital, more efficient management systems, and the benefits of scale, larger firms tend to be more productive, and tend to pay higher wages.

But when a labour market is more concentrated – or when a firm has a larger share of the employment market – the gap between the value a worker produces, and the wage they are paid, tends to grow. This means larger firms set lower wages once other factors such as productivity are taken into account.

While the level of concentration in Australia is lower than in the US, there is substantial variation across labour markets. Figure 2 shows the pattern of market concentration across industries and compares the results with those in the US. Employer concentration in the Australian labour market is highest in the mining industry, manufacturing, transport, utilities and retail trade. For most industries, concentration is higher in the United States. But in the case of mining, employer concentration is slightly higher in Australia.

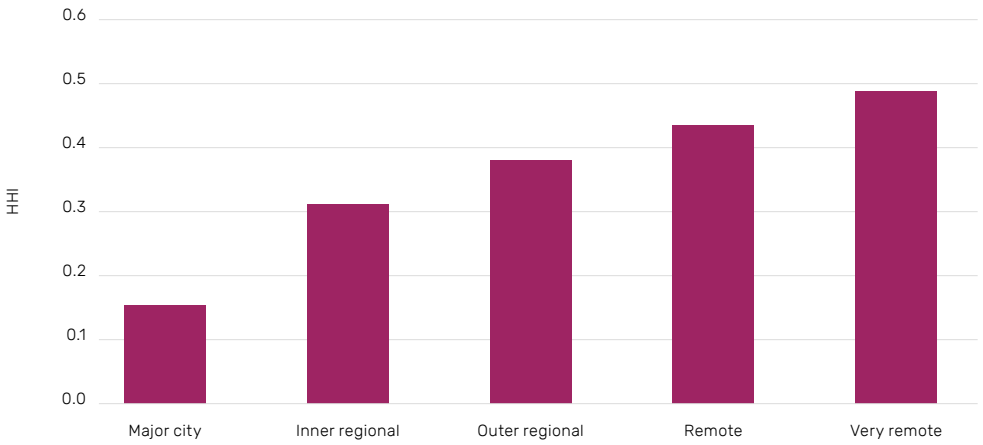
Figure 2: Employment weighted average HHI by sector, 2012



Notes: Services include Accommodation and Hospitality, Information, Media and Technology, Professional Services, Administrative Services, Arts & Recreation, and Other Services. Interpretation of the results for mining might be affected by fly-in fly-out work. Figure shows HHI measures in 2012 given data availability of the US comparison.
Source: Hambur (2023); Rinz (2018).

Figure 3 looks across regions in Australia, estimating the average level of employer concentration in cities, regional areas and remote Australia. It shows that employment is twice as concentrated in inner regional areas as it is in major cities. In remote areas, employment concentration is three times as high as in major cities. This suggests that monopsony power may be a particular problem for those living outside major cities.

Figure 3: Unweighted average employment HHI for 2005-2016, by remoteness



Notes: Remoteness based on ABS remoteness structures.
Source: Hambur (2023)

The Treasury analysis shows that while labour markets in Australia have not become more concentrated over time (Figure 4), the negative impact of any given level of concentration on wages has increased. For any given level of concentration, its negative impact on wages has more than doubled compared to the mid-2000s.

Because of this – and despite no increase in concentration – employer market power could be a factor that has influenced the slow growth of wages over the last decade. The greater impact of concentration may have lowered wages by around 1 per cent from 2011 to 2015 (Hambur, 2023). This could help explain why the share of productivity gains passed through to workers has declined modestly over the past 15 years (Andrews *et al.*, 2019; e61 Institute, 2022).

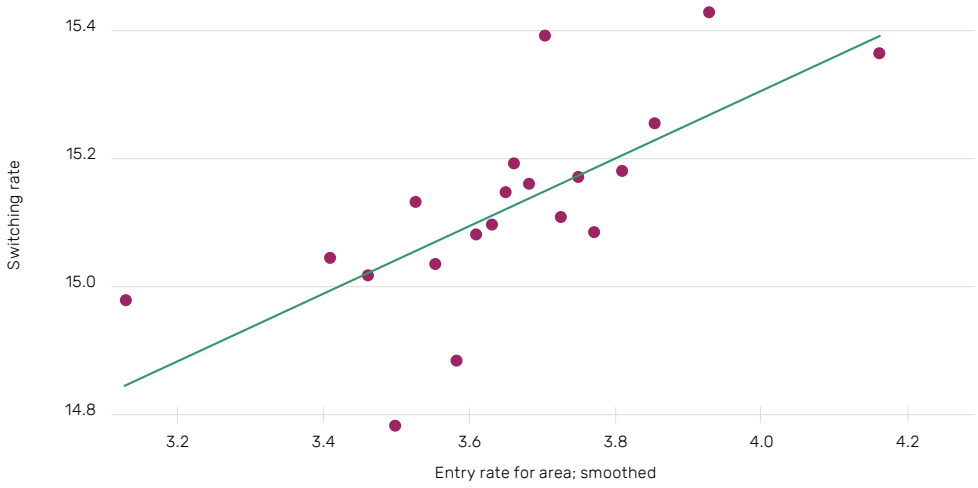
Figure 4: Average employment HHI over time

Source: Hambur (2023)

The Treasury analysis finds that declining firm entry and declining economic dynamism appear to be important factors contributing to the increased impact of concentration. When firms enter, they tend to compete and poach staff away from existing firms to grow. As such, they create better outside options for workers.

When entry rates are high, people are more likely to switch jobs, and this relationship is driven by people moving from incumbent to young firms (Figure 5). So, when entry rates are higher, even if markets are still somewhat concentrated, there are more outside options for workers, lessening the effects of concentration on wages.

Figure 5: Entry rate vs. job-to-job switching by SA4 for 2002-2016



Source: Hambur (2023)

Overall, Hambur (2023) provides new evidence on monopsony power in Australia, adding to the growing literature on dynamism, competition and market power.

It has long been known that monopolies hurt the average person. By transferring resources from consumers to shareholders, they make the typical family worse off, and worsen inequality (Gans *et al.*, 2019). But now we can see another effect. If those monopolies also exert monopsony power, then they may drive down wages. Workers may get a smaller pay packet because of monopsony power, and then find that when they try to spend it, they get less for their money because of monopoly power. It is a double squeeze.

Dynamism, competition and market power

In 2022, I delivered four major speeches on economic dynamism and competition.

In the Gruen Lecture at the Australian National University (Leigh, 2022a), I presented new evidence on the decline in market dynamism. Thanks to extraordinary new data, we are now able to analyse the economy at a fine-grained level and look at changes over time. This reveals a troubling picture. Over recent decades, the new business start-up rate has declined. Market concentration has risen. The biggest companies on the Australian share market have barely changed in a generation.

In the Warren Hogan Lecture at the University of Sydney (Leigh, 2022b), I delved into three moments in history where countries had experienced major boosts in economic productivity as a result of competition reform. These were the US Sherman Act and Teddy Roosevelt's vigorous enforcement of competition laws, Germany and the post-war breakup of industrial giant IG Farben, and Canada's 1985 competition reforms.

At a Sydney Ideas talk marking the 30th anniversary of the Hilmer reforms (published as Leigh, 2023), I discussed the competition reforms spearheaded by Fred Hilmer and Paul Keating, which led to the removal of anti-competitive regulations, the creation of a national electricity market and the prioritisation of competition across governments. The changes contributed to the 1990s surge in productivity. On one estimate, the typical Australian household is $5,000 a year better off as a result.

And at the Sydney Institute (published as Leigh, 2023b), I explored the issue of price mark ups – noting that the gap between firms' cost of production and the price they charge has been steadily rising. It is a finding that is quite consistent with the growth in market concentration, and highly relevant at a time when inflation is surging around the world. Bigger mark ups did not cause inflation problems, but they are one of the reasons that people are paying more than they should for everyday necessities.

Alongside this, I am pleased to see a growing focus among researchers on issues of market dynamism. Work by the new e61 Institute has highlighted the negative implications of declining dynamism on productivity and, therefore, wages (e61 Institute, 2022; Andrews *et al.*, 2022).

Monopsony power suggests another mechanism through which declining business dynamism might have lowered wages growth. The labour market today is less dynamic than in the past. Treasury estimates that the share of workers starting a new job in the previous three months declined from an average of 8.7 per cent over the period from February 2002 to May 2008 to 7.3 per cent from August 2008 to November 2019.

Monopsony power has weakened workers' outside options and bargaining power, made labour markets less competitive and, therefore, lowered workers' wages. A more dynamic and competitive economy will help improve labour market outcomes.

Tackling monopsony power

I turn now to consider what might be done. In the area of monopsony power, the Australian Competition and Consumer Commission has in the past taken on misconduct by firms with regard to their suppliers.

One such action arose in Victoria in 1994 and 1995. Safeway Supermarkets had a policy that when a bread supplier sold bread to independent retailers at a lower price than their stores, Safeway temporarily stopped purchasing from that bread supplier. The competition watchdog was largely successful in court, determining that misuse

of market power could apply to suppliers as well as customers – in other words that competition law applied to monopsonists as well as monopolists (Australian Government Solicitor, 2003).

Other actions against anti-competitive conduct by suppliers have involved unfair contract terms. In one case, chicken processors were imposing contracts on their suppliers which allowed them to vary supply agreements or impose additional costs. In another, potato processors had contracts with farmers that let them unilaterally vary the price and prevent suppliers from selling to other processors.

Wine makers were also found to be abusing their power over grape growers by including provisions that allowed them to unilaterally vary the contract and prevent them seeking legal or financial advice.

Another instance of monopsony power arose from the decision by dairy processors Fonterra and Murray Goulburn to retrospectively cut their suppliers' prices – a process known as 'clawback'. This spurred the creation of the Dairy Code of Conduct, and a class action that was settled in 2022 with Fonterra agreeing to pay suppliers $25 million in compensation.

In a note prepared for the OECD last year, the Australian Competition and Consumer Commission concluded 'our market studies in a range of sectors demonstrate that buyers' power, and the inequality of bargaining power that underlies it, creates real risks of potential harm to the effective operation of markets' (ACCC, 2022). The Commission pointed to enforcement action under fair trading laws and industry-specific regulation as a check on buyers' power.

The Australian Competition and Consumer Commission has also considered monopsony power in other contexts. When assessing mergers, it can take account of buyer power – and has done so in relation to proposed mergers between food processors and food suppliers. The Commission recently issued a class exemption for businesses with turnover below $10 million to collectively bargain with suppliers or customers – providing a safe harbour for their dealings with customers who may have monopsony power. The Commission has also used the unfair contract terms provisions in the legislation to obtain an enforceable undertaking from a franchisor that was preventing ex-franchisees from setting up competing businesses. And in its fifth Digital Platform Services Inquiry Report, the Commission proposed new powers that could rein in abuses of monopsony power by technology platforms.

However, Australian competition law specifically carves out matters relating to earnings, hours or conditions of employment (*Competition and Consumer Act* 2010, s51(2)). So I have been unable to identify instances in which the competition watchdog has taken enforcement action against firms engaged in labour market collusion.

This contrasts with the United States, where Assistant Attorney General Jonathan Kanter told a 2022 Senate committee hearing:

> 'One area where we have been particularly active is prosecution of criminal conspiracies among employers. Labor market competition is essential to a properly functioning market-based economy. Free market

> competition for workers can mean the difference between saving for a home, sending kids to college, and leaving a toxic workplace, or being forced to stay. It also means free market competition for entrepreneurs, small business owners, and honest businesses of all kinds who compete to attract and retain talented workers…
>
> 'Criminal conspiracies in labor markets include wage fixing and allocation agreements that limit worker mobility or suppress wages. … Outside of the reach of a labor exemption, agreements by employers to restrict labor market competition is entitled to no special treatment under the U.S. antitrust laws. We will continue to prosecute collusion in labor markets that serves no other purpose than to cheat workers of competitive wages, benefits, and other terms of employment.
>
> 'In the last two years, the [Antitrust] Division has brought six criminal cases … labor market collusion is a felony under the Sherman Act. As one court explained: "employees are no less entitled to the protection of the Sherman Act than are consumers" and "anticompetitive practices in the labor market are equally pernicious — and are treated the same — as anticompetitive practices in markets for goods and services".' (Kanter, 2022)

A particular concern in the labour market is non-compete and no-poach clauses. A non-compete clause (also known as a restrictive covenant) is one in which an employee agrees not to work in a similar industry or area for a period of time after their employment ends.

On one estimate, 18 per cent of US workers are currently subject to a non-compete clause, and 38 per cent have been subject to one at some point in their career (Starr, Prescott and Bushara, 2021). Non-compete clauses are not restricted to high-wage jobs. In the US, non-compete clauses bind 11 per cent of landscapers, 12 per cent of construction workers, 18 per cent of installers and 19 per cent of personal care workers (Starr, 2019). Even in US states where non-compete agreements are unenforceable, many workers end up signing contracts containing such clauses.

No-poach clauses have a similar effect to non-compete clauses, by constraining employers from engaging workers who have recently been employed at a competing outlet. From the 1980s to the 2010s, a group of Silicon Valley companies – including Pixar, Apple, Google, Adobe and Intel – colluded in an agreement to not attempt to hire each other's technology workers (Ashenfelter *et al.*, 2022). Only a lawsuit from the Department of Justice finally ended the conspiracy.

No-poach clauses also turn out to be ubiquitous in franchising. Analysing US franchise agreements, researchers found that no-poach clauses existed in 58 per cent of major franchisors' contracts, including McDonald's, Burger King, Jiffy Lube, and H & R Block (Krueger and Ashenfelter, 2022).

In Australia, I have been unable to find any surveys of the prevalence of non-compete clauses, though respected labour lawyers tell me they are commonplace. One gave me the example of a minimum wage worker in the early childhood sector whose contract included a non-compete clause.

On no-poach clauses, the only evidence comes from an exercise that I conducted in 2019, writing to all Australia's major franchisors to ask whether their standard franchise agreement included a no-poach clause (Leigh, 2019).

Among them, McDonald's, Bakers Delight and Domino's wrote back to me to say that their standard clauses prevent franchisees from hiring workers in other stores. For example, McDonald's told me that each franchised store in Australia must sign a contract that says 'neither licensee nor principal shall employ or seek to employ any person who is at the time employed by McDonald's or by licensor or by any of the subsidiaries or associated or related companies of McDonald's or licensor or by any person who is at the time operating a McDonald's restaurant, or otherwise induce, or attempt to induce, directly or indirectly, such person to leave such employment'.

Most McDonald's workers would have no idea about this clause, which directly affects their ability to get a better paying job at another McDonald's store. To their credit, at least McDonald's, Bakers Delight and Domino's replied. Many of the large franchise chains simply ignored the request. Unlike the US, there is no requirement for their franchise contracts to be publicly lodged, so we cannot know the full extent to which other franchise chains are reducing the competition for workers.

What can policymakers do?

In the US, the Federal Trade Commission has concluded that scrapping non compete clauses could boost worker earnings by almost US$300 billion, and close racial and gender pay gaps by up to 9 per cent.

In January 2023, the Federal Trade Commission proposed a total ban on non-competes across the US economy (FTC, 2023). Announcing the proposal, Federal Trade Commission chair Lina Khan said:

> 'The freedom to change jobs is core to economic liberty and to a competitive, thriving economy. Non-competes block workers from freely switching jobs, depriving them of higher wages and better working conditions, and depriving businesses of a talent pool that they need to build and expand. By ending this practice, the FTC's proposed rule would promote greater dynamism, innovation, and healthy competition.'

In Australia, cases on the validity of non-compete clauses have been heard before various state supreme courts (the issue does not appear to have arisen in Fair Work Commission hearings). These cases establish that non-compete clauses are only enforceable if they can be shown to reasonably protect a legitimate business interest. In judging such cases, courts may consider the duration, geographic area and industry reach of the non-compete clause (see for example NSW Supreme Court, 2016; WA Supreme Court, 2018).

On this basis, some have argued that the deterrent effect of Australian non-compete clauses on worker mobility is limited. However, this ignores the findings from US research that even in states such as California, where non-compete clauses are unenforceable, they still exert an effect (Starr, Prescott and Bishara 2020).

There are several reasons for this, including workers not being perfectly aware of all their legal rights, and the financial risk to an employee of facing off against their former employer in court. Lawpath, a provider of online legal advice to small businesses, advises employers 'It is easy to insert [a non-compete clause] into an employment contract' (Ward, 2023).

Even if it might turn out to be unenforceable, why wouldn't a rational employer try to block competitors? Given the growing body of evidence about the way that non-compete clauses hamper job mobility and wage growth, I have asked the Australian Competition and Consumer Commission and Treasury for advice on the competitive impacts of non-compete clauses and any action the Australian Government should take in response.

In 2022, I introduced into parliament a ban on unfair contract terms, and the bill subsequently passed into law. As the ban only applies to consumer and small business contracts, which do not include employment contracts, this new provision likely does not apply to non-compete clauses.

Nonetheless, you could readily argue that the principle still holds. Why should we ban unfair contract terms when it comes to a big business contracting with a small businesses, yet allow unfair contract terms when it comes to a big business contracting with an individual employee?

As to no-poach clauses in franchise agreements, they could not be struck down as an unfair contract term. That is because the disadvantage is to the employee, who is not a party to the franchise agreement.

But at a minimum, it would be useful to know more about the prevalence of these clauses. I encourage Australia's large franchisors to publicly disclose whether their standard agreements contain no-poach clauses, and, if so, to justify why they are in the public interest.

Unions also have a critical role to play in curbing monopsony power. In both the US (Benmelech, Bergman and Kim, 2022) and Australia (Hambur, 2023), the impact of market concentration on wages is smaller when union membership rates are higher.

Yet over recent decades, the share of Australian workers who are union members has steadily declined, dropping from 41 per cent in 1992 to 12 per cent in 2022 (ABS, 2022). Union membership is particularly low in the private sector, averaging 10 per cent in construction and manufacturing, 8 per cent in retail trade, 6 per cent in the financial sector, and 2 per cent in accommodation and food services. Not since 1901 has the Australian unionisation rate been as low as it is today (Leigh and Terrell, 2020).

Deunionisation is not the primary reason for a decade of wage stagnation. But at a time when the market power of employers is growing, declining union membership risks tilting the playing field further away from workers.

As the chant goes, 'the workers, united, will never be defeated'. But in the modern era, employers are increasingly united, while workers are more fragmented than at any

time in the past 120 years. Providing employees with more opportunities to collectively bargain for better pay and conditions would be a useful check on monopsony power.

Conclusion

Two young fish are swimming along one day when they meet an older fish. As they pass, the older fish happily greets them with 'hey guys, how's the water?'. As the older fish swims off, one of the younger fish turns to the other and asks 'what the heck is water?'.

To many Australian workers, monopsony is the water we swim in each day. Yet unless a wise fish like Johnny Cash or Joan Robinson points it out, it is easy to miss the pernicious impact that monopsony power has on the economy.

In this article, I have outlined some of the facts about monopsony power in Australia. Concentrated labour markets are a particular problem in Australian regions. While labour markets in Australia have not become more concentrated over time, the negative impact of any given level of concentration on wages has increased.

For any given level of concentration, its negative impact on wages has more than doubled compared to the mid-2000s. On one estimate, the greater impact of concentration may have lowered wages by around 1 per cent from 2011 to 2015. In turn, this could help explain why the share of productivity gains passed through to workers has declined over the past 15 years.

Monopsony power is also closely connected with firm entry. In areas with fewer new firms, people are less likely to switch jobs. And we know how crucial job switching is to wage growth.

In the United States, strong enforcement action has seen a number of prosecutions of cartels that were aiming to suppress wages. That country's competition regulator has also proposed a nationwide ban on non-compete clauses, arguing that this will boost wages and narrow the gender pay gap.

While the Australian Government has not reached a fixed view on whether new action is needed to tackle the impact of market concentration on wages, we are watching these developments closely and seeking advice from the key economic and competition agencies.

A focus on monopsony has been a long time coming. It took economists too long to recognise the problems of monopsony power, and the way that monopoly and monopsony can be two sides of the same dodgy coin. Sometimes those who have championed workers' rights have been sceptical of competition reforms, seeing them as threatening a race to the bottom on wages.

In fact, as Joan Robinson has shown us, uncompetitive markets do not just hurt consumers, they can hurt workers too. It is another reason policymakers should be working to shape a more dynamic economy, a more productive corporate sector, and a fairer society.

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Relocation choices of Australian General Practitioners

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Abstract

The aim of this paper is to examine the relocation choices of Australian General Practitioner (GPs) using data from the first ten waves of the *Medicine in Australia: Balancing Employment and Life* (MABEL) dataset. Unlike previous research on this topic, our focus extends to the role of household-related variables and broader socioeconomic conditions influencing relocation decisions. We find that changes in a GP's work arrangements, particularly in the acquisition of on-call duties as well as deterioration in the area's living conditions are associated with an increase in the probability of relocation, particularly rural-to-city relocations. Our findings demonstrate that the channel through which individual and professional circumstances lead to relocations is more nuanced than straightforward changes in earnings or workload. They also focus on individual-level factors on relocation decisions are less pronounced in comparison to changes in the overall attractiveness of the location in question.

JEL Codes:
Keywords: relocation choices, Australian General practitioners, panel data

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Introduction

The shortage of rural doctors and the uneven distribution of general practitioners has been a recurring theme in research and policy discussions in Australia over the past two decades (Department of Health, 2016). Furthermore, given the concentration of the Australian population along coastal cities and the logistical difficulties of travel, meeting the medical needs of its rural population[1] has been a unique challenge for Australia despite an adequate or, in certain instances, oversupply of doctors in the city areas (Health Workforce Australia, 2014). According to the Australian Institute of Health and Welfare (2015), the number of medical practitioner FTE per 100,000 population has consistently been lower in rural regions by a factor of approximately 1.6 as compared to the major cities.

Several initiatives have been implemented by policy makers to address this inequity in medical care access in rural areas. These include the *Bonded Medical Scheme* (whereby qualifying medical students would have their university tuition covered if they agreed to work in rural areas designated as experiencing doctor shortages for a minimum period of time (Department of Health, 2017)); and the recruitment of foreign trained doctors under similar stipulation (McGrail *et al*., 2017). However, these policies have not proven to be long-term solutions as evidenced by the continuing efforts of policy makers to address this issue (see McGrail *et al*., 2017; Department of Health, 2016).

Against this backdrop, the aim of this paper is to use the longitudinal *Medicine in Australia: Balancing Employment and Life* (MABEL) dataset to examine the relocation choices of General Practitioners (GPs) in Australia, focusing on the role of household related factors, specifically children's education, partner's employment and housing prices. The MABEL dataset is a yearly survey of Australian medical professionals that provides comprehensive information on a range of doctors' attitudes to work, job characteristics, work settings, household finances and circumstances (Taylor, *et al*., 2016). One of MABEL's stated aims is –

> To better understand how changes in personal and professional circumstances influence the decision to stay in, or leave, rural and remote areas (*Medicine in Australia: Balancing Employment and Life*, 2017)

Since the availability of the MABEL dataset, research has focused on an exploration of the roles played by factors such as job satisfaction, work activity, and rural/non-metro background in influencing doctor's location selection, retention and mobility. The focus of previous research from Australia on the retention rates and mobility

1 For convenience, the term 'rural' is used in this paper to encompass 'regional', 'rural' and 'remote' areas as defined by the Australian Bureau of Statistics' (ABS) *Australian Standard Geographic Classification (ASGC) Remoteness Structure* (ABS 2011).

patterns of Australian General practitioners (GPs) has been on job satisfaction (Joyce and Wang, 2015), role of age-profiles (Mu, 2015), career stage (McGrail and Russell, 2016; McGrail and Humphreys, 2015) and job satisfaction (O'Sullivan *et al.*, 2017). While all the above studies have used the MABEL dataset that we use in this paper, with the exception of McGrail and Humphreys (2015) and McGrail and Russell's (2016), their analysis is cross-sectional with one wave of the MABEL dataset.

Specifically, McGrail and Humphreys (2015) examine the issue of medical workforce maldistribution in rural areas in terms of doctors' mobility patterns. Using five waves of the MABEL data, they find that: (i) On average, GPs have a mobility rate of 4.6 per cent between 2008 and 2012 based on the seven-category Modified Monash Model scale, (ii) there is no association between mobility and variables such as gender and family status, (iii) age and duration of stay play a large role; (iv) younger GPs who have been in their current locations for less than three years are most likely to relocate; and (iv) the observed rate (per year) of moving from a metro to non-metro region is 1 in 75, in contrast to 1 in 31 in the reverse direction.

O'Sullivan *et al*. (2017) use the 2014 MABEL survey to examine the association between job satisfaction and geographical location for medical specialists. They find no relationship between job satisfaction and location selection and hypothesise that it is due to self-selection.

McGrail and Russell's (2016) study uses the panel MABEL dataset from 2008 to 2013 to explore the association between a medical professional's career stage and rural employment. They find that gender has no effect in the likelihood of working in a rural area; that rural origin is positively and significantly associated with rural practice; and of the graduates who choose to become GPs, proportionally fewer at early and establishing career stages work rurally relative to those at a later career stage. Similarly, Joyce and Wang (2015) use the 2011 MABEL to identify patterns of job satisfaction, and Mu (2015) examines a complementary question by looking at the location decisions of GPs with respect to their age profiles.

Finally, McIsaac *et al*. (2019) examine the role of financial factors in Australian GPs' mobility and location choices. The authors find that, even when a financial incentive is present, established GPs are not mobile generally. This suggests that location choice is multifaceted and financial considerations are but one aspect. The explanatory variables used in McIsaac *et al*. (2019) help to inform the selection of potential regressors in this paper.

Our paper contributes to knowledge in three important ways. Firstly, we hypothesise that the decision to relocate or otherwise is typically made in a household context and not on an individual basis. In other words, households' location choice is based on maximising the utility of all household members, subject to both monetary and non-monetary constraints. This is drawing on previous theoretical models which have proposed that relocation decisions are typically made taking into account the household circumstances (Pingle, 2006; López-Ospina, Cortés, and Martínez, 2017; Shapira, Gayle, and Graham, 2019). Secondly, in the Australian context, housing typically represents the largest household asset. Therefore, relocation decisions will invariably take into account

the relative attractiveness of the area. In this respect, we use the Socio-Economic Indexes for Areas (SEIFA) that has been developed by the Australian Bureau of Statistics (https://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa). The SEIFA uses the census to rank areas in Australia according to their relative socioeconomic advantage and disadvantage, which allows us to account for socioeconomic changes in an area including changes in housing prices. Thirdly, we use the panel aspect of the ten wave dataset to provide a more nuanced view of changes in GP relocation over time, by accounting for unobserved household specific factors.

The rest of the paper is organised as follows. In Section 2, we describe the data used in the empirical analyses. This is followed by Section 3 where we describe the Empirical strategy. Section 4 describes our results, and Section 5 presents the main conclusions.

Data

The data for this analysis come from the *Medicine in Australia: Balancing Employment and Life* (MABEL) dataset. MABEL is a large, yearly longitudinal survey of Australian doctors beginning from 2008 that is collected and maintained by Melbourne Institute: Applied Economic and Social Research at the University of Melbourne. The MABEL panel survey sought to facilitate and promote research into the Australian medical labour market including its composition, trends in labour supply, work-life balance issues and effects from policy changes (The University of Melbourne, 2018). The data has a large sample size and its respondents are representative of the wider Australian medical community with respect to age, location, doctor type and other attributes (Szawlowski *et al*., 2019).

The first wave, conducted in June 2008 comprised of 10,498 medical practitioners from the Australian Medical Publishing Company's (AMPCo) database. Between waves, participant attrition was dealt with through the addition of top-up samples, most often new graduates and international workers. Whilst the top-up samples help maintain a consistent sample size, given MABEL is the only panel survey of medical practitioners internationally, it provides a unique opportunity to study changes over time.

The focus of our study is on primary care doctors, i.e. general practitioners (GPs). Our sample includes 7,744 individual GPs across ten waves from 2008 to 2017. On average, each GP participated in 4.2 waves and each wave consists of 3,204 GPs. There are a total of 32,221 GP-Wave observations.

Our sampling strategy requires, first, that the GPs are in clinical practice at the time of survey and, second, that there are no non-responses on questions critical to our analysis (such as practice location, gender, marital status, earnings, work hours and years in practice).

Outcome Variables

We construct four outcome variables for our empirical analysis: (i) **I(Rural)** – a binary variable which takes on a value of 0 if the GP's main practice at wave t is inner regional or outer regional, remote or very remote; and 1 otherwise. This outcome variable is used to evaluate the correlations between locality and the covariates for a given point in time; (ii) **Number of Relocations** is a continuous variable that records the number of relocations a GP experiences during his/her survey years. This variable ranges from 0 to 4, inclusive. This outcome variable is used to assess the relationship between relocation frequencies and the covariates across time; (iii) **I(Relocation)** is the binary version of **Number of Relocations**, where 1 equates to one or more relocations and 0 otherwise. This variable is used as a robustness check given the small number of GPs who experienced more than one relocation. Finally, (iv) **Relocation at t** is a categorical variable that records the direction of relocation at wave t with respect to the preceding year. Specifically, **Relocation at t** records "City → Rural" if **I(Rural)** refer to Rural at wave t and City at wave t-1; it similarly records "Rural → City" if the reverse is true; otherwise it records "No change". This variable is most granular by operating at the GP-wave level and is the main outcome variable is the subsequent causal analysis.

The relocation information is taken from the Australian Standard Geographical Classification (ASGC) (Australian Bureau of Statistics 2018b) which contains three location categories[2]: (i) major city, (ii) inner regional and (iii) outer regional, remote or very remote. In our sample, across all person years, the majority of doctors (62 per cent) reside in a major city, 22 per cent reside in an inner regional area and 16 per cent reside in areas classified as outer regional, remote or very remote (Table 1).

Table 1. ASGC classification of main place of work

ASGC classification of main place of work	Frequency	%
Major city	20,016	62.12
Inner regional	7,157	22.21
Outer regional, Remote or Very Remote	5,048	15.67
Total	32,221	100

Source: MABEL, authors' calculations.

2 The inability to further distinguish between states and territories or to attain more granular classification (e.g. at the postcode or suburb level) limit the scope of this analysis.

The transition probabilities presented in Table 2 reveal a low incidence of relocation between different ASGCs (Table 2, Panel A). For example, in any given year between 2008 and 2017, 98 per cent of GPs in major cities did not relocate in the following year. This low mobility rate also applies to GPs in regional or remote areas. From Table 2 (Panel A), we further observe that 91 per cent in each group remained at their location from one year to the next.

It is important to reiterate that relocation, as defined in this paper, refers to a relocation between different classification levels of ASGC. A GP who moves from Sydney to Melbourne for example (both locations are classified as "major city") would not register as having relocated. Therefore, relocation here can be interpreted as a 'major relocation' involving a transition from a metropolitan to a rural area, or vice versa.

Table 2. Transition probabilities

Panel A: Transition probability of relocations (original ASGC classifications)

	At wave t+1:		
At wave t:	Major city	Inner regional	Outer regional, Remote or Very Remote
Major city	97.53	1.55	0.92
Inner regional	6.35	91.18	2.47
Outer regional, Remote or Very Remote	5.26	3.59	91.15

Panel A: Transition probability of relocations (combined ASGC classifications)

	At wave t+1:	
At wave t:	City	Rural
City	97.53	2.47
Rural	5.9	94.1

Source: MABEL, authors' calculations.

Using I(Rural), we observe only 2.5 per cent of the sample records a city to rural relocation in a given year. Further, based on the transition probabilities, a GP is 2.4 times more likely to relocate from a rural to a city area than the reverse. This is consistent with the qualitative observations concerning the difficulty of supplying GPs to rural areas – not only are they reluctant to work there in the first place but they are also, on average, more likely to leave for the cities even when they are already practising in rural areas (Table 2, Panel B).

Table 3 (Panel A) presents the outcome variable **Number of Relocations**, by displaying the total number of relocations per GPs across all survey years, irrespective of direction. Table 3 (Panel B) displays the frequency of city-to-rural versus rural-to-city relocations in a given year in the full sample. This is the outcome variable **Relocation at t**.

Table 3. Relocation trends

Panel A: Overall number of relocations		
Overall no. relocations	Frequency	%
0	6,996	90.34
1	609	7.86
2	117	1.51
3	14	0.18
4	8	0.1
Total	7,744	100
Panel B: City to rural vs. Rural to city relocations		
Relocation at t-location at t vs t-1	Frequency	%
No relocation	31,304	97.15
City-->Rural	379	1.18
Rural-->City	538	1.67
	32,221	100

Source: MABEL, authors' calculations.

From Table 3, we observe that on average the yearly incidence of relocation is exceedingly low. On average, only 1.2 per cent of GPs movements are from city to rural, and 1.7 per cent move in the opposite direction. Although not an exact comparison, for context, the ABS' measure of overall internal migration that is nearest to our definition suggests a steady annual rate of 5 per cent from 2006 to 2016 (Australian Bureau of Statistics, 2018a).

Explanatory variables

In Table 4 we present the descriptive statistics for all the variables included in our empirical analysis. From Table 4 we observe that about 95 per cent are Australian citizens, 22 per cent have an overseas qualification, 86 per cent of GPs are married and 58 per cent have at least one dependent child, demonstrating that the question of relocation may be more appropriately regarded as a decision made within a household rather than by an individual.

In our sample 51 per cent of GPs are female, and the average respondent is well established with more than two decades of work experience (with a standard deviation of one decade). Interestingly, while 80 per cent report satisfaction with current workload, a

greater 85 per cent would like to change the hours of work – suggesting that the majority of GPs would likely prefer a decrease in work hours even though there is no widespread discontentment at the current average workload.

As previously mentioned we use the SEIFA Index (Australian Bureau of Statistics, 2011), a relative measure constructed by the ABS to rank areas in terms of their relative socioeconomic advantage and disadvantage. SEIFA indexes use five yearly census data including data on income, education, employment, occupation and housing. The distribution is then divided into ten deciles using Principle Component Analysis (PCA). As previously highlighted, these factors are likely to be significant in determining the decision to relocate.

From Table 4 we observe a reasonably even distribution of GPs by SEIFA deciles, but the highest number of GPs reside in the bottom two deciles. In terms of workload, nearly 80 per cent of the sample appears to be satisfied with their overall workload but a vast majority would like to change their workload (85 per cent). Furthermore, around 40 per cent of the GPs report being on call, 32 per cent work in an area of workforce shortage, and 13.7 per cent are subject to location restrictions.

Table 4. Descriptive Statistics

Variable	Mean / % per category	St. Dev.	Sample size
Married (%)	85.91	34.79	31,369
Female (%)	50.58	50.00	32,221
Has children (%)	57.95	49.36	32,221
Career stage (years)	24.29	12.38	31,590
Weekly workload (hrs)	37.93	14.16	32,221
Age group: under 35 (%)	12.38	32.93	31,459
Age group: 35-39 (%)	11.11	31.43	31,459
Age group: 40-44 (%)	11.98	32.47	31,459
Age group: 45-49 (%)	13.78	34.47	31,459
Age group: 50-54 (%)	15.75	36.43	31,459
Age group: 55-59 (%)	14.87	35.58	31,459
Age group: 60-64 (%)	10.37	30.49	31,459
Age group: 65-69 (%)	5.31	22.43	31,459
Age group: 70 or above (%)	4.45	20.61	31,459
Satisfied with work hours (%)	79.95	40.04	31,926
Would like to change hours of work (%)	85.03	97.07	31,878
On-call (%)	40.19	49.03	31,687
Receives subsidies (%)	14.90	35.61	30,848
Australian citizen (%)	95.54	20.64	31,197
Overseas medical qualification (%)	22.14	41.52	32,221
Fellowship of the Royal Australian College of General Practitioners (%)	53.38	49.89	32,221
Fellowship of the Australian College of Rural and Remote Medicine (%)	7.34	26.07	32,221
Subject to location restriction (%)	13.71	34.40	31,255
Work in a district of workforce shortage (%)	32.13	46.70	31,806
Overall satisfied with occupation (%)	89.43	30.75	31,920
Do not have many friends/family in current location (%)	27.58	44.69	29,946
Easy to pursue hobbies in current location (%)	59.61	49.07	30,636
No. sick days in past year	2.29	5.9	30,213
No. holiday weeks in past year	4.59	2.77	31,502
No. GPs per 1,000 population at SLA level	1.53	2	31,948
SEIFA Index of relative Socio-Economic Advantage and Disadvantage – 1st decile (%)	16.75	37.35	32,180
SEIFA Index – 2nd decile (%)	13.25	33.90	32,180
SEIFA Index – 3rd decile (%)	9.46	29.27	32,180
SEIFA Index – 4th decile (%)	10.63	30.82	32,180
SEIFA Index – 5th decile (%)	9.30	29.04	32,180
SEIFA Index – 6th decile (%)	9.64	29.51	32,180
SEIFA Index – 7th decile (%)	9.62	29.49	32,180
SEIFA Index – 8th decile (%)	7.87	26.93	32,180
SEIFA Index – 9th decile (%)	6.59	24.81	32,180
SEIFA Index – 10th decile (%)	6.90	25.34	32,180

Source: MABEL 2008-2017

Table 5 breaks down selected control variables by rural-city distinction. There are relatively more female (54 per cent) relative to male GPs (46 per cent). This trend is reversed in rural areas with 45 per cent of GPs being female compared to 55 per cent for male GPs. There is little difference in the marital status of GPs or having dependent children between rural and city GPs. Both the median (40 hours) and average (41 hours) weekly work hours are higher in rural areas by approximately 4 hours, respectively, relative to cities.

Around 28 per cent of GPs in rural areas are trained overseas (using graduation from a non-Australian university as a proxy for potential work visa restrictions). This figure is 10 percentage points higher than in city areas. This is likely associated with visa conditions as mandated by initiatives such as the federal government's **Stronger Rural Health Strategy** (Department of Health, 2019).

There are minor differences in the proportion of GPs who have attained Fellowship of the Royal Australian College of General Practitioners in cities (54 per cent) compared to those in rural areas (52 per cent).

Table 5. Descriptive Statistics by Locality

		1(female)	1(married)	1(children)	tenure (yrs)	workload (hrs)	1(overseas)
City	*mean*	0.54	0.86	0.57	25.35	36.05	0.18
	median	1	1	1	26	36	0
	SD	0.5	0.35	0.5	12.43	13.77	0.39
Rural	*mean*	0.45	0.86	0.6	22.54	41.01	0.28
	median	0	1	1	22	40	0
	SD	0.5	0.35	0.49	12.09	14.25	0.45

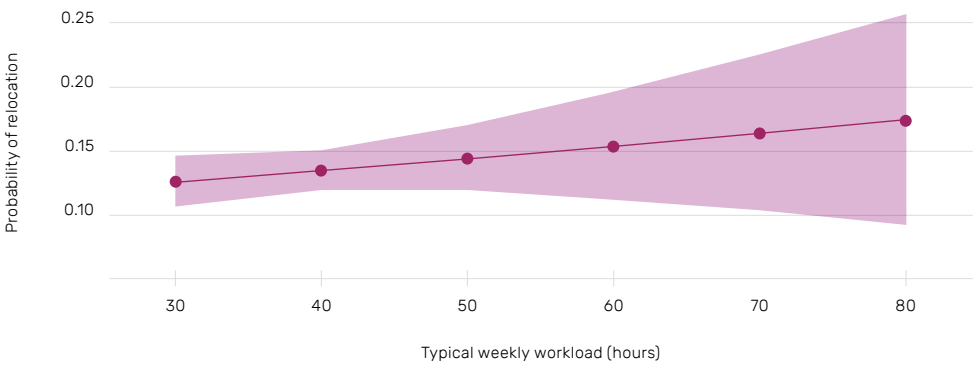
		1(FRACGP)	1(FACRRM)	1(on-call)	Log earnings (10k)
City	*mean*	0.54	0.02	0.26	18.7
	median	1	0	0	15.5
	SD	0.5	0.14	0.44	13.28
Rural	*mean*	0.52	0.16	0.63	22.09
	median	1	0	1	18.6
	SD	0.5	0.37	0.48	14.71

In contrast, as would be expected, more GPs in rural areas have attained a Fellowship of the Australian College of Rural and Remote Medicine (16 per cent) as compared to GPs in cities (2 per cent). A significant difference is the relative proportions of GPs who are on-call. A substantially higher proportion of rural GPs have on-call responsibilities (63 per cent). This is 2.4 times higher than the 26 per cent of city GPs who have reported on-call responsibilities. Notably, GPs in rural areas have higher earnings, with an average rural GP earning AUD$220,000 per year as compared to a yearly average of AUD$187,000 for city based GPs. It should, however, be noted that with a standard

deviation between AUD$147,000 and AUD$133,000, there is a great deal of variability in earnings.

Figures 1-3 present the probability of relocation by workload, earnings and age. As expected, the probability of relocation is positively associated with workload and age, but negatively associated with earnings.

Figure 1: Probability of relocation by workload



From Figure 2 we observe that the log-transformed current earnings exhibit a negative, linear relationship with the outcome variable I(Relocation). This would suggest that rural location is high in the early stages of a GP's career, dropping as their earnings increase. This is consistent with Figure 3 where the city to rural relocation probability increases for the under 35 years age-group, suggesting that they may be new migrants required to practise in rural areas. Between ages 35-45 years, we observe a decline in city-rural relocation, and from age 60 onwards we observe that the probability of city to rural relocation is over 50 per cent suggesting a life-style choice among older GPs.

Figure 2: Probability of city-to-rural relocation by earnings

Figure 3: Probability of city-to-rural relocation by age groups

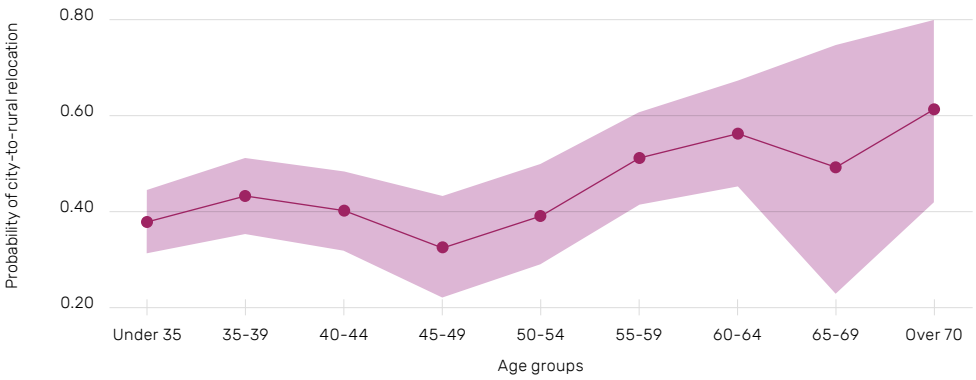


Table 6 presents descriptive statistics by relocation choices (no change, city to rural and rural to city) for key explanatory variables.

Table 6. Descriptive Statistics by Relocation directions

		1(female)	1(married)	1(children)	tenure (yrs)	workload (hrs)	1(overseas)
No change	*mean*	0.5	0.86	0.58	24.44	37.93	0.22
	median	1	1	1	25	39	0
	SD	0.5	0.35	0.49	12.35	14.16	0.41
City→Rural	*mean*	0.58	0.82	0.5	18.9	38.07	0.17
	median	1	1	1	15	39	0
	SD	0.49	0.39	0.5	13.15	15.16	0.37
Rural→City	*mean*	0.5	0.85	0.6	19.12	37.7	0.34
	median	1	1	1	17	39	0
	SD	0.5	0.35	0.49	11.63	13.05	0.47

		1(FRACGP)	1(FACRRM)	1(on-call)	Log earnings (10k)	1(Principal)
No change	*mean*	0.53	0.07	0.4	20.04	0.25
	median	1	0	0	16.65	0
	SD	0.5	0.26	0.49	13.98	0.43
City→Rural	*mean*	0.52	0.05	0.46	17.85	0.08
	median	1	0	0	15	0
	SD	0.5	0.22	0.5	11.46	0.28
Rural→City	*mean*	0.64	0.07	0.21	19.15	0.06
	median	1	0	0	16.9	0
	SD	0.48	0.25	0.41	13.44	0.24

		1(Unpredictable hrs)	1(friends)	1(hobbies)	c(sick wks)	c(holiday wks)
No change	*mean*	0.21	0.27	0.6	2.29	4.59
	median	0	0	1	0	4
	SD	0.41	0.45	0.49	5.9	2.76
City→Rural	*mean*	0.22	0.42	0.51	2.85	4.62
	median	0	0	1	1	4
	SD	0.42	0.49	0.5	6.97	3.25
Rural→City	*mean*	0.13	0.33	0.57	2.25	4.5
	median	0	0	1	1	4
	SD	0.34	0.47	0.5	4.88	3.31

Half of the GPs who relocated from city-to-rural areas in a given year had dependent children. In comparison, 60 per cent of GPs with dependent children moved from a rural location to a city. On average, tenure is higher for GPs with no relocation at 24 years versus otherwise at 20 years.

We observe that 17 per cent of city-to-rural relocations are GPs who received their basic medical training overseas. The percentage is twice as high at 34 per cent for rural-to-city relocations. The latter group may consist of GPs who have completed their mandatory rural stays after migrating to Australia. This may explain why rural retention remains a persistent challenge.

Notably, 46 per cent of city-to-rural relocations have on-call duties as compared to 21 per cent of rural-to-city relocations. This is not a causal factor to relocate, rather

it reflects the fact that rural GPs are more likely to be on-call. Furthermore, 25 per cent of GPs with no relocation are principals at their clinics. As one would expect, this is substantially higher than GPs who did relocate (8 and 6 per cent are principals for city-to-rural and rural-to-city, respectively). This suggests that well established GPs are relatively less likely to relocate. Finally, for city-to-rural relocations, we observe a higher proportion of GPs who report unpredictable work hours and having limited social circle (22 and 42 per cent versus 13 and 33 per cent for rural-to-city relocations).

Empirical strategy

The aim of our paper is to understand the relocation choices of the Australian GP population. Although our sample contains a homogenous sample of individuals – qualified primary care doctors in Australia – it is nonetheless difficult to assume that each individual's unobserved time-invariant component is unrelated to his/her other observed personal characteristics.

Analyses I – Correlational study

We estimate a *Population-averaged Logit* model for panel data, as only population-averaged models give consistent estimates of population-averaged marginal effects (StataCorp, 2019). In contrast to cluster-specific estimators, it does not fully specify the distribution of the population – in this context, this translates to asking how the *average* GP with a change in one causal variable compares to the *average* GP with no such change with respect to his/her decision to relocate. Although our sample contains a homogenous sample of individuals – qualified primary care doctors in Australia – it is nonetheless difficult to assume that each individual's unobserved time-invariant component is unrelated to his/her other observed personal characteristics.

As such, before estimating a Population-averaged Logit model, we begin by conducting a Hausman test between fixed effects and random effects logit models for panel data. If the Hausman test indicates evidence of a relationship between the unobserved time-invariant components and the regressors, then regressors used in the Mundlak regression[3] are added in the population-averaged logit to ensure consistency. The Hausman tests (chi-square of 18.68 and a corresponding p-value at 0.4775) favours the random effects model over the fixed-effects model.

3 This is an random effects approach that includes individual-specific time averages of time-varying regressors (which would otherwise be eliminated in a fixed-effects model).

We therefore implement a population-averaged logit model using the same set of regressions as the random effects model. A population-averaged model is more appropriate than a random-effect model because we are interested in the association between selected characteristics and rural practice for the *average* general practitioner (Sribney, 2005). Specifically, we fit a generalised linear model with a Logit link function and a binomial distributional family for the outcome variable. We follow the standard specification and impose an equal within-group correlation structure (i.e. assume observations on a given physician are more correlated than those between different GPs)

$$logit[E(y_{it})] = (\boldsymbol{x_i} + \boldsymbol{z_{ik}})_t\beta \qquad y \sim Bernoulli$$

$\boldsymbol{x_i}$ represents regressors specific to GP i (e.g. age group, Fellowship to RACGP) and $\boldsymbol{z_{ik}}$ represents the regressor pertaining to GP i and the area k of her practice (as reflected in ABS' SEIFA score). To facilitate more intuitive interpretations, following Wulff (2015) we calculate the average marginal effects for each regressor. The predicted probability that GP i will choose location j is denoted as p_{ij}:

$$p_{ij} = prob(y_i = j|\boldsymbol{x_i}, \boldsymbol{z_{ik}}) = \frac{e^{(\boldsymbol{x_i}+\boldsymbol{z_{ik}})^T\boldsymbol{\beta_j}}}{\sum_j e^{(\boldsymbol{x_i}+\boldsymbol{z_{ik}})^T\boldsymbol{\beta_j}}}$$

Where $\boldsymbol{\beta_j}$ is the coefficient vector that contains both the intercept coefficient and slope coefficients. To simplify notation, we collapse $\boldsymbol{x_i} + \boldsymbol{z_{ik}}$ into $\boldsymbol{x_i}$ in subsequent equations. For identification, we set $j = 0$ as the base outcome. Therefore, the predicted probability for city is given by:

$$p_{ij} = prob(y_i = 0|\boldsymbol{x_i}) = \frac{1}{1 + \sum_{j\neq 0} e^{\boldsymbol{x_i^T}\boldsymbol{\beta_j}}}$$

and the predicted probability for rural relocation is given by:

$$p_{ij} = prob(y_i = 1|\boldsymbol{x_i}) = \frac{e^{\boldsymbol{x_i^T}\boldsymbol{\beta_j}}}{1 + \sum_{j\neq 0} e^{\boldsymbol{x_i^T}\boldsymbol{\beta_j}}}$$

We convert the predicted probability into marginal effects (ME_{ij}). For example, for a continuous regressor k (e.g. changes in weekly work hours), this is given by:

$$ME_{ij} = \frac{\partial p_{ij}}{\partial x_{ik}} = p_{ij}\left[\beta_{kj} - \sum_{m=1}^{j} \beta_{km} \cdot prob(y = m|\boldsymbol{x_i})\right]$$

For a discrete regressor k (e.g. changes in on-call status)

$$ME_{ij} = \frac{\Delta p_{ij}}{\Delta x_{ik}} = prob\left(y = m \middle| \boldsymbol{x_{i,g \neq k}}, x_{ik} = 1\right) - prob\left(y = m \middle| \boldsymbol{x_{i,g \neq k}}, x_{ik} = 0\right)$$

We then compute the average marginal effects $\left(AME_{ij}\right)$:

$$AME_{ij} = \frac{1}{n}\sum_{i=1}^{n} ME_{ij}$$

i. City vs Rural practice

We use a Population-averaged logit model to estimate the probability of a GP practising in a city or rural area based on the outcome variable I(Rural). The regressors include an expanded list with variables from the above descriptive summaries[4]. Variables of particular interest are: (i) Weekly workload, (ii) Annual gross earnings, (iii) On-call status, (iv) Self-reported job satisfaction, and (v) Socioeconomic index of workplace locality. Variables (i) and (ii) are continuous, (iii) and (iv) are binary and (v) is ordinal[5]. The first four variables are at the individual level and the last variable is at the broader locality level. We hypothesise that these variables are critical with respect to relocations. However, given the weighty nature of these decisions, it is unlikely for a change in, say, on-call status to lead to a relocation within the same year. As such, we add three lagged values for each of these variables.

ii. Relocation vs No change

Next we examine if there are systematic differences in covariates between GPs with at least one relocation versus no relocation. We use cluster-robust standard errors at the individual level. Note that we do not distinguish the direction of relocation in this regression.

iii. City-to-rural vs Rural-to-city relocations

Finally, we examine if there are systematic differences in covariates between GPs who relocated from city-to-rural relative to those who relocated from rural-to-city. A shortcoming of our analysis is that we are unable to satisfactorily account for GPs who switch between rural and city location multiple times during the survey years.

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4 Due to the high collinearity between age group and tenure, we omit tenure to ensure model convergence.

5 They are treated as continuous in regression following the practice that "everything is linear to a first-order approximation" (Williams 2017).

Analyses II – Panel data analysis

The main outcome variable in our causal analysis is **Relocation at t** which contains the following categories: *No change*, *City-to-rural* and *Rural-to-city*. Based on the Hausman test from Analyses I, we fit a random-effects multinomial logit model with *No change* as the base category. This model produces valid estimates even in the presence of unobserved heterogeneity at the GP level (StataCorp 2021, 322–24). We apply robust standard errors and impose a shared covariance structure to ensure estimation convergence.

Our aim is to identify if GPs are more likely to relocate from city-to-rural or rural-to-city given changes in the postulated causal variables. Our equation of interest is:

$$U_{ijt} = \boldsymbol{X}_{it}\beta_j + u_{ij} + \epsilon_{ijt}$$

Where i refers to the i^{th} GP, j refers to the categories of *No change*, *City-to-rural* and *Rural-to-city* and t refers to the survey year. U_{ijt} is the latent utility, $\boldsymbol{X}_{it}\beta_j$ is its observed component and u_{ij} is the panel-level heterogeneity term. The inclusion of u_{ij} is a significant advantage of this panel data version of the logit model over its more common cross-sectional version by capturing the dependence of decisions made over time by the same GPs.

The multinomial logit model assumes a standard Gumbel distribution for the observation-level error term ϵ_{ijt}. It follows that the model is specified as

$$\Pr\left(y_{it} = m \middle| \boldsymbol{X}_{it}, \beta_j, u_{ij}\right) = Cumulative\ Logit\left(y_{it} = m, \boldsymbol{X}_{it}\beta_j + u_{ij}\right) =$$

$$= \begin{cases} \dfrac{1}{1 + \sum_{j \neq No\ change}^{J} \exp\left(\boldsymbol{X}_{it}\beta_j + u_{ij}\right)} & \text{if m=No change} \\ \dfrac{\exp(\boldsymbol{X}_{it}\beta_m + u_{im})}{1 + \sum_{j \neq No\ change}^{J} \exp\left(\boldsymbol{X}_{it}\beta_j + u_{ij}\right)} & \text{if m=\{City-to-rural, Rural-to-city\}} \end{cases}$$

Results

The main results from our empirical estimations are presented in Tables 7- 11. While Table 7 presents the results from the correlation analysis, Tables 8 -13 present panel data results.

Results from correlation analyses

Table 7 – column 1 present the average marginal effects from the Population-averaged logit model with robust standard errors for the outcome variable I(Rural), while CoI (2) and CoI (3) present the average marginal effects for the outcome variables I(Relocation) and I(city-to-rural relocation), respectively.

We do not observe any statistically significant association between changes in workload with location. On the other hand, being on-call is statistically significant and is strongly correlated with rural practice. Having on-call duties is positively associated with a 17.1 percentage point higher likelihood of rural practice; but the magnitude of the coefficients decrease to 4.2, 4.0 and 2.4 percentage points in the lagged years, respectively.

We find limited association with self-reported job satisfaction. The variable overall satisfaction with occupation is statistically significant and positively signed only in the rural sample for the current year and three years prior to the survey by 6.6 and 2.4 percentage points, respectively. In terms of broader socioeconomic indicators, we observe that improvements in the current year on ABS' SEIFA index is negatively associated with likelihood of rural practice by 4.1 percentage points. The correlations with prior years are statistically significant, but the size of the effects are smaller. Notably, respondent's marital status and number of children are not statistically significant in any of the three estimations.

Table 7: Correlational analyses

Marginal effects	I(Rural) (1)	I(Relocation) (2)	I(City-to-rural) (3)
Weekly workload (hrs)			
at t	0.001(0.000)	0.001(0.001)	0.001(0.002)
at t-1	0.000 (0.000)	0.000 (0.000)	
at t-2	0.000 (0.000)	0.000 (0.000)	
at t-3	0.000 (0.000)	0.000 (0.001)	
Log (Annual earning ($10,000))			
at t	0.002 (0.007)	0.029**(0.012)	-0.035 (0.036)
at t-1	0.001(0.006)	-0.002 (0.010)	
at t-2	0.004(0.006)	-0.014(0.010)	
at t-3	-0.006 (0.006)	-0.032***(0.011)	
On-call [1 = yes, 0 = no]			
at t	0.171***(0.020)	0.000(0.019)	0.226***(0.038)
at t-1	0.042***(0.008)	0.008 (0.012)	
at t-2	0.040***(0.007)	-0.008(0.011)	
at t-3	0.024***(0.008)	0.018(0.012)	
Overall satisfied with occupation [1 = yes, 0 = no]			
at t	0.066***(0.020)	-0.036 (0.039)	0.078(0.050)
at t-1	0.011(0.009)	-0.021(0.015)	
at t-2	0.009(0.009)	0.011(0.012)	
at t-3	0.024***(0.008)	-0.002(0.016)	
SEIFA Index of relative Socio-Economic Advantage and Disadvantage (10 deciles)			
at t	-0.041***(0.004)	0.005(0.004)	-0.062***(0.005)
at t-1	-0.004*(0.002)	-0.001(0.003)	
at t-2	-0.008***(0.002)	0.000(0.003)	
at t-3	-0.008***(0.002)	-0.010***(0.004)	
Female [1 = yes, 0 = no]	0.022(0.017)	-0.026(0.019)	0.081**(0.036)
Married [1 = yes, 0 = no]	0.001(0.018)	-0.011(0.023)	-0.013(0.048)
Has children [1 = yes, 0 = no]	-0.001(0.009)	-0.028(0.017)	0.002(0.039)
Age groups			
under 35	0.061**(0.026)	0.146***(0.042)	(Base)
35-39	0.078***(0.021)	0.118***(0.034)	0.052(0.053)
40-44	0.053***(0.019)	0.069**(0.028)	0.021(0.056)
45-49	0.033**(0.013)	0.001(0.022)	-0.056(0.066)
50-54	0.011(0.010)	-0.008(0.019)	0.013(0.067)
55-59	(Base)	(Base)	0.130(0.059)
60-64	0.035***(0.014)	0.030 (0.022)	0.182(0.067)
65-69	0.039**(0.019)	-0.020(0.026)	0.108(0.138)
70 or above	-0.006(0.024)	0.026(0.044)	0.230(0.103)
Overseas medical qualification	0.032*(0.018)	0.021(0.022)	-0.116***(0.043)
Fellowship of the Royal Australian College of General Practitioners	0.010(0.014)	0.028(0.018)	-0.030(0.035)
Fellowship of the Australian College of Rural and Remote Medicine	0.260***(0.031)	0.008(0.031)	-0.111*(0.060)
Subject to location restriction [1 = yes, 0 = no]	0.076***(0.022)	0.036(0.028)	0.018(0.048)
Work in a district of workforce shortage	0.073***(0.011)	0.024(0.015)	0.127***(0.035)
Consider work hours to be unpredictable	0.022***(0.007)	0.003(0.016)	0.052(0.045)
Weekly no. patients seen	-0.000***(0.000)	0.000(0.000)	-0.001**(0.000)
Principal/Partner at clinic [1 = yes, 0 = no]	-0.010(0.010)	-0.079***(0.016)	-0.060(0.075)

Table 7: continued

Do not have many friends/family in current location	0.012*(0.007)	0.019(0.014)	0.042(0.035)
Easy to pursue hobbies in current location	-0.012**(0.005)	-0.013(0.013)	-0.038(0.034)
No. sick days in past year	0.000(0.000)	-0.001(0.001)	0.003(0.002)
No. holiday weeks in past year	0.003**(0.001)	-0.004(0.003)	-0.001(0.005)
Waves			
2010	(N/A - lagged variables)	(N/A - lagged variables)	0.039(0.071)
2011	(N/A - lagged variables)	(N/A - lagged variables)	0.004(0.065)
2012	0.032***(0.006)	0.008(0.007)	0.057(0.068)
2013	0.030***(0.007)	0.018**(0.009)	0.077(0.072)
2014	0.029***(0.007)	0.017(0.011)	0.067(0.068)
2015	0.036***(0.009)	0.044***(0.013)	0.123*(0.071)
2016	0.043***(0.010)	0.014(0.014)	-0.040(0.076)
2017	0.0278***(0.011)	0.042***(0.014)	0.087(0.075)
N= 32221			

Notes: ***, ** and * denote statistical significance at 1%, 5% and 10%. Standard errors are in parentheses.

It is worth noting that for each of these variables whose association with rural practice is statistically significant at the 5 per cent level, the signs of their current and lagged values are identical.

Among the other regressors, age groups are correlated with rural practice. Relative to the most populous 55-59 years old age group, younger cohorts from under 35 to 45-49 years old have a higher likelihood of relocation, of the order of 3.0 to 7.8 percentage points. Similarly, being in the older cohorts of 60-69 years is also positively correlated with rural residence by 3.5 to 5.9 percentage points. We also observe that GPs with an overseas medical qualification are 3.2 percentage points more likely to practise rurally.

These estimates offer qualified support for the hypothesis that older GPs are more likely to choose to work rurally as a lifestyle choice. However, they do not support the assertion that younger GPs do not respond to policy incentives to relocate rurally (see e.g. Gair, 2021). Lastly, bordering on the tautological, we see that GPs who are subject to location restrictions and/or work in a DWS (district of workforce shortage of medical practitioners) are, respectively, 7.6 and 7.3 percentage points more likely to work rurally.

In summary, on-call status and the socioeconomic conditions of the area are most highly correlated with the likelihood of practising in a rural or city clinic. According to the marginal effects in Table 7 – Column 2, we observe no statistical relationship between workload, on-call status and job satisfaction (current or lagged values) with the likelihood of relocation.

These findings are also consistent with Figure 3, where we observe that the probability of relocation is highest for those aged below 35 years. After a sharp decline in relocation probability, we observe a slight increase between the ages of 55-59.

Importantly, a rise in living standards in the locality three years prior (as measured by a unit increase in ABS' SEIFA Index of Relative Socio-Economic Advantage

and Disadvantage) is associated with a decrease of 1.0 percentage point in the propensity to relocate.

In summary, the main insight from Table 7 – Column 2 is the absence of individual level covariates in influencing changes in the propensity to relocate, whereas changes in an area's living standard may prompt relocation decisions in later years.

We also examined if there were systematic differences in covariates between GPs who relocated from city-to-rural relative to those who relocated from rural-to-city[6]. These results are reported in Table 7 – Column 3. We cluster-robust standard errors at the individual level and remove lagged variables due to the smaller sample. There are no statistically significant relationships with respect to workload, earnings or job satisfaction.

A change from having no on-call duties to acquiring this responsibility is correlated with an increase in the probability moving from city-to-rural by 22.6 percentage points. This highlights the wider range of activities GPs in rural practices are expected to perform. In contrast, an increase in the SEIFA index is correlated with a decrease in the probability of moving from city-to-rural areas by 6.2 percentage points. Overall, changes in the area's standard of living (SEIFA index) are significantly associated with each of the three outcome variables in Table 7.

Panel data estimation results

The main estimation results from the panel data analysis are presented in Table 8. Qualitatively we observe a number of interesting patterns for relocation, relative to the base category of *No change*. For example, relative to a male GP, the relative risk of a female GP relocating from a rural-to-city area is expected to decrease by a factor of 0.392. Similarly, the relative risk of an overseas trained GP relocating from a rural-to-city location is higher by a factor of 2.608 times. GPs with dependent children are less likely to relocate from city-to-rural.

6 A shortcoming is that we are not satisfactorily accounting for GPs who switch between rural and city location multiple times during the survey years.

Table 8: Random effects multinomial logit model estimations

Relative Risk Ratios	City-to-Rural	Rural-to-City
Weekly workload (hrs)		
at t	1.045**(0.021)	1.017(0.016)
at t-1	0.962*(0.021)	0.996(0.016)
at t-2	1.024(0.02)	1.039**(0.017)
at t-3	0.984(0.022)	0.964*(0.018)
Log (Annual earning ($10,000))		
at t	1.135(0.568)	0.802(0.330)
at t-1	0.640(0.268)	0.635(0.237)
at t-2	2.266*(0.949)	0.657(0.254)
at t-3	0.468*(0.211)	0.774(0.245)
On-call [1 = yes, 0 = no]		
at t	0.877(0.391)	0.442* (0.209)
at t-1	1.928 (1.082)	4.378***(1.722)
at t-2	0.924 (0.42)	0.881 (0.351)
at t-3	0.503 (0.256)	1.491 (0.559)
Overall satisfied with occupation [1 = yes, 0 = no]		
at t	4.953**(3.539)	0.527(0.232)
at t-1	0.458*(0.209)	0.662(0.254)
at t-2	0.844(0.435)	1.114(0.581)
at t-3	0.986(0.513)	0.954(0.540)
SEIFA Index of relative Socio-Economic Advantage and Disadvantage (10 deciles)		
at t	0.392***(0.048)	2.139***(0.216)
at t-1	2.102***(0.207)	0.554***(0.070)
at t-2	0.925(0.083)	0.831(0.117)
at t-3	1.081(0.118)	0.869(0.097)
Female [1 = yes, 0 = no]	0.840(0.287)	0.392***(0.130)
Married [1 = yes, 0 = no]	1.055(0.464)	1.543(0.675)
Has children [1 = yes, 0 = no]	0.526**(0.180)	0.647(0.195)
Overseas medical qualification [1 = yes, 0 = no]	0.514(0.310)	2.608***(0.752)
Fellowship of the Royal Australian College of General Practitioners [1 = yes, 0 = no]	0.973(0.339)	1.466(0.510)
Fellowship of the Australian College of Rural and Remote Medicine [1 = yes, 0 = no]	0.520(0.259)	0.588(0.235)
Subject to location restriction [1 = yes, 0 = no]	2.267(1.438)	0.579(0.248)
Work in a district of workforce shortage [1 = yes, 0 = no]	2.912***(0.901)	1.509(0.458)
Consider work hours to be unpredictable [1 = yes, 0 = no]	0.921(0.327)	0.544(0.225)
Weekly no. patients seen	0.995(0.003)	1.002**(0.001)
Principal/Partner at clinic [1 = yes, 0 = no]	0.608(0.206)	0.382**(0.177)
Do not have many friends/family in current location [1 = yes, 0 = no]	1.309(0.430)	0.936(0.310)
Easy to pursue hobbies in current location [1 = yes, 0 = no]	0.850(0.294)	1.545(0.457)
No. sick days in past year	1.030*(0.017)	0.983(0.026)
No. holiday weeks in past year	0.971(0.073)	1.038(0.056)
Age groups included Waves included N= 7744	YES	YES

Notes: Dependent variable is *Relocation at t*. The base category is *No change*. Figures in parentheses denote robust standard errors. *p<0.1, **p<0.05, ***p<0.01

We further observe that many of our variables of interest are statistically significant, including their lagged values. To enable a more intuitive quantitative interpretation than the relative risk ratios, we present the marginal effects for our variables of interest in Tables 9 – 13. In Table 9 we present estimation results for the percentage change in the average probability of relocation (from city-to rural and from rural-to-city) in response to an increase in workload per week.

Assuming linearity in extrapolating the estimated probability, we observe, for example, that an increase of ten hours per week is positively associated with an increase of 0.097 percentage points in city-to-rural relocation and 0.126 percentage points in rural-to-city relocation in the current year. Overall, however, workload changes alone are not statistically significant in relocation decisions. Even a change on the order of a quarter of the average weekly work hours does not induce meaningful changes in relocation probabilities during the current or future years.

Table 9. Marginal effects: Increase in working hours

Change in average probability of city-to-rural relocation (%)	Increase of ten work hours per week
Current year	0.097
One year prior	-0.284*
Two years prior	0.172
Three years prior	-0.115
Change in average probability of rural-to-city relocation (%)	**Increase of ten work hours per week**
Current year	0.126
One year prior	-0.034
Two years prior	0.336**
Three years prior	-0.322*

Table 10. Marginal effects: Increase in earnings

Change in average probability of city-to-rural relocation (%)	Increase of ln(10k) in earnings
Current year	-0.170
One year prior	-0.322
Two years prior	0.613*
Three years prior	-0.558*
Change in average probability of rural-to-city relocation (%)	Increase of ln(10k) in earnings
Current year	-1.21***
One year prior	-0.399
Two years prior	-0.391
Three years prior	-0.217

Similarly, in Table 10, we present estimates of the influence of an increase in earnings on the average probability of a relocation. The only statistically significant association detected is that an increase in earnings in the current year decreases the chances of rural-to-city relocation. Similar to workload changes, the size of the estimated effects in earnings' changes are small in magnitude and mostly statistically insignificant indicating that this variable has limited influence in inducing relocation decisions. For example, an increase of AUD$10,000 decreases the probability of rural-to-city relocation by a mere 0.30 (eˆ(-1.21)) per cent.

Table 11. Marginal effects: On-call duties

	Has on-call	No on-call
Change in average probability of city-to-rural relocation (%)		
Current year	0.862***	1.057***
One year prior	1.291***	0.803***
Two years prior	1.167***	1.280***
Three years prior	1.414***	1.043***
Average probability of rural-to-city relocation (%)		
Current year	1.682***	0.828***
One year prior	2.320***	0.784***
Two years prior	0.925***	0.981***
Three years prior	0.717***	1.233***

From Table 11, we observe that on-call status is strongly correlated with relocation probabilities during all current and lagged years. Notably, for one-period lagged variable, the probability of relocation in either direction is higher if the GP has on-call duties than otherwise. That is, an acquisition of on-call responsibilities leads to an increased likelihood of relocation in the following year. This is particularly marked for rural-to-city relocation in which the probability of relocation is higher by 1.536 percentage points among those with on-call responsibilities. This may be owing to the already greater range of tasks rural GPs are responsible for. In contrast to the relationship between on-call duties and workload, we conclude it is not the number of work hours *per se* that may lead to relocation considerations but the arrangement of these hours.

Table 12. Marginal effects: Improvements in self-reported job satisfaction

	Satisfied	Otherwise
Average probability of city-to-rural relocation (%)		
Current year	0.967***	0.573*
One year prior	0.890***	1.619**
Two years prior	0.944***	1.078**
Three years prior	0.957***	0.966**
Average probability of rural-to-city relocation (%)		
Current year	1.120***	2.333**
One year prior	1.173***	1.566***
Two years prior	1.231***	1.134**
Three years prior	1.214***	1.257**

Specifically, self-reported job satisfaction may be considered a "catch all" variable that can reflect any number of factors deemed important to the GP that are not adequately captured by the other explanatory variables. From the results presented in Table 12 we observe that the variable 'self-reported job satisfaction' is highly correlated with relocation decisions in the current and lagged years. Importantly we observe that a GP who reports greater job satisfaction is, in general, less likely to relocate relative to one who is dissatisfied. This difference is most pronounced for current year's rural-to-city relocation in which the probability is lower by 1.213 percentage points. Further, self-satisfied GPs are more likely to move from rural-to-city after a lag of two years relative to those GPs who report lower levels of self-satisfaction.

Table 13. Marginal effects: Improvements in socioeconomic conditions

	Increase of 1 unit on index
Change in average probability of city-to-rural relocation (%)	
Current year	-1.414***
One year prior	0.561***
Two years prior	-0.055
Three years prior	0.060
Change in average probability of rural-to-city relocation (%)	
Current year	-1.368**
One year prior	-0.543***
Two years prior	-0.165
Three years prior	-1.275

Finally, in Table 13 we consider the role of changes in SEIFA of the locality that the GPs live in at the time of the survey. A unit improvement in the SEIFA index is associated with a decrease of 1.414 and 1.368 percentage points in the probability of city-to-rural and rural-to-city relocations, respectively. It is a notable finding that changes in the SEIFA index affects the probability of relocation in both directions – conversely showing that a deterioration in living standards prompts a relocation, irrespective of the initial location.

In comparison to the previous marginal effects, and considering the impersonal nature of this variable, the effect sizes associated with the SEIFA index are remarkably large. This strengthens the findings from Analyses I. Our analysis shows that relative to personal factors, the socioeconomic conditions of the area play a large part in influencing relocation decisions.

Conclusions

The focus of academic and policy discussions on Australian GPs' location choices has been on the role of key individual and profession-specific characteristics. Policy initiatives to improve rural doctor shortages have sought to design tailored incentive packages focusing on profession and individual specific characteristics. Using ten waves from the *Medicine in Australia: Balancing Employment and Life* dataset, we examined the relative importance of a range of factors which may motivate Australian general practitioners to

relocate from one workplace location type to another – for example, from a city to a rural region or vice versa.

Our paper contributes to the literature on work location choices of primary health care providers. Specifically, our focus is on the role of changes in socioeconomic conditions in the local area, household factors and a more nuanced treatment of workload arrangements. We find that changes in the living standards of an area – as captured by ABS' SEIFA index – have a comparatively larger influence on the probability of relocation than individual level GP-specific factors. We also find that acquiring on-call responsibilities increases relocation probability in the following year, particularly for rural-to-city relocations. On the other hand, even large changes in work hours and earnings play a limited role in relocation choices. Our results further show that the policy to attract overseas trained GPs to rural areas has had some success. However, it appears that GPs aged between 35 – 45 years have a lower probability of relocating to rural areas. Our estimates also show that GPs with children have a lower relative risk of relocating from city-to-rural areas. Ultimately, rural practice is also seen as a lifestyle choice with older GPs significantly more likely to relocate.

Our findings show that the channel through which individual and professional circumstances lead to relocations is more nuanced than simply changes in earnings or workload. They also demonstrate that individual level factors play a smaller role on relocation decisions relative to changes in the overall attractiveness of the location in question. This is because rarely are such decisions made in isolation; instead, relocation choices are typically made as a family such that the impacts on one's spouse or children are also non-negligible determinants.

Using a panel data model and delineating the direction of relocation (city-to-rural and vice versa), our findings differ in parts from O'Sullivan *et al*. (2017) and McGrail and Russell (2016) which find limited association between job satisfaction and location choice or mobility patterns. Our interpretation that personal circumstances exert relatively weaker influences because of broader locational and socioeconomic considerations is, in principle, consistent with McGrail and Humphreys' (2015) finding that there is no association between GP mobility and family status depending on the exact scope as defined in 'family status'. This analysis has built and improved upon existing research by incorporating a longer panel data as well as implementing more rigorous econometrics methods.

We note that a limitation of our analysis is the inability to further distinguish between states and territories or to attain more granular classification (e.g. at the postcode or suburb level).

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Women's work: myth or reality? Occupational feminisation and women's job satisfaction in Australia

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Abstract

Data on men and women's job satisfaction conditional upon the degree of feminisation of their occupation are used to explore potential causes of occupational segregation by gender in the Australian labour market. We find some evidence for the notion of 'women's work' – that certain occupations are highly feminised because women prefer the type of work done in those occupations. However, this primarily applies to mothers and the results also support the view that occupational segregation is generated by societal norms around roles allocated to men and women. In particular, patterns in satisfaction with hours of work and with pay in highly feminised occupations are consistent with mothers taking on the role of the 'secondary breadwinner'. In contrast to suggestions in some of the existing Australian literature, the results also indicate that more highly feminised occupations are relatively poorly paid, other things held equal.

JEL Codes: J28, J71, J24
Keywords: Occupational sex segregation, job satisfaction, identity

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Introduction

This paper provides evidence on the nature of occupational segregation and its role in shaping differential labour market outcomes for men and women using Australian data. The Australian labour market displays clear gender-based differences reflecting lower opportunity for women, including a persistent gender wage gap, lower rates of female labour force participation and stark over-representation of women among part-time workers (Barns and Preston, 2010; Australian Bureau of Statistics [ABS], 2021a,b). The Australian labour market also displays a high degree of occupational segregation by gender. This is important because gender segregation across occupations is intertwined with inequalities in labour market outcomes by gender. Its root cause has implications for the extent to which gender differences should be considered discriminatory and, accordingly, the target of equity policy.

On the one hand it can be argued that women experience lower wages and more precarious employment arrangements because they choose to work in jobs offering those conditions. For example, it is argued that women have a preference for occupations which require 'feminine' skills associated with the traditional household division of labour, such as caring, cooking and cleaning roles (Huppatz and Goodwin, 2013). If those roles are not as highly valued in the market, then women will find themselves lower paid. Similarly, women may choose to enter occupations that offer part-time and more flexible working arrangements to enable them to realise priorities in non-work domains. Conceivably, occupational segregation and the lower wages and other outcomes associated with highly feminised occupations may simply reflect differences in preferences of men and women.

An alternative hypothesis is that the gendered nature of career paths – potentially commencing from early childhood and perpetuated through historically grounded social and institutional settings – disproportionately channel women into particular occupations. It has been argued that highly feminised occupations are low paid *because* they are highly feminised (England, Allison and Wu, 2007; Macdonald and Charlesworth, 2013).

The critical difference between these two views of occupational segregation is the extent to which women are seen to exercise free choice of careers and associated occupations. To explore this, we investigate employee job satisfaction conditional upon the degree of feminisation of their occupation. Our data contain self-assessed ratings of overall job satisfaction, and of satisfaction with specific job aspects: total pay, job security, 'the work itself', hours worked and flexibility to balance work and non-work commitments. While it is difficult to know exactly how reports of job satisfaction relate to occupational preferences, we show that there is fundamental shift in patterns of women's job satisfaction once they take on mothering roles. Relative to other workers, women who have had children are markedly more satisfied with the type of work done, flexibility to balance work and non-work commitments and their pay, when working in more feminised occupations. In contrast, for women who have not had children, working

in a more feminised occupation is not associated with greater satisfaction with the type of work done, and is associated with strong dissatisfaction with their pay. The results are consistent with literature suggesting a shift in women's identities with motherhood. We further argue they are consistent with occupational segregation being driven primarily by socially constructed norms around women's roles rather than an innate preference for particular types of work.

Background

Gender segregation and the Australian labour market

In the spirit of Gary S. Becker's Human Capital theory (1964) and his Treatise on The Family (1981), occupational segregation by gender can be seen as arising from women making rational, cost-benefit type decisions. Hakim (2000) argues that gender differences in labour market participation can be explained by differences in the preferences of males and females, and by taking account of changes in women's preferences over stages of the life cycle. Hakim's emphasis on individual choice is commonly used as a point of departure by those who instead stress the importance of constraints on women's occupational choices (for example, Crompton and Harris, 1998; Duncan, Edwards, Reynolds and Alldred, 2003; Hill, 2007; Karamessini and Ioakimoglou, 2007). These include norms and stereotypes about appropriate occupations for men and women (Acker, 1992; Kanji and Hupka-Brunner, 2015), the gendered within-household division between paid and unpaid work (Baxter, Hewitt and Haynes, 2008; Craig and Bittman, 2008; Ting, Perales and Baxter, 2016), and appropriate mothering behavior (Faircloth, 2014). In turn, institutional settings (Crompton and Harris, 1998) and normative or moral frameworks (Duncan *et al.*, 2003) develop that reinforce those stereotypes, for example, employers' perceptions of women as less stable employees may affect decisions relating to employee recruitment and progression (Rubery, Fagan and Maier, 1996). Importantly, occupational segregation has been attributed as a causal factor in women's labour market disadvantage (Mandel and Semyonov, 2005).

There are stark gender differences in the Australian labour market, whereby women are markedly more likely than men to be working in marginal, part-time employment (Barns and Preston, 2010). In 2019 the female labour force participation rate averaged 60.9 per cent, 10.2 percentage points lower than the male rate of 71.1 per cent (ABS 2021a)[1]. While a marked improvement on the 35 percentage point gap recorded when this Labour Force Survey series commenced in early 1978 (43.4 per cent for women

1 Figures are cited to 2019. This coincides with the final wave of the HILDA data used in this study, and also predates any impacts of the COVID-19 pandemic on the Australian labour market.

compared to 79.3 per cent for men), the growth in women's labour force participation has been mainly in part-time employment and has largely stalled since 2009. Once in work, women are more than twice as likely to work part-time than are men (45.8 per cent compared to 18.9 per cent in 2019; ABS, 2021a).

The ongoing gap in labour force engagement persists despite women now being more likely than men to gain university level qualifications, and reflects different social roles for Australian men and women. While a wide variety of arrangements and attitudes slowly chip away at the 'male breadwinner/female carer' gender order that was at its peak in the 1950s, much of that model remains engrained in Australian culture (Broomhill and Sharp, 2005; Hill, 2007; Van Egmond, Baxter, Buchler and Western, 2010; Baxter and Hewitt, 2013). Based on 1996 Census data, Lee and Miller (2004) show that occupation segregation stems primarily from gender differences in occupations at entry to the labour market. Research points to substantial continuing gender segregation in the pathways taken by more recent cohorts of Australian school leavers (Buchler and Dockery, 2015) and minimal change in segregation by occupation and industry over the past three decades (Lind and Colquhoun, 2021).

Occupational segregation, the gender wage gap and the motherhood penalty

On average, Australian women earn lower wages than men even when seemingly doing equivalent jobs. In November 2019, average weekly ordinary-time earnings of full-time male employees were 16 per cent higher than for females (ABS 2021b). This difference has been found to be already apparent at labour market entry, where women earn 20 per cent less than their male counterparts in their first significant job, with a portion (4 per cent) remaining significant when numerous job characteristics, such as hours worked, occupation and education, are controlled (Buchler and Dockery, 2015).

There is ongoing debate on the contribution of occupational segregation to the gender wage gap. Recent studies in the international literature generally point to occupational segregation being a contributing factor to wage inequality (Blau and Kahn, 2000; Mandel and Semyonov, 2005; Karamessini and Ioakimoglou, 2007). Hakim (1992: 128) reviewed earlier studies to suggest 20 to 25 per cent as a 'reasonable estimate' of the contribution of job segregation to gender wage differentials. In contrast, Australian studies have suggested women's wages are higher as a result of this segregation (Lee and Miller, 2004; Barón and Cobb-Clark, 2010). That is, women in Australia would have lower pay if they had the same occupational distribution as men.

Using data from the 2001 to 2006 waves of HILDA, Barón and Cobb-Clark (2010) find that the wage gap can be largely explained by observable characteristics for workers in the public sector and those in the lower part of the wage distribution, but not for workers in the upper end of the wage distribution. Thus they conclude gender discrimination in Australia takes the form of 'glass ceilings' rather than 'sticky floors'. Barón and Cobb-Clark (2010) also find that the inclusion of occupational controls significantly increases the 'unexplained' proportion of the gender wage gap, leading them to ponder "…why does

occupational segregation seem to improve rather than undermine the relative wages of women in Australia when then [sic] opposite appears to be the case in other countries?".

Barón and Cobb-Clark's assessment derives partly from Lee and Miller's (2004) calculation based on 1996 data which suggested the gender wage gap is attributable to intra-occupation differences rather than differences in pay rates between occupations. They calculate the contribution of occupational distribution to be negative: "The quite different occupational distributions of men and women actually lead to women having slightly higher earnings than would otherwise have been the case." (Lee and Miller, 2004: 359). However, this calculation is based on only 9 different occupational categories. Lee and Miller note that if the exercise is repeated using the 44 minor occupational categories, the result reverses but "… is economically unimportant" (2004: 359). We, however, argue that an even finer level of disaggregation is needed to adequately capture occupational segregation, a tenet that has been argued by Barns and Preston (2010) in the context of examining the gender wage gap in Australia.

In addition to occupational segregation, research has shown that a second factor plays a substantial role in the gender wage gap: women's responsibility for childrearing. Research consistently finds, across numerous Western nations, that mothers earn not only significantly less than men, but they also earn less than non-mothers (Budig and England, 2001; Anderson, Binder and Krause, 2003; Correll, 2013). This difference is usually found to be 5–7 per cent lower wages per child compared to childless women who are otherwise equal (Budig and England, 2001). The existence of a motherhood penalty despite controls for human capital, workplace and other factors leads researchers to suspect a bias against mothers (Correll, 2013).

These two factors, occupational segregation and women's responsibility for childrearing, however, have been argued to be largely unrelated (England, 2005). Specifically, that the causes of segregation are not related to women's mothering responsibilities, and that penalties associated with motherhood are not caused by segregation (England, 2005). Part-time work, however, is more common amongst mothers and it is more common in highly feminised occupations (Chalmers, Campbell and Charlesworth, 2005; Sobeck, 2022).

Recently, US economist Claudia Goldin has promoted the concept of 'greedy jobs' to position gender wage differentials within the compensating differentials framework (Goldin, 2014; Goldin and Katz, 2011; Sobeck, 2022). Greedy jobs are those that offer high rewards for working long hours of work and inflexibility of working hours. If, as is typically the case, women have a stronger preference for flexible working arrangements, gender segregation (male over-representation) in greedy jobs can account for part of the gender wage gap, and attribute it to differences in preferences of men and women. Sobeck (2022) provides evidence that greedy jobs also exist in Australia and contribute significantly to the gender pay gap, although not to the same extent as in the US. The phenomenon of 'greedy jobs' may account for some to the motherhood penalty, given mothers are particularly adverse to jobs with long and inflexible working arrangements.

Women's job satisfaction

Despite lower wages women are consistently found to have higher levels of job satisfaction than men, something which is often referred to as the 'the paradox of the contented female worker' (Bender, Donohue and Heywood, 2005: 482). This has been found in studies across a range of countries, including the UK (Clark, 1997; Sloane and Williams, 2000; Sousa-Poza and Sousa-Poza, 2000; Gazioglu and Tansel, 2006), US (Bender, Donohue and Heywood, 2005), Canada (Dilmaghani 2022), Korea (Kim, 2005) and Australia (Kifle, Kler and Shankar, 2014a; Long 2005). Based on analyses of the 1991 British Household Panel Survey (BHPS), Clark's (1997) preferred explanation for the paradox was that women then had lower expectations due to their generally inferior labour market outcomes at that time, drawing support for this in finding the gender satisfaction differential is not present for groups of women likely to have higher expectations: the young, more highly educated, whose mothers were professionals and who work in male dominated workplaces. Hence, he suggested the phenomenon may be transitory, and disappear as women's relative position in the labour market improved. With the benefit of BHPS data through to 2014, Green *et al.* (2018) revisit Clark's prediction to find, indeed, the gender job satisfaction difference in Britain had disappeared by 2012-14, as female workers became less satisfied as they aged and new cohorts of young female workers entered the labour market with relatively lower job satisfaction.

A second explanation is self-selection. Because women have lower employment rates and are more likely to take on roles outside of the paid labour market, women who are dissatisfied with their jobs may be more likely to leave their jobs than men who are dissatisfied. However, several empirical studies have found the gender satisfaction differential is robust to controls for selection (Clark, 1997; Hauret and Williams, 2017; Perugini and Vladisavljević, 2019).

International comparative studies have produced conflicting evidence on the gender/job-satisfaction paradox across countries. Sousa-Poza and Sousa-Poza (2000) found that only eight out of 21 countries show a gap in job satisfaction in favour of women and, after adding controls, significant differences only remain for Great Britain, the US and Switzerland (Australia was not considered). This leads the authors to argue that a large job satisfaction differential in favour of women is a predominantly Anglo-Saxon phenomenon. Examining variations in labour market and welfare state regimes in Europe, Kaiser (2007) finds that the gender/job-satisfaction paradox is more likely in countries where women's labour market access is more restricted. This suggests that when institutional labour market interventions that enable equal opportunities for men and women have been implemented, for example in the Scandinavian countries, women no longer have higher levels of job satisfaction. This is supported by Perugini and Vladisavljević's (2019) analyses of gender job satisfaction differentials in 32 European countries. They find a significant job satisfaction difference in favour of women that is lower for women exposed to more equal labour force participation rates by gender in their early life stages. They argue this is consistent with Clark's (1997) hypothesis of women's lower expectations as the explanation for the contented female worker paradox.

In contrast, Hauret and Williams' (2017) analysis of 2010 European Social Survey data for 14 countries found the gender paradox to apply only in the Nordic group of countries. Using data from the 2015 International Social Survey Programme pooled for 37 countries, Andrade, Westover and Peterson (2019) find no statistically significant difference in men's and women's level of job satisfaction once extrinsic and intrinsic job rewards were controlled for. In models estimated for individual country models, only Georgia returned a significant gender effect. Dilmaghani's (2022) Canadian study also found that variables capturing subjective intrinsic job reward accounted for the gender gap in job satisfaction, but such results still leave open the question of why women experience higher intrinsic reward or place higher value on intrinsic reward in their assessments of job satisfaction.

Job satisfaction and occupational gender segregation

Research from the US and UK has shown that women report higher levels of job satisfaction in female dominated workplaces (Bender, Donohue and Heywood, 2005; Clark, 1997; Dilmaghani and Tabvuma, 2019; Sloane and Williams, 2000). Bender, Donohue and Heywood (2005), however, show with US data that this association becomes non-significant when job flexibility is accounted for. Specifically, they find that when feelings that one must choose between family and advancing one's career is taken into account[2] the baseline effect of being female on job satisfaction becomes non-significant. They argue that women place greater value on flexibility between work and home lives, and self-select into workplaces with more job flexibility. It is, however, also plausible that industries that are dominated by women offer higher levels of flexibility as their workforce requires it due to family care responsibilities. Regardless of the explanation, these findings suggest that having responsibility for children, which leads women to seek out flexible workplaces, is of central importance for explaining the 'the paradox of the contented female worker'.

Indeed, Fleming and Kler (2014) and Kifle, Kler and Shankar (2014b) find that having children is associated with higher levels of job satisfaction amongst Australian women. Specifically, over-educated employees are more satisfied with their job overall, with pay, type of work, hours and workplace flexibility if they are mothers (as opposed to men and non-mothers) (Fleming and Kler, 2014). Women with young children who work part-time are found to be particularly satisfied with hours worked (in comparison to women with older children or no children) and work-life balance (in comparison to women with older children). This is the opposite of the findings for full-time employees, where mothers of young children are significantly less satisfied compared to both groups on both measures (Kifle, Kler and Shankar, 2014b). Consistent with this, Aletraris (2010) finds that Australian men employed as temporary agency workers report lower job satisfaction

2 The question wording is: 'At my place of employment, employees must choose between advancing in their job or devoting attention to their family or personal lives' (Bender, Donohue and Heywood, 2005:490).

than workers on permanent contracts, but this does not hold true for women. Booth and Van Ours (2009) find that among married Australian women, those who work part-time are more satisfied with their hours of work than those who work full-time, while married men are most satisfied working full-time. Fleming and Kler (2014) suggest that mothers' main reasons for work may lie above and beyond obtaining a job that matches their skill set. In the same vein, women who are mothers, and therefore seek out flexible employment, may have different desires from work and work orientations compared to men and childless women.

Hypotheses

Our main objective is to explore the way in which the notion of 'women's work' relates to occupational gender segregation and women's responsibility for childrearing. In particular, we examine whether patterns of job satisfaction are consistent with men and women having different preferences for undertaking particular types of work, or with alternative explanations for occupational segregation relating to institutional and social norms resulting from the role of women as mothers. To test this, we first examine if men's and women's job satisfaction is conditional upon the degree of feminisation of the occupation in which they are employed, before going on to examine the same association for mothers and non-mothers.

Our expectations are outlined in the following hypotheses:

> **H1:** *Women working in feminised occupations will have significantly higher satisfaction with 'the work itself' and their job overall, after controlling for other factors that influence job satisfaction, (a) compared to women working in less feminised occupations and (b) this relationship will not apply for men.*

This differential effect between women and men of working in feminised occupations should be additional to the average gender effect on job satisfaction, since we anticipate from the existing literature that women will tend to have higher job satisfaction than men across the board. This expectation is against the null hypotheses (a) that women's satisfaction with the work itself and their jobs overall in feminised occupations is not significantly higher relative to other women, and (b) any positive effect of working in feminised occupations is the same for women and men, which would suggest rejection of the 'women's work' explanation.

Across research on the gender wage gap, women's job satisfaction and occupational gender segregation, women's status as mothers, and thereby their responsibility for childrearing, has frequently been cited as a central factor. In light of this, we expect that women who have taken on the role of a mother (either currently have children or have had children in the past), will be significantly more satisfied with

the work they do and with their jobs overall in highly feminised occupations, compared to women who have no children. Given the gendered within-household division of labour (Baxter, Hewitt, and Haynes, 2008; Craig and Bittman, 2008; Ting *et al*. 2016) and the institutional settings (Crompton and Harris, 1998) present in both contemporary and past Australia we equate being a mother with having childrearing responsibility and taking on a secondary earner function. Specifically, we argue that institutional and social norms relating to women's roles will influence women's preferences and choices following child-bearing, and that this effect will be especially strong in feminised workplaces.

> **H2:** *Mothers working in feminised occupations will have significantly higher satisfaction with 'the work itself' and their job overall, after controlling for other factors that influence job satisfaction, (a) compared to mothers working in less feminised occupations, and (b) this relationship will not apply for non-mothers.*

Confirmation of such differences for mothers would support explanations for occupational segregation based on institutional and social norms over those based on preferences for 'women's work'.

We further finesse findings against these hypotheses by also modelling associations for satisfaction with pay, security, hours of employment and flexibility.

Method

Data and sample

To test our hypotheses we use the data from the first 19 waves of HILDA (2001–2019) supplemented by data on employment by occupation and gender from the 2006, 2011 and 2016 Australian Census of Population and Housing. HILDA is a panel survey of individuals from a representative sample of private households (Watson and Wooden, 2010). Within selected households all occupants aged 15 and over are surveyed annually. Around 13,000 individuals from over 7,000 households have responded in each year, with year-on-year attrition rates averaging below 10 per cent. In 2011 an additional top-up sample of 2,153 households encompassing 4,009 responding individuals was recruited to the survey sample (HILDA Survey Annual Report, 2012)[3]. By definition, all observations included in the analysis are for persons aged 15 and over and who were employed at the time of the relevant HILDA survey. For all analyses the sample is also restricted to exclude multiple job-holders and those who work as unpaid family helpers.

3 see http://melbourneinstitute.unimelb.edu.au/hilda for further details on the HILDA survey.

Key variables

In addition to a wealth of information on individuals' demographic and labour market characteristics, HILDA collects attitudinal data on a range of aspects of life in Australia. For all employed persons, this includes an assessment of their satisfaction with various aspects of their job on a scale ranging from 0 (totally dissatisfied) to 10 (totally satisfied). The items assessed are: total pay; job security; the work itself (what you do); the hours you work; flexibility available to balance work and non-work commitments; and finally 'All things considered, how satisfied are you with your job?'.

Taken by the ABS every five years, the Census covers virtually the entire Australian population, providing accurate data on gender composition by occupation at a more finely grained level of occupation than is possible using the HILDA sample. The level of feminisation by occupation was calculated as the proportion of females to total employment in each occupation, and matched to employed individuals in the HILDA sample by occupation and year. It is set to the 2006 Census value for waves 1–6 (2001 to 2006), the 2011 Census value for wave 11, the 2016 Census value for waves 16-19, and interpolated linearly for the periods in between (2007 to 2010 and 2012 to 2015).[4]

The level of feminisation was calculated at the Australian and New Zealand Standard Classification of Occupations (ANZSCO) 3-digit level. This was assessed as being the most appropriate level to capture occupational feminisation while also retaining sufficient within-occupation observations for analysis with the HILDA data. For example, the ANZSCO structure includes the 'Major Group' or '1-Digit' category of '2 Professionals'. In 2006, women made up the majority (53 per cent) of this 'Major Group'. Within this group is the 'Sub major' or 2-digit level of '25 health professionals', of whom 75 per cent were female in 2006. Within this group, the degree of occupational segregation becomes starkly apparent at the 3-digit level: women made up just 35 per cent of '253 medical practitioners', but 91 per cent of '254 Midwifery and Nursing Professionals'. In 2016, there were four 3-digit occupations in which women comprised more than 90 per cent of the workforce. Personal assistants and secretaries top the list at 97.2 per cent, followed by child carers, receptionists, and education aides. At the other end of the spectrum there were no fewer than 17 occupations in which women comprised less than 10 per cent of the workforce, with bricklayers, carpenters and joiners; plumbers; and fabrication engineering trades workers the most male dominated, with women comprising 1 per cent of workers or less in each case. This indicates that a fine level of disaggregation is necessary to accurately capture the degree of feminisation across occupations.

4 Data on occupational feminisation from the 2001 Census could not be used due to a change in occupational coding between the 2001 and 2006 Censuses. The data was downloaded from the ABS' online Table Builder facility.

Control variables

The control variables employed in the models comprise those used in previous empirical studies of job satisfaction using the HILDA data and cover characteristics of the individual, the workplace and the job. They include dummy variables capturing gender, whether the individual has a disability, is a union member, works non-standard hours, works some hours from home, is employed through a labour hire firm, has supervisory responsibilities and whether the firm operates from a single location as opposed to multiple locations. Categorical variables are used to capture level of highest qualification, country of birth (Australia, other English speaking country, or non-English speaking country); region of residence; marital status by presence and age of dependent children; firm sector; workplace size; type of employment contract; and usual hours of employment per week. Age, socioeconomic status (SES) of neighbourhood (decile), real hourly wage (logged), years worked in current occupation and years with current employer are entered as linear variables. The squares of age, years in current occupation and years with current employer are also included to capture possible second-order effects.

Analytic strategy

As the dependent variables (job satisfaction ratings) are ordered categorical variables, ordered probit models with random effects are estimated using the XTOPROBIT model available in STATA. The XTOPROBIT model has the advantage of utilising the full scale of the ordered dependent variable, whereas previous panel versions of probit or logit models required the outcome variable to be collapsed into a binary variable (such as 'satisfied' or 'dissatisfied'). There is, however, no fixed-effects version of XTOPROBIT. As a robustness check key models are also estimated using ordinary least squares (OLS) regression with both the random-effects and fixed-effects specifications, the latter to control for potential unobserved heterogeneity. Previous studies have indicated that results are robust to the assumption of ordinality or cardinality of satisfaction ratings (Ferrer-i-Carbonell and Frijters 2004), and thus estimation by OLS should provide a satisfactory test of the sensitivity of our results to controlling for fixed effects.

To test each hypothesis, the estimation approach proceeds in four stages. Consider, first, testing for gender differences in job satisfaction and the effect of occupational feminisation on job satisfaction (H1).

a) A multivariate model of the following form is estimated for the full sample of workers (male and female):

$$JS_{it} = \alpha + \gamma F_i + \beta X_{it} + v_i + \varepsilon_{it} \quad (1)$$

Where JS_{it} denotes individual i's self-reported job satisfaction at time t; F_i is a dummy variable indicating whether the individual is male (F=0) or

female (F=1); X represents the vector of other control variables with associated vector of coefficients β to be estimated. The error term has an individual-specific component v_i and the classical component ε_{it} which is distributed independently with mean zero. The coefficient γ is an estimate of the effect associated with being female on job satisfaction, and expected to be positive given the 'paradox of the contented woman'.

b) The model set out in equation (1) is then augmented with the additional variable capturing occupational feminisation:

$$JS_{it} = \alpha + \beta X_{it} + \gamma F_{it} + \delta FSHARE_{it} + v_i + \varepsilon_{it} \quad (2)$$

Where $FSHARE_{it}$ is the proportion of females in total employment in the occupation that individual i is employed in at time t. The estimated coefficient δ represents the average effect of occupational feminisation on job satisfaction across men and women, while any change in the estimate of γ from (1) indicates the degree to which the feminisation of occupations accounts for the gender difference in job satisfaction.

c) The model set out in equation (2) is estimated with interaction terms between *F* and *FSHARE* to allow differential effects of occupational feminisation on job satisfaction by gender.

d) The model set out in equation (2) is estimated separately for the sub-samples of males and females. This allows differential effects of all covariates by gender.

To test H2, relating to the effect of occupational feminisation on job satisfaction by motherhood status, the same four steps are followed with the sample restricted to female workers only, and the additional dummy variable, interaction terms and separate samples defined with respect to mothers versus non-mothers, instead of females versus males.

With the very large sample size available few variables proved insignificant and the extensive set of control variables potentially influencing job satisfaction was retained in all models, as can be seen in Table 6 in the Appendix which reports full regression results from estimating Equation (2). Note that variables for hours worked were not included in the models for satisfaction with hours worked or satisfaction with flexibility to balance work and non-work commitments; and the (log of) real hourly wages was not included in the model for satisfaction with total pay, as these relationships are considered too directly intertwined. However we comment on the sensitivity of the results to the omission of these variables. Means for all variables used can be found in Table 5 of the Appendix.

Findings

Descriptive statistics

As observed in previous studies for a number of countries, and in line with the 'paradox of the contented female worker', Australian women report significantly higher satisfaction with their jobs than men (see Table 1). Relative to men, women appear significantly more satisfied with their pay, with job security, the hours they work, flexibility to balance work and non-work commitments and their job overall. Women are also happier than men with the work itself, but the difference in mean ratings is only marginally significant.

Table 1: Mean job satisfaction: men and women, pooled data 2001-2019

	Total pay	Job security	The work itself	Hours worked	Flexibility	Job overall
Women	7.06	7.99	7.65	7.32	7.58	7.74
Men	7.00	7.84	7.63	7.15	7.44	7.62
Difference	0.06	0.15	0.02	0.18	0.14	0.12
t-test[a]	0.00	0.00	0.07	0.00	0.00	0.00

Notes: based on between 78,651 to 78,756 responses from women and 87,711 to 87,834 responses from men.
a. Figures give the probability of observing the difference in the means between men and women under the null hypothesis that the means are equal.

Table 2 shows raw correlations between the degree of feminisation of an occupation, measured as the percentage representation of females in an occupation, and job satisfaction. Women's overall job satisfaction increases with the degree of feminisation, as does satisfaction with each job aspect with the exception of flexibility to balance work and non-work commitments, for which the correlation is zero. The relationship is positive but not significant in the case of satisfaction with pay.

In contrast, men's overall job satisfaction decreases with the degree of feminisation of their occupation, and this applies for satisfaction with the work itself and hours worked. However, satisfaction with total pay, job security and the flexibility to balance work and non-work commitments is higher in occupations in which a higher proportion of women are employed. While the correlations are largest in magnitude for job security (men and women) and hours worked (women), they are generally very small in magnitude (though with the large sample size the hypothesis of a zero correlation can be confidently rejected in all but a few cases).

Table 2: Correlation coefficient between job satisfaction and degree of feminisation of occupation, pooled data 2001-2019

	Total pay	Job security	The work itself	Hours worked	Flexibility	Job overall
Women	+0.004 (0.27)	+0.057 (0.00)	+0.027 (0.00)	+0.060 (0.00)	+0.000 (0.97)	+0.042 (0.00)
Men	+0.007 (0.06)	+0.045 (0.00)	-0.027 (0.00)	-0.006 (0.07)	+0.036 (0.00)	-0.011 (0.00)

Notes: based on between 78,098 to 78,203 responses from women and 86,395 to 86,517 responses from men. Figures in parentheses indicate the probability of observing a correlation of this magnitude under the null hypothesis that the true correlation is zero.

H1: The effect of occupational feminisation on men's and women's job satisfaction

Table 3 summarises the key estimates of interest from the ordered probit models, with Panels A to D corresponding to estimates from steps a) to d) set out in the analytic strategy above. For brevity, full results are reported only for the models from Panel B (Table 6 in the Appendix).[5]

Results show that women are more satisfied than men with all job aspects despite controls for an extensive range of personal and job-related characteristics (Panel A). The higher level of satisfaction estimated for women is robust to the inclusion of the variable measuring the degree of feminisation of the individual's occupation (Panel B), and in fact becomes more pronounced in the case of satisfaction with pay and the work itself. Results presented in Panels C and D reveal that for men, satisfaction with the work itself and overall job satisfaction decline with the degree of feminisation of their occupation; while for women satisfaction in these domains is higher in more feminised occupations. Moreover, including these differential effects largely accounts for the higher job satisfaction observed for women, since the coefficient on the female dummy variable becomes insignificant (Panel C) for satisfaction with pay, the work itself, hours worked and for overall job satisfaction.

These results confirm Hypothesis 1. A comparison of Table 3 and Table 7(a) in the Appendix reveals that the results for key variables from the probit and OLS models with random-effects are qualitatively identical. Table 7(b) confirms that, with few exceptions, the results are also robust to estimation by fixed-effects to control for unobserved heterogeneity. The estimates relating to satisfaction with flexibility to balance work and non-work commitments are the most sensitive to the fixed-effects specification. The estimated effect of occupational feminisation on satisfaction with the work itself for the sub-sample of women is also no longer significant in the fixed effects model (Panel D,

5 Full results for all other models available from the authors upon request.

Table 7(b)). Importantly, however, the key findings hold that working in a more feminised occupation has a significantly more positive (or less negative) effect on satisfaction with pay, the work itself, hours worked and overall job satisfaction for women than for men.

Table 3: Ordered probit models of job satisfaction: males and females, selected coefficients

	Satisfaction with …					
Variable	Pay	Security	The work itself	Hours	Flexibility	Overall
Panel A						
Female	0.058*** (0.000)	0.126*** (0.000)	0.058*** (0.000)	0.121*** (0.000)	0.095*** (0.000)	0.087*** (0.000)
Panel B: Add Fshare						
Female	0.081*** (0.000)	0.086*** (0.000)	0.068*** (0.000)	0.098*** (0.000)	0.063*** (0.000)	0.086*** (0.000)
Fshare	-0.076*** (0.001)	0.149*** (0.000)	-0.031 (0.200)	0.079*** (0.000)	0.107*** (0.000)	0.005 (0.823)
Panel C: Add interaction term						
Female	0.017 (0.559)	0.061** (0.036)	-0.047 (0.117)	-0.023 (0.412)	0.105*** (0.000)	-0.032 (0.271)
Fshare	-0.129*** (0.000)	0.129*** (0.000)	-0.124*** (0.000)	-0.019 (0.508)	0.141*** (0.000)	-0.092*** (0.002)
Female*Fshare	0.125*** (0.007)	0.048 (0.308)	0.220*** (0.000)	0.231*** (0.000)	-0.080* (0.093)	0.228*** (0.000)
Panel D: Estimation on separate samples						
Fshare - females	-0.024 (0.490)	0.205*** (0.000)	0.101*** (0.006)	0.220*** (0.000)	0.070* (0.054)	0.130*** (0.000)
Fshare - male	-0.123*** (0.000)	0.093*** (0.004)	-0.154*** (0.000)	-0.063** (0.037)	0.107*** (0.001)	-0.106*** (0.001)

Notes: Significance levels in parenthesis. ***, ** and * denote the estimate is significantly different from zero at the 1%, 5% and 10% levels, respectively. Full results for models reported in Panel B can be found in Table 6. Number of observations (males plus females) varies from 142,065 to 162,880 depending upon the model, with women contributing 48.5% of observations.

For women satisfaction with job security, hours worked and flexibility also increases with the degree of feminisation of their occupation. Interestingly, men working in more feminised occupations are also happier with the security and flexibility of their work compared to men working in less feminised fields, but less happy with all other aspects of their work. When it comes to satisfaction with flexibility, the positive effect of working in more feminised occupations is more robust for men, while for satisfaction with security women experience a larger positive effect.

As noted, controls for actual hours worked were not included in the initial models for satisfaction with hours or satisfaction with flexibility, and separate models were estimated to test the sensitivity of the results to their inclusion. When controls for hours usually worked are included in the model for hours satisfaction, the positive estimated effect of occupational feminisation is reduced for women and the negative effect accentuated for men. This suggests that working in more feminised occupations is associated with a greater mismatch between actual and preferred hours of work for men than is the case for women. Adding controls for actual hours worked in the model for satisfaction with flexibility to balance work and non-work commitments results in the coefficient on being female (Panel A) becoming negative and highly significant, as does the coefficient on *FSHARE* in Panel B. For men and women the estimated effect of working in a more feminised occupation is now to reduce satisfaction with flexibility, and the estimated effect of *FSHARE* is not significantly different for women and men. That is to say, the greater satisfaction women report in terms of flexibility, and the added flexibility benefits associated with more feminised occupations, are captured in working hours. A caveat to this is that the presence of other forms of flexible working arrangements have also been controlled for in the original models, including working non-standard hours (defined as working anything other than a regular Monday to Friday day-time schedule) and working some hours from home.

Of particular note, men are markedly less satisfied with their pay if they work in more feminised occupations. For women, satisfaction with pay is also estimated to decline marginally with occupational feminisation. While this estimate is not statistically significant, pay is the only domain in which women's satisfaction does not increase significantly with feminisation (although the effect is only weakly significant for flexibility). As noted, actual pay was not included as a control variable in the models for satisfaction with pay. When the log of the hourly wage rate is included as a control variable (results not reported), the coefficient for occupational feminisation (Panel B) becomes insignificant, as do the coefficients on the female-by-*FSHARE* interaction term (Panel C) and for *FSHARE* in the male sub-sample (Panel D). Thus the lower satisfaction with pay observed in more feminised occupations for both male and female workers can be accounted for by the actual (lower) earnings in those occupations.

The findings that women are on average more satisfied with the work itself and their jobs overall when working in more feminised occupations, and are more satisfied with these aspects compared to men working in feminised occupations, are consistent with the argument that women choose to work in highly feminised occupations because they prefer the type of work done and are generally satisfied with their employment situation. Such findings frequently lead to claims that women are content to accept lower wages, a lower status, or less secure employment contracts as compensating differentials for other desired job attributes. Following this argument, women's lower status in the labour market (and high levels of representation in ranks of generally lower paying, highly feminised occupations) would not constitute discrimination, and should therefore not be seen as a societal 'problem' which should be countered by policy efforts (such as gender equality policies).

Of central importance, however, the way responsibility for childrearing may shape women's preferences has not been sufficiently addressed in these models. The models do control for the direct effect of marital status, the number of children in the household, and the age of those children on job satisfaction. However, they do not permit the effects of covariates on job satisfaction to vary between mothers and non-mothers, which is necessary to capture differences in preferences by workers' motherhood status – most importantly with respect to working in feminised occupations. This is addressed by Hypothesis 2, and is examined in the next section.

H2: Mothers' and non-mothers' job satisfaction

Table 4 displays the ordered probit results for women's job satisfaction by occupational feminisation and motherhood status. Mothers are defined on the basis of whether or not the woman has ever had children. The set-up of the panels is equivalent to the men's and women's job satisfaction models, except that the comparison groups are now mothers and non-mothers (rather than women and men). For comparability, the same set of independent variables are retained in each satisfaction domain as before (see Table 6, Appendix), with the exception of the set of mutually exclusive variables capturing marital status and the presence of dependent children by age. As the presence and age of children are inapplicable to non-mothers, these were replaced by a single dummy variable indicating whether or not the woman is married or living in a de facto relationship.

Panel A of Table 4 shows that mothers are significantly happier than non-mothers with the work itself, their hours of work, flexibility and their job overall. These associations remain significant in Panel B when occupational feminisation is controlled. This panel reaffirms that women in more feminised occupations are more satisfied with all aspects of their work with the exception of pay. These effects remain despite the wide range of controls included in the models.

Estimates for the interaction term (Panel C) show that for women who are mothers, working in more feminised occupations is associated with a significantly greater increase in satisfaction with their pay and the work itself (weakly significant, p=0.080) than is the case for non-mothers. This provides qualified support for *Hypothesis 2b*, that mothers in female dominated occupations will be significantly more satisfied with their jobs, and notably with the work itself, compared to non-mothers in similar occupations. Further support is provided in Panel D: the estimated effect of occupational feminisation on satisfaction is more positive for mothers than for non-mothers for all aspects with the exception of job security, for which the estimates are very similar. That satisfaction with the work itself increases with occupational feminisation for mothers, and more so than for non-mothers, is also supported by the OLS estimates with random- and with fixed-effects (Table 8, Appendix).

Table 4: Ordered probit models of mothers' and non-mothers' job satisfaction: (women only) selected coefficients

	Satisfaction with …					
Variable	Pay	Security	The work itself	Hours	Flexibility	Overall
Panel A						
Mother	-0.035 (0.125)	0.037 (0.127)	0.157*** (0.000)	0.158*** (0.000)	0.145*** (0.000)	0.108*** (0.000)
Panel B: Add Fshare						
Mother	-0.034 (0.132)	0.034 (0.161)	0.154*** (0.000)	0.149*** (0.000)	0.143*** (0.000)	0.104*** (0.000)
Fshare	-0.023 (0.501)	0.203*** (0.000)	0.099*** (0.007)	0.217*** (0.000)	0.068* (0.060)	0.130*** (0.00)
Panel C: Interaction effects with mother status						
Mother	-0.156*** (0.001)	0.031 (0.523)	0.081* (0.089)	0.090** (0.048)	0.171*** (0.001)	0.071 (0.130)
Fshare	-0.135*** (0.006)	0.200*** (0.000)	0.035 (0.493)	0.166*** (0.000)	0.093* (0.067)	0.101** (0.043)
Mother*Fshare	0.192*** (0.003)	0.005 (0.939)	0.116* (0.080)	0.093 (0.138)	-0.044 (0.516)	0.051 (0.430)
Panel D: Separate samples (mothers and non-mothers)						
Fshare - mother (female)	0.044 (0.351)	0.194*** (0.000)	0.168*** (0.001)	0.261*** (0.000)	0.084* (0.102)	0.136*** (0.005)
Fshare - non-mother (female)	-0.152*** (0.002)	0.209*** (0.000)	0.032 (0.542)	0.160*** (0.001)	0.033 (0.506)	0.107** (0.036)

Notes: Significance levels in parenthesis. ***, ** and * denote the estimate is significantly different from zero at the 1%, 5% and 10% levels, respectively. Number of observations (mothers plus non-mothers) varies from 69,246 to 77,078 depending upon the model, with mothers contributing 58.8% of observations.

Hypothesis 2a is also confirmed in Panel D (Table 4). For mothers, working in a more feminised occupation is associated with significantly higher satisfaction with job security, the work itself, hours, flexibility (p=0.10) and their jobs overall. This is in contrast to non-mothers who, compared to their contemporaries working in less feminised occupations, are significantly less happy with their pay, and are not significantly happier with the work itself or flexibility. Non-mothers in more female dominated occupations are, however, happier with the security, the hours they work and their job overall (marginally significant, p=0.036). However, for non-mothers only the effect of feminisation on satisfaction with security and hours worked attain significant in the fixed-effects models.

It is worth noting that the direct estimated effect of motherhood in the OLS fixed-effects model (Panel A, Table 8(b)) is positive and highly significant for satisfaction

with the work itself, hours worked and flexibility, and positive and weakly significant for overall job satisfaction ($p<0.10$). However, motherhood is negatively associated with pay satisfaction. With the fixed effects estimator, these estimates are based on observations only for women who became mothers during the timeframe of our panel. Hence, these results are consistent with the 'paradox of the contented woman' being partially associated with motherhood, and with the motherhood penalty experienced with respect to pay.

As with the differences between men and women's satisfaction with their pay, the differential effect of feminisation on pay satisfaction between mothers and non-mothers (Panel C) becomes insignificant when actual pay is added to the control variables. In the model for satisfaction with hours worked, adding the controls capturing actual hours worked fully accounts for the higher hours satisfaction observed for mothers relative to non-mothers, and partially accounts for the positive overall association between occupational feminisation and hours of work satisfaction (results not shown). The inclusion of actual hours worked also accounts for the higher satisfaction mothers report with regard to flexibility (Panel A), and the positive association between occupational feminisation and satisfaction with flexibility (results not shown). It remains the case that no significant differential effect of occupational feminisation on satisfaction with flexibility is observed once hours of work are taken into account.

For both men and non-mothers, greater occupational feminisation is strongly associated with dissatisfaction with pay, a relationship not evident for mothers. For satisfaction with the work itself, hours, flexibility and the job overall, the estimated coefficient on *FSHARE* for non-mothers lies between the corresponding estimates for men and for mothers. Thus, empirical support for the notion of 'women's work' as an explanation for gender segregation by occupation is most evident for mothers. Furthermore, if we restrict the estimating sample to men and non-mothers, the resulting coefficients on the female dummy variable (which compare to estimates for all women in Panel A, Table 3) show no significant difference between men and non-mothers in terms of satisfaction with the work itself ($\beta=-0.010$ $p=0.569$) and overall job satisfaction ($\beta=+0.010$ $p=0.593$). The 'paradox of the contented female worker' primarily characterises mothers, and ought perhaps, be reframed as the 'paradox of the contented working mother'. As we discuss below, given the gendered social and institutional norms surrounding parenthood in modern-day Australia, which lead to women taking on the childrearing responsibilities and secondary earner role upon becoming mothers, this finding is not such a paradox after all.

Conclusion and discussion

In Australia, as in other countries, there is ongoing debate about the causal processes that generate occupational segregation by gender, the implications of that segregation

for equality in labour market outcomes (such as wages), and the appropriate role, if any, for government policy and human resource practice. If occupational segregation is the result of individuals exercising their free choices and reflects differences in preferences of men and women regarding the given set of job attributes across occupations, then one could argue that inequality in outcomes should not be considered discrimination. To investigate the degree to which occupational segregation is driven by differences in preferences, this paper has analysed patterns in workers' job satisfaction conditional upon the degree of feminisation of their occupation.

Some caveats must be noted regarding the use of self-report of job satisfaction to reflect preferences. First, preferences themselves may be shaped by societal norms regarding gender roles in and between the family and the labour market, particularly through people identifying certain occupations as being 'men's work' or 'women's work'. In this sense it is argued that occupational choice is not so 'free', but significantly constrained by societal norms. Second, people's satisfaction reports can be shaped by the degree to which they conform to social norms (Triandis, 2000), and thus individuals' reports of job satisfaction may partly reflect societal values rather than the actual value derived from the intrinsic elements of their jobs.[6] The fact that HILDA collects data on satisfaction with specific aspects of a job, as well as overall job satisfaction, partly mitigates this concern. Finally, the job attributes that men and women are choosing between may not be 'given' but endogenous to that choice, such that job attributes change depending upon gender composition. An example is the suggestion that highly feminised jobs are lower paid *because* a high proportion of women choose those jobs.

With these caveats in mind, the available evidence does not completely dispel the notion of 'women's work' as a contributing factor to segregation – that certain types of work are preferred by women. However, our analyses suggest that this applies particularly to women following childbirth. In particular we find that mothers – who are in turn more likely to have caring responsibilities and to be doing more unpaid work (Collin, 2008; Ting *et al*., 2016) – are especially likely to prefer the type of work done in occupations that are more highly feminised. No such relationship is apparent for women who have not had the responsibilities associated with mothering, while men tend to dislike the type of work done in more highly feminised occupations. In addition to liking the type of work done in more feminised occupations, mothers in those occupations are particularly more satisfied – or rather, less dissatisfied – with their pay compared to women who are not mothers. Satisfaction with hours worked also appears to increase marginally more sharply with occupational feminisation for mothers than non-mothers.

Overall, these patterns of job satisfaction conditional upon gender and motherhood status provide evidence of the persistence of the male breadwinner model in shaping occupational segregation by gender. The women who are most likely to face work and family arrangements that conform to this model – women who have children

6 This is not to deny that people will also derive satisfaction from not conforming, as undoubtedly applies to some women who break into male dominated jobs.

– are the women who most appreciate the hours of work offered in highly feminised occupations. Mothers are also more content with wages in those occupations, consistent with their income being considered secondary to her (male) partner's. That non-mothers' job preferences are a bit more like men's, but then drift towards preferencing highly feminised occupations when they become mothers is certainly suggestive of gender roles affecting occupational preferences. It is less clear why women who are mothers prefer the 'type of work' done in highly feminised occupations, since the type of work done should not affect their ability to take on family roles. A possible explanation is complementarity between the work done in those jobs and the roles they take on at home as wives and mothers that increases the preference for that type of work. Alternatively, or possibly fittingly, research has shown that women's identities shift when they become mothers (Deutsch *et al*., 1988), and working in highly feminised occupations may more closely fit their identity as 'mother' and secondary earner.

With regard to the causes of occupational segregation, Crompton and Harris (1998: 118) could well have been summarising our own results in concluding "employment structures are the outcome of both choice and constraint". We do not find evidence of discriminatory processes as a cause of occupational segregation by gender, but clearly social norms around the role of women as mothers shape occupational preferences and expectations. This is unlikely to change until there is greater balance within families in the division of caring roles and other non-work commitments between women and men. Such change may be promoted by the reform of employment entitlements within the Fair Work Act and practices within organisations to more proactively promote fathers taking on more of the caring role for young children, such as promoting male employees' uptake of parental leave.

However, our results present interesting new perspectives on the debate surrounding the gender wage gap in Australia. If it is true that the market does not highly value the type of work that women have a preference for, this may be a non-discriminatory reason for pay being lower in female dominated occupations. However, our finding that men's and non-mothers' satisfaction with their pay decreases with the degree of feminisation of their occupation, while that of mothers' does not, is inconsistent with this. Importantly, the differential effect by gender between pay satisfaction and occupational feminisation can be fully accounted for by controlling for *actual* wages. This appears contradictory to Baron and Cobb-Clark's (2010) suggestion that women's jobs are better paid, other things held equal. The observation that non-mothers are particularly less satisfied than other women with pay in feminised occupations is also inconsistent with women's jobs being better paid. This does give cause for greater scrutiny of pay equity between highly feminised occupations and other occupations. This applies in particular to how society values caring roles, such as in health, childcare and aged care, which are disproportionately undertaken by women, and their wages closely linked to state and federal government awards or funding decisions.

In following this line of investigation, we have stumbled upon an empirical resolution to the paradox of the contented female worker. The higher reported job satisfaction for women, in Australia at least, can be accounted for by the fact that

women's job satisfaction increases with the degree of feminisation of their occupation while men's job satisfaction falls. The inclusion of an interaction term between gender and occupational feminisation accounts for the higher average levels of overall job satisfaction reported by women. This applies particularly to mothers and, in terms of individual job characteristics, to satisfaction with the work itself and hours worked.

Our findings relating to the role of motherhood in Australia contrast with other explanations for the paradox of the contented woman. Clark's (1997) 'low expectations' hypothesis suggested the paradox would be a transitory phenomenon, and disappear as women's relative labour market position improved and their expectations were revised. Perugini and Vladisavljević (2019: 130) suggest overcoming 'gender role beliefs' as women are exposed to better jobs may contribute to this revision in expectations. Accordingly, Green *et al*. found evidence of the satisfaction gap vanishing in Britain "… because younger women became less satisfied as they aged, and because new female workers entered with lower job satisfaction than their early 1990's peers." (2018: 484). Our findings relating to mothers' job satisfaction and the type of work done suggest the effects of social norms extend well beyond gendered differences in expectations regarding job quality. Notably, the fixed-effects results (Panel A, Table 8) suggest that women's job satisfaction increases once they become mothers, even though they must also have aged.

In this paper we have sought to explore the notion of 'women's work' as a factor contributing to occupational segregation – the idea that certain occupations are highly feminised because women have a strong preference for the type of work done in those occupations. The evidence indicates that this notion of 'women's work' applies primarily to mothers. A priority for further research is to take a closer look at how women's preferences, attitudes and expectations develop over the life cycle, with a focus on the effect of motherhood and young women's fertility expectations.

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Appendix

Table 5: Variable means by gender, pooled data 2001-2019

Variable	Females	Males	Persons
Female share in occupation (0-1)	0.65	0.31	0.47
Satisfaction with [0-10]			
Pay	7.06	7.00	7.03
Security	7.99	7.84	7.91
The work itself	7.65	7.63	7.64
Hours worked	7.32	7.15	7.23
Flexibility	7.58	7.44	7.50
Overall job satisfaction	7.74	7.62	7.68
Female	1.00	0.00	0.47
Age	39.02	39.61	39.33
Age squared	1712.19	1764.27	1739.65
Has disability	0.13	0.13	0.13
Born in:			
Australia	0.81	0.80	0.80
English speaking country	0.08	0.10	0.09
Non-English speaking country	0.11	0.10	0.11
Highest qualification			
Post-graduate	0.06	0.05	0.05
Degree	0.27	0.19	0.23
Diploma	0.11	0.09	0.10
Certificate III/IV	0.17	0.29	0.23
Completed Year 12	0.17	0.16	0.17
Did not complete Year 12	0.23	0.22	0.22
Lives in:			
Major capital city	0.69	0.68	0.68
Inner regional	0.20	0.20	0.20
Outer regional/remote	0.11	0.12	0.12
SES of neighborhood (decile)	5.86	5.75	5.80
Married	0.65	0.69	0.67
Marital/dependent. child status			
Married, no children	0.30	0.31	0.30
Married, child aged 0-4	0.11	0.16	0.13
Married, child aged 5-14	0.15	0.14	0.15
Married, child age 15-24	0.09	0.08	0.08
Single, no children	0.28	0.30	0.29
Single, child aged 0-4	0.01	0.00	0.01
Single, child aged 5-14	0.04	0.01	0.02
Single, child age 15-24	0.03	0.01	0.02
Mother (female, ever had children)	0.60	0.00	0.28

Table 5: continued

Firm sector:			
Private for-profit	0.63	0.80	0.72
Private not-for-profit	0.10	0.04	0.06
Government business	0.04	0.04	0.04
Public sector	0.23	0.12	0.17
Other	0.01	0.00	0.01
Workplace size:			
Small (1-19 workers)	0.41	0.48	0.45
Medium (20-99 workers)	0.29	0.25	0.27
Large (100+ workers)	0.29	0.27	0.28
Operates from single location	0.36	0.43	0.39
Employment contract:			
Self-employed/employer	0.11	0.19	0.15
Fixed term contract	0.09	0.07	0.08
Casual contract	0.22	0.15	0.18
Permanent/ongoing	0.58	0.58	0.58
Other	0.00	0.00	0.00
Usual no. hours per week:			
0 to 15 hours	0.18	0.07	0.12
16 to 30 hours	0.26	0.09	0.17
31 to 38 hours	0.25	0.19	0.21
39 to 44 hours	0.17	0.26	0.21
45 to 54 hours	0.10	0.24	0.18
55 hours or more	0.04	0.15	0.10
Real hourly wage (log of)	3.32	3.42	3.38
Union member	0.25	0.22	0.23
Years in current occupation	8.71	10.76	9.79
Years in occupation squared	167.27	242.68	207.03
Years with current employer	6.59	7.82	7.24
Years current employer squared	101.82	145.27	124.73
Works non-standard hours	0.25	0.25	0.25
Works some hours from home	0.24	0.26	0.25
Employed by labour hire firm	0.02	0.02	0.02
Has supervisory responsibilities	0.41	0.50	0.46

Table 6: Job satisfaction: random effects probit models, HILDA 2001-2019 full sample (with female employment share in occupation)

	Satisfaction with …					
Independent variable	Pay	Security	The work itself	Hours	Flexibility	Overall
Female	0.081***	0.086***	0.068***	0.098***	0.063***	0.086***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age	-0.016***	-0.057***	-0.015***	-0.038***	-0.032***	-0.034***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age squared	0.000***	0.001***	0.000***	0.001***	0.000***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Has disability	-0.086***	-0.079***	-0.059***	-0.047***	-0.012	-0.067***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.282)	(0.000)
Born in:						
Australia	–	–	–	–	–	–
English speaking country	-0.080***	-0.041	-0.059**	-0.050**	-0.009	-0.037
	(0.001)	(0.112)	(0.020)	(0.029)	(0.729)	(0.143)
Non-English speaking country	-0.180***	-0.171***	-0.057**	0.017	-0.077***	-0.087***
	(0.000)	(0.000)	(0.013)	(0.437)	(0.000)	(0.000)
Highest qualification:						
Post-graduate	0.152***	-0.187***	-0.162***	-0.346***	-0.254***	-0.429***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Degree	0.026	-0.149***	-0.185***	-0.278***	-0.208***	-0.390***
	(0.212)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Diploma	-0.004	-0.131***	-0.158***	-0.150***	-0.095***	-0.261***
	(0.861)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Certificate III/IV	-0.012	-0.102***	-0.097***	-0.139***	-0.112***	-0.199***
	(0.520)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Completed Year 12	0.050***	-0.041**	-0.151***	-0.122***	-0.048**	-0.200***
	(0.007)	(0.028)	(0.000)	(0.000)	(0.011)	(0.000)
Did not complete Year 12	–	–	–	–	–	–
Lives in:						
Major capital city	–	–	–	–	–	–
Inner regional	0.059***	0.057***	0.084***	0.038**	0.011	0.094***
	(0.000)	(0.001)	(0.000)	(0.013)	(0.490)	(0.000)
Outer regional/remote	0.159***	0.121***	0.085***	0.085***	0.013	0.142***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.548)	(0.000)
SES of neighborhood (decile)	0.007***	0.009***	-0.008***	-0.001	0.004	-0.005**
	(0.001)	(0.000)	(0.000)	(0.790)	(0.101)	(0.013)
Family status:						
Married, no children	–	–	–	–	–	–
Married, child aged 0-4	0.017	-0.027*	0.098***	0.065***	0.083***	0.068***
	(0.258)	(0.095)	(0.000)	(0.000)	(0.000)	(0.000)
Married, child aged 5-14	0.020	-0.027	0.081***	0.033**	0.060***	0.078***
	(0.221)	(0.113)	(0.000)	(0.038)	(0.000)	(0.000)

Table 6: continued

	Satisfaction with …					
Independent variable	Pay	Security	The work itself	Hours	Flexibility	Overall
Married, child age 15-24	0.033**	0.001	0.065***	0.003	0.045***	0.067***
	(0.041)	(0.944)	(0.000)	(0.847)	(0.010)	(0.000)
Single, no children	-0.030**	-0.088***	-0.024*	-0.023*	0.020	0.000
	(0.019)	(0.000)	(0.075)	(0.069)	(0.144)	(0.986)
Single, child aged 0-4	-0.087*	-0.058	0.090	0.154***	0.137***	0.139***
	(0.096)	(0.292)	(0.105)	(0.002)	(0.008)	(0.009)
Single, child aged 5-14	-0.161***	-0.097***	0.107***	0.004	0.073**	0.096***
	(0.000)	(0.006)	(0.001)	(0.912)	(0.027)	(0.003)
Single, child age 15-24	-0.136***	-0.075**	0.021	-0.080**	-0.028	-0.006
	(0.000)	(0.045)	(0.532)	(0.020)	(0.424)	(0.862)
Firm sector:						
Private for-profit	–	–	–	–	–	–
Private not-for-profit	0.054***	0.108***	0.263***	0.181***	0.153***	0.217***
	(0.006)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Government business	0.199***	0.124***	0.167***	0.148***	0.066***	0.213***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)
Public sector	0.217***	0.180***	0.229***	0.186***	0.087***	0.276***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Other	0.019	0.161***	0.295***	0.109**	0.127***	0.223***
	(0.670)	(0.001)	(0.000)	(0.017)	(0.008)	(0.000)
Workplace size:						
Small (1-19 workers)	–	–	–	–	–	–
Medium (20-99 workers)	0.026**	-0.037***	-0.103***	-0.082***	-0.122***	-0.076***
	(0.016)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Large (100+ workers)	0.146***	-0.039***	-0.141***	-0.089***	-0.132***	-0.076***
	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
Operates from single location	0.008	0.094***	0.110***	0.055***	0.102***	0.102***
	(0.438)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Employment contract:						
Self-employed/employer	-0.200***	-0.307***	0.113***	-0.098***	0.217***	0.159***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Fixed term contract	0.052***	-0.464***	0.041***	0.003	-0.043***	-0.013
	(0.000)	(0.000)	(0.001)	(0.808)	(0.001)	(0.331)
Casual contract	0.187***	-0.483***	-0.093***	-0.140***	0.225***	-0.096***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Permanent/ongoing	–	–	–	–	–	–
Other	-0.164**	-0.480***	0.099	0.002	-0.028	-0.098
	(0.018)	(0.000)	(0.169)	(0.981)	(0.681)	(0.196)
Usual no. hours per week:						
0 to 15 hours	0.025	0.052***	-0.077***			0.071***
	(0.186)	(0.007)	(0.000)			(0.000)
16 to 30 hours	-0.084***	-0.040***	-0.098***			0.017
	(0.000)	(0.008)	(0.000)			(0.247)

Table 6: continued

	Satisfaction with …					
Independent variable	Pay	Security	The work itself	Hours	Flexibility	Overall
31 to 38 hours	-0.058***	-0.023**	-0.064***			-0.021*
	(0.000)	(0.046)	(0.000)			(0.056)
39 to 44 hours	–	–	–			–
45 to 54 hours	0.070***	0.059***	0.046***			-0.035***
	(0.000)	(0.000)	(0.000)			(0.002)
55 hours or more	0.111***	0.083***	0.079***			-0.120***
	(0.000)	(0.000)	(0.000)			(0.000)
Real hourly wage (log of)		0.011	0.062***	0.259***	0.202***	0.212***
		(0.321)	(0.000)	(0.000)	(0.000)	(0.000)
Union member	0.018	-0.050***	-0.030**	-0.060***	-0.176***	-0.067***
	(0.129)	(0.000)	(0.011)	(0.000)	(0.000)	(0.000)
Years in current occupation	0.002	0.001	-0.011***	-0.006***	-0.006***	-0.014***
	(0.104)	(0.437)	(0.000)	(0.000)	(0.000)	(0.000)
Years in occupation squared	-0.000	0.000	0.000***	0.000***	0.000**	0.000***
	(0.183)	(0.589)	(0.000)	(0.000)	(0.015)	(0.000)
Years with current employer	-0.001	0.011***	-0.018***	-0.009***	0.004*	-0.020***
	(0.754)	(0.000)	(0.000)	(0.000)	(0.051)	(0.000)
Years current employer squared	0.000	-0.000***	0.000***	0.000***	-0.000***	0.000***
	(0.210)	(0.000)	(0.000)	(0.001)	(0.005)	(0.000)
Works non-standard hours	-0.012	-0.033***	-0.041***	-0.314***	-0.170***	-0.119***
	(0.246)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)
Works some hours from home	-0.001	0.036***	0.107***	-0.108***	0.077***	0.082***
	(0.918)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
Employed by labour hire firm	0.041	-0.376***	-0.052**	0.065**	-0.121***	-0.040
	(0.132)	(0.000)	(0.049)	(0.011)	(0.000)	(0.130)
Has supervisory responsibilities	0.008	0.175***	0.049***	-0.135***	-0.105***	-0.010
	(0.362)	(0.000)	(0.000)	(0.000)	(0.000)	(0.241)
Fshare (Female share in occupation) (0-1)	-0.076***	0.149***	-0.031	0.079***	0.107***	0.005
	(0.001)	(0.000)	(0.200)	(0.000)	(0.000)	(0.823)
N (observations)	161,043	142,065	142,164	142,152	142,065	142,151
N (individuals)	23,943	22,833	22,849	22,847	22,838	22,846
Obs. per person:						
Minimum	1	1	1	1	1	1
Average	6.7	6.2	6.2	6.2	6.2	6.2
Maximum	19	19	19	19	19	19
Wald Chi-square	1857	3955	1968	3008	2371	2561
Prob > chi2	0.00	0.00	0.00	0.00	0.00	0.00

Notes: p-values based on robust standard errors in parenthesis. ***, ** and * denote the estimate is significantly different from zero at the 1%, 5% and 10% levels, respectively. Coefficients for the 10 cut-points relating to the 11-point satisfaction scale not reported.

Table 7: Linear models of job satisfaction: males and females, selected coefficients

	Satisfaction with …					
Variable	Pay	Security	The work itself	Hours	Flexibility	Overall
(a) Random effects						
Panel A						
Female	0. 055*** (0.010)	0. 159*** (0.000)	0. 071*** (0.000)	0.155*** (0.000)	0. 138*** (0.000)	0.097 *** (0.000)
Panel B: Add Fshare						
Female	0.090*** (0.000)	0.095*** (0.000)	0.085 *** (0.000)	0.128*** (0.000)	0.087*** (0.000)	0.096*** (0.000)
Fshare	-0. 117*** (0.001)	0. 238*** (0.000)	-0.047 (0.158)	0.095*** (0.006)	0.172*** (0.000)	0.005 (0.856)
Panel C: Add interaction term						
Female	-0.010 (0.823)	0.089** (0.037)	-0.061 (0.137)	-0.064 (0.137)	0.157*** (0.001)	-0.040 (0.267)
Fshare	-0.201*** (0.000)	0. 233*** (0.000)	-0.168*** (0.000)	-0.063 (0.163)	0.230*** (0.000)	-0.107*** (0.005)
Female*Fshare	0.195*** (0.008)	0.011 (0.874)	0.282*** (0.000)	0.371*** (0.000)	-0.136* (0.079)	0.262*** (0.000)
Panel D: Estimation on separate samples						
Fshare – females	-0.042 (0.459)	0.288*** (0.000)	0.122** (0.021)	0.337*** (0.000)	0.107* (0.070)	0.150*** (0.001)
Fshare – males	-0.174*** (0.000)	0.174*** (0.004)	-0.195*** (0.000)	-0.116** (0.012)	0.175*** (0.001)	-0.113*** (0.004)
(b) Fixed effects						
Panel A – n.a.						
Panel B: with Fshare						
Fshare	-0.122*** (0.007)	0.147*** (0.001)	-0.076* (0.073)	0.024 (0.594)	0.076 (0.123)	-0.025 (0.489)
Panel C: Add interaction term						
Fshare	-0.235*** (0.000)	0.138** (0.020)	-0.163*** (0.003)	-0.154*** (0.009)	0.038*** (0.568)	-0.133*** (0.006)
Female*Fshare	0.253*** (0.005)	0.019 (0.829)	0.198*** (0.021)	0.407*** (0.000)	0.087 (0.378)	0.247*** (0.001)
Panel D: Estimation on separate samples						
Fshare - females	-0.022 (0.749)	0.187*** (0.004)	0.038 (0.570)	0.270*** (0.000)	0.123* (0.094)	0.097* (0.077)
Fshare - males	-0.198*** (0.001)	0.107* (0.076)	-0.185*** (0.001)	-0.161*** (0.006)	0.047 (0.478)	-0.121** (0.013)

Notes: Significance levels in parenthesis. ***, ** and * denote the estimate is significantly different from zero at the 1%, 5% and 10% levels, respectively. Number of observations (males plus females) varies from 142,065 to 162,880 depending upon the model, with women contributing 48.5% of observations.

Table 8: Linear models of mothers' and non-mothers' job satisfaction: (women only) selected coefficients

	Satisfaction with …					
Variable	Pay	Security	The work itself	Hours	Flexibility	Overall
(a) Random effects						
Panel A						
Mother	-0.093**	0.053	0.200***	0.210***	0.184 ***	0.128***
	(0.011)	(0.132)	(0.000)	(0.000)	(0.000)	(0.000)
Panel B: Add Fshare						
Mother	-0.092**	0.049	0.197***	0.198***	0.180***	0.125***
	(0.013)	(0.161)	(0.000)	(0.000)	(0.000)	(0.000)
Fshare	-0.040	0.286***	0.121**	0.334***	0.106*	0.150***
	(0.480)	(0.000)	(0.022)	(0.000)	(0.074)	(0.001)
Panel C: Interaction effects with mother status						
Mother	-0.281***	0.051	0.075	0.106	0.232***	0.082
	(0.000)	(0.481)	(0.274)	(0.159)	(0.005)	(0.164)
Fshare	-0.215***	0.288***	0.013	0.253***	0.152*	0.113*
	(0.007)	(0.000)	(0.861)	(0.001)	(0.070)	(0.080)
Mother*Fshare	0.300***	-0.003	0.193**	0.145	-0.082	0.066
	(0.004)	(0.975)	(0.045)	(0.157)	(0.463)	(0.423)
Panel D: Separate samples (mothers and non-mothers)						
Fshare – mother (female)	0.056	0.272***	0.223***	0.407***	0.126	0.160***
	(0.453)	(0.000)	(0.001)	(0.000)	(0.114)	(0.007)
Fshare – non-mother (female)	-0.227***	0.299***	0.018	0.232***	0.052	0.120*
	(0.005)	(0.000)	(0.821)	(0.003)	(0.540)	(0.072)
(b) Fixed effects						
Panel A						
Mother	-0.089*	-0.053	0.128***	0.220***	0.253***	0.067*
	(0.079)	(0.282)	(0.006)	(0.000)	(0.000)	(0.094)
Panel B: Add Fshare						
Mother	-0.086*	-0.053	0.128***	0.211***	0.250***	0.064
	(0.091)	(0.290)	(0.006)	(0.000)	(0.000)	(0.113)
Fshare	-0.021	0.187***	0.039	0.270***	0.124*	0.099*
	(0.760)	(0.004)	(0.559)	(0.000)	(0.092)	(0.072)
Panel C: Interaction effects with mother status						
Mother	-0.252***	-0.043	0.003	0.164*	0.363***	0.031
	(0.005)	(0.634)	(0.975)	(0.083)	(0.000)	(0.668)
Fshare	-0.175*	0.195**	-0.070	0.230**	0.222**	0.071
	(0.062)	(0.030)	(0.453)	(0.015)	(0.028)	(0.361)
Mother*Fshare	0.265**	-0.016	0.198*	0.073	-0.179	0.051
	(0.026)	(0.891)	(0.086)	(0.556)	(0.179)	(0.599)
Panel D: Separate samples (mothers and non-mothers)						
Fshare – mother (female)	0.016	0.153*	0.169*	0.282***	0.149	0.104
	(0.865)	(0.084)	(0.060)	(0.003)	(0.143)	(0.168)
Fshare – non-mother (female)	-0.081	0.200**	-0.081	0.198*	0.104	0.091
	(0.424)	(0.039)	(0.432)	(0.050)	(0.326)	(0.282)

Notes: see notes, Table 4.

How Australia's employment services system fails jobseekers: Insights from self-determination theory

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Abstract

The implicit motivational assumptions of active labour market policies/programs (ALMPs) are that human behaviour can be predicted and controlled using positive and negative reinforcers such as rewards and incentives, and sanctions and punishments respectively. More contemporary psychological perspectives, however, propose that motivation does not emanate solely from the individual but is inextricably linked to the social context, with consequences for mental health. Little, if any, research in labour markets has considered the degree to which the motivation and mental health of unemployed people might be impacted by ALMPs more generally, and in particular, the Australian employment services system. In this paper a self-determination theory perspective is adopted, with analysis of longitudinal survey data of a sample of jobseekers in the 'jobactive' program examining how mental health was impacted as a consequence of their mandatory engagement with the frontline employees of employment services providers. The study concludes that unemployed people experience the employment services system as unhelpful and ineffective in assisting them to secure employment, and that engagement with the system is more likely than not to have an adverse effect on their mental health, primarily through the psychological need for relatedness and competence. The results have important implications for policy given the significant economic and human cost of diminished mental health and provide a constructive yardstick for the evaluation of alternative systems.

JEL Codes: J08, J64
Keywords: Active labour market programs (ALMPs), intervention, welfare conditionality, mutual obligation requirements, employment services, unemployment, mental health, well-being, basic psychological needs, self-determination theory

This paper is based on a broader research study for a PhD thesis (Sykes, 2022).

Introduction

Unemployment is viewed as a significant problem for many western societies and the cost of providing income support to unemployed people considered an economic burden to be minimised wherever possible. Consequently, governments have developed policies and reemployment intervention programs to improve both the unemployed person's capacity and their motivation to participate in the workforce. The policies, known as active labour market policies (ALMPs), have increasingly adopted requirements for receipt of payments. Known in Australia as *mutual obligation requirements*, these include mandatory participation in employment services programs, prescribed job application numbers, active monitoring of job search behaviour, and sanctions (including withdrawal of income support) for non-compliance with program requirements.

In Australia, whilst the Commonwealth government sets welfare policy and manages income support payments to unemployed people via its agency Centrelink, the provision of employment services intended to assist people to find and sustain employment is undertaken by contracted providers. The face-to-face services are delivered to unemployed people by the frontline workers, or Employment Consultants (ECs), of a range of for-profit and mission-based organisations referred to as Employment Services Providers (ESPs). These organisations are remunerated based on *'outcomes'*, that is, they are paid a fee by the government when they place the individual jobseeker into paid employment (if that employment is sustained for a prescribed period of time) or when the jobseeker is placed into an approved activity, such as a training course. It might be noted that ESPs, and by extension their ECs, are also contractually obligated to monitor the jobseeker's compliance with their mutual obligation requirements and to apply financial sanctions for any non-compliance.

The foundational assumptions of the employment services system

In the context of Australia's active labour market policy/programs (ALMPs), the employment services system that has been designed to solve the problem of unemployment is founded upon a particular set of assumptions about human motivation more generally, and the behaviour of unemployed people more specifically.

One key assumption is that is, in the absence of conditions which compel unemployed people to participate in the workforce, the incentive to work, or search for work, will be eroded. In other words, people will not be 'motivated' to search for work and must, therefore, be 'activated'. This activation is achieved primarily via a framework of mandatory job search and participation requirements and subsequent sanctions for non-compliance with the requirements, and, as measured by increased employment exits from the system, these policies largely appear to work (Filges *et al.*, 2015). The positive effects are explained through the economic assumption of moral hazard; that is, having access to the 'insurance' of unemployment benefits decreases a person's

incentive to search for work. Having constraints on the availability of income support benefits is argued to lead to a reduction in 'moral hazard' and consequentially, increased effort to search and exits from benefits (for example, see (Black *et al.*, 2003)

In addition, mandatory participation in programs has been shown to increase the job finding rate (for example, see Graversen and van Ours, 2008), and that an activation program which was both mandatory and difficult for the unemployed person to attend (geographically distant) was considered to be effective as 'a stick to job finding' (Graversen and van Ours, 2011). A number of studies have also found mandatory work search verification and minimum search requirements reduce the likelihood of continuing on income support payments (for example, see Borland and Tseng, 2007; McVicar, 2008, 2010), thus presenting a cogent case for their use. Research has also found that delivering both warnings about payment suspensions and enforcing suspensions can influence behaviour for both those who are being sanctioned and those who were being threatened with a sanction. This effect is referred to as the 'threat effect' and a systematic review of ALMPs by (Filges and Hansen, 2017) found a significant positive effect from the use of threats in these programs.

The other side of sanctions

However, whilst sanctions are promoted as offering a cost-effective means of activating unemployed workers to accept jobs more quickly, a further, and concerning, ex-post threat effect of the withdrawal of benefits for non-compliance has been found to predict a significant reduction in earnings from work, and reduced stability in ongoing employment. One study found that people who accepted lower paid jobs were more likely to leave those jobs and return to unemployment, and that the negative effects on earnings could be seen up to two years after unemployment had ceased (Arni *et al.*, 2013). Consequently, rather than offering a solution to the problem of unemployment, this approach appears to create another problem; that is, a cycle of unemployment. These cycles, and perhaps the inevitable resignation to a state of long-term unemployment, has been explained in terms of a process of psychological adaptation that occurs over periods of unemployment (De Witte *et al.*, 2010).

A more recent study in the Australian context by Gerards and Welters (2021) has also revealed some support for the argument against the rationale for mutual obligations. Using the Australian Household, Income and Labour Dynamics in Australia (HILDA) data, the study examined the extent to which being subject to mutual obligations affected job search intensity, time to reemployment, time in new employment, and job quality, measured in terms of hourly and weekly gross wage and hours worked. In contrast to what might be expected, the study found that whilst those who are subject to mutual obligations sustain their job search intensity, they take longer to secure employment and spend less time in employment when they do find work, then, when compared with other similar unemployed people, if they do find a job, it will be in comparatively lower quality jobs.

It has been further shown that the coercive nature of the programs' requirements framework are experienced as demeaning to participants (Peterie *et al*., 2019). Moreover, some scholars have argued that the requirement to train for and accept any job offered represents a human rights violation of the basic liberty of 'free choice of employment', as set out in Article 23 of the Universal Declaration of Human Rights (Raffass, 2014; United Nations General Assembly, 1948).

Recent research has also suggested that beyond the counter view of their prospective lack of efficacy and their legitimacy, there is the prospect that these programs have the potential to do harm to the mental health of participants. Examining how welfare conditionality impacts those who identify as having existing mental health impairments, researchers in the UK have found that welfare-to-work interventions in this cohort may in fact trigger negative responses, exacerbating the problem of gaining employment (Dwyer *et al*., 2020). Moreover, in another recent study in the UK, the application of sanctions on recipients of income support during periods of unemployment have been found to be associated with poor mental health outcomes, with increases in anxiety and/or depression (Williams, 2021).

Taking a different perspective

It can be argued that the implicit motivational assumptions of ALMPs reflect the psychological model of *behaviourism*, which posits that human behaviour can be predicted and controlled using positive and negative reinforcers such as rewards and incentives, and sanctions and punishments respectively (Delprato and Midgley, 1992; Skinner, 1953). Yet more contemporary psychological perspectives argue that rewards and punishments are not the only way people are motivated; that people can pursue activities for the sake of enjoyment, and that they can also internalise reasons why they might undertake activities they find less enjoyable (Deci *et al*., 1994). Furthermore, it has been proposed that motivation does not emanate solely from the individual but is inextricably linked to an individual's perceptions and experience of their social environment (Heider, 2013; Ryan and Deci, 2017), and that more optimal motivational and well-being outcomes can be achieved when the social context supports a person's psychological needs. Of equal importance, studies have also shown that there are *'dark side'* consequences for both motivation and mental health for social context in which attempts are made to influence others into action via coercive, controlling means (Ryan and Deci, 2000a).

Yet the notion that human motivation emerges as a consequence of interactions in a particular social context, such as an unemployed person's engagement with the employment services system, stands in stark contrast to assumptions upon which it is argued, the system is predicated upon. As we will describe below, the notion that human motivation and mental health impacts emerge as a consequence of interactions in a particular social context will be central to this study.

Self-determination theory

The purpose of this study is to understand the psychological processes that affect the mental health of unemployed people and therefore requires a robust theoretical framework upon which to build. In contrast to the behaviourist paradigm, one body of psychological research that views human motivation as an emergent of the social context is self-determination theory (SDT). Described as a meta-theory, and a comprehensive model of motivation, development and wellness (Ryan and Deci, 2017), SDT has been used in motivational research for more than 40 years (Gagné, 2018) across a number of life domains, including education, sport, health, and work, and also across cultures (Chen *et al*., 2014; Chirkov *et al*., 2003). It thus provides an appropriate foundation for this study.

SDT posits that humans have three psychological needs which are universal and persistent across the life span (Ryan and Deci, 2000b). The first of the psychological needs is autonomy, defined as the need to act with a sense of volition and self-endorsement over one's behaviour (Trépanier *et al*., 2013). It should be understood, however, that autonomy is not synonymous with independence or individualism as some scholars have assumed and that, importantly, people can autonomously choose to do something required by others or willingly relinquish their choice to others (Van den Broeck *et al*., 2016). The second of the basic psychological needs is competence and relates to a person's ability to master one's own environment and to feel effective (Baard *et al*., 2004). The third need, relatedness, is defined as the extent to which a person feels a sense of belonging or connection to others in their social environment (Bartholomew *et al*., 2011).

The importance of social context in SDT

The relationship between the individual and the social context in terms of basic need satisfaction is a central tenet of SDT as the three psychological needs are said to influence motivation to the extent that they are either supported, or thwarted, by the social context (Ryan and Deci, 2017). Before discussing social contexts further, it is useful to consider them as existing at three different levels (Klein and Kozlowski, 2000), and to explicate the relevance of these levels to this study. First, social contexts can be described at the macro level; as a set of conditions which collectively constitute cultures, and political and economic systems which are simultaneously manifestations of, and influencers of, human behaviour (Ryan and Deci, 2017). Second, a social context can be described at the meso level, for example, a school, family, sports team, or a work organisation. At this level, conditions are created by humans to influence behaviour within, and external to, an organisational unit. Finally, social contexts can be considered at the micro, or interpersonal, level; for example, in the dyadic relationships between, for instance, the teacher/student, coach/athlete, parent/child, and the supervisor/employee. At this level, the social context is personal (Deci and Ryan, 1987); that is, one party in the dyad is a socialising agent for the other (Ryan and Deci, 2000b). An analysis of each level and their interacting nature is necessary to understand how the broader system can impact the individual's experience.

In the context of the present study, at the macro level, societies, and the governments they form create the social (welfare) policy and the consequential employment services and income support systems. At the meso level, ESPs respond to that macro level context (the tenders/contracts for services and policy requirements) by developing organisational strategies, goals and objectives which seek to influence organisational behaviour within the meso level (the various strata of the organisation). Below, at the micro level (Gagné, 2018; Kanfer, 2008; Vansteenkiste and Van den Broeck, 2017) exist the interpersonal interactions between the ECs and the jobseekers, a significant component of which is to motivate jobseekers and to get job outcomes. Therefore, whether by design, intent, or through unintended consequences, it is clear that each of these distinct levels influences human behaviour at the level below, a downstream effect (Ryan and Deci, 2017; Sheldon *et al.*, 2003) that has motivational consequences.

At this juncture it is also important to clarify the terms used in the SDT literature referring to social contexts and the outcomes of interactions within them. More generally, social environments are characterised in terms of the extent to which they are a) autonomy supportive (versus demanding and controlling); b) effectance/competence supportive (versus inconsistent, overly challenging, or discouraging); and c) relationally/relatedness supportive (versus impersonal or rejecting) (Ryan and Deci, 2017). At the interpersonal (micro) level, ECs would be described as socialising agents who express particular motivating styles that influence behaviour in both positive and negative downstream effects (Reeve *et al.*, 1999; Reeve and Jang, 2006; Reeve *et al.*, 2018). This exchange at the interpersonal level is the focus of the present study as it is the influence most salient to jobseekers. Following the education literature (where SDT has been extensively applied), the ECs' interactions with jobseekers will be described through the lens of motivating styles, defined as the way a person communicates and acts in order to influence the behaviour of another (Reeve *et al.*, 2018). Accordingly, motivating styles are similarly described as being either need supportive or need thwarting/controlling.

A further clarification is also instructive; that is, while psychological need support or thwarting will collectively describe the set of conditions and motivating styles that facilitate psychological need support or need thwarting in others, the experience of the social context and motivating style for individuals is described in terms of need satisfaction or need frustration. The present study intends to use both constructs when examining the possible impacts of the employment services system on the mental health of jobseekers in Australia. That is, it looks at both the degree to which jobseekers perceive the employment services context as need supportive and need thwarting and how that experience influences the satisfaction and frustration of their needs for autonomy, competence and relatedness.

Significance of the study

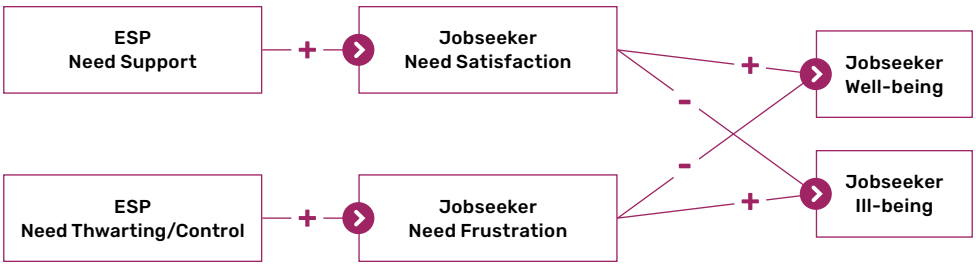
From a SDT perspective, the interpersonal interactions between ECs and unemployed people represent a distinct social context, one that is aimed at influencing or modifying the job search behaviour of unemployed people, and where necessary, achieving this objective through the enforcement of mutual obligation requirements. Yet whilst contemporary psychological research shows that a person's perception of their social environment will influence their subsequent behaviour and actions (Heider, 2013), there is little to suggest consideration has been given to how the coercive and punitive nature of the system might create a social context which could act to undermine the mental health of unemployed people, which may, in turn, adversely impact the very activities these programs are intended to produce.

It is therefore of importance to examine the degree to which programs of assistance are not only effective in delivering practical services to unemployed people but also that they are not, in fact, actively harming them. For, beyond the intention to increase job search outcomes and to reduce the economic cost of income support, it will be argued that the guiding principle of what is, after all, a human services system, must surely be to ensure the psychological safety of its beneficiaries.

Research aim and design

The study addresses the research questions primarily through a quantitative analysis of data collected in a series of five online surveys with unemployed people who were receiving income support and were thus mandatorily required to engage with the employment services system, known then as 'jobactive'. The conceptual framework for the hypothesised model is shown at Figure 1. Arrows indicating the expected relationships, that is, need support and need thwarting would affect (respectively) jobseeker well-being and ill-being as a consequence of the experience of psychological need satisfaction and need frustration.

Figure 1: Conceptual framework for the mental health outcome variables



Method

Data were collected via five online surveys using the Qualtrics (2020) platform. Distribution of the first survey began in mid-October 2020 and subsequent surveys were delivered to participants 14 days after the completion of the previous survey. Participants were recruited via invitations from a large employment services provider to their client base as well as from posts to job-related Facebook groups by the researcher.

The demographic composition of the final sample (n = 422) was compared with the population of interest. The range of ages of the sample was between 18 and 65 years, with an average age of 44.8 years (SD 12.9). Participants over the age of 60 were slightly over-represented in the sample (17 per cent) compared with 7.6 per cent in the population. There were fewer male participants, with 57.7 per cent females in the sample and women were slightly over-represented (48.7 per cent in the population). Participants with lower levels of education, for example, those who did not go beyond a Year 10 education (18.5 per cent) were under-represented in the sample, and those with tertiary qualifications over-represented (31.3 per cent).

Some states are over-represented in the sample. For example, Queensland (52.7 per cent) is a result of the ESP that sent the electronic invitations to participate being predominantly Queensland-based. Of the sample, 29.9 per cent (n = 123) reported they resided in a rural or remote area. In terms of ethnicity, a large majority of the sample identified as 'white Caucasian' (73.6 per cent), with a minority of participants identifying as First Nations People (8.6 per cent), which is representative of the population of interest.

Measures

Need Support and Need Thwarting at Time 1

As no scales had been developed to measure need support and thwarting in this particular context, 34 items representing the 6 sub-scales of autonomy support, competence support, relatedness support, autonomy thwarting, competence thwarting and relatedness thwarting were developed. Need supportive items were guided by cross-domain studies and validated scales including the Need-Supportive Management Scales (Parfyonova *et al.*, 2019), Managerial Need Support Scale (Paiement, 2019), and the teaching styles and approaches studies of (Aelterman *et al.*, 2018), whilst need thwarting items were similarly guided by scales including the Coaches' Controlling Interpersonal Style (Bartholomew *et al.*, 2010).

In survey 1, the items measured the perceived need supportive and thwarting behaviours of ECs toward jobseekers. To ensure that what was measured was specific to the context, the stem of the items referenced the mandatory engagements specifically: that is, "In your meetings with your Employment Services Provider, you will have had discussions about your job search activities, your Job Plan and your mutual obligation requirements. Thinking now about your meetings, please indicate the extent to which

you agree with the following statements". The items then measured each of the three basic psychological needs in terms of support and thwarting. For example: 'They give me choices about how to develop my Job Plan, such as training/education activities, work experience, job search assistance' measured *autonomy support*; 'They give me help that is practical and useful to me', measured *competence support*; and 'They are available to help me when I need them', measured *relatedness support*. Items measuring need thwarting behaviours by the ESPs were, for example, items such as 'They try to make me feel bad when they are not satisfied with my job search activities' measure *autonomy thwarting*; 'They recommend that I apply for jobs I know I am not qualified for', measured *competence thwarting*; and *relatedness thwarting* was measured by items such as 'They don't try to understand what life is like for me'. Responses were given on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

Need Satisfaction and Need Frustration at Time

The 18-item validated Need Satisfaction and Frustration Scale (Longo *et al*., 2016) was adapted to this context by changing the stem to reflect job search activities and the specific context of employment services, that is, 'thinking about your job search activities' and to align with the need support and thwarting scales. The scale was delivered at Time 2, and to align with the need support and thwarting scale, no time period reference was specified. The scale measures the 6 sub-scales of autonomy satisfaction, competence satisfaction and relatedness satisfaction, and autonomy frustration, competence frustration and relatedness frustration. For example, *autonomy satisfaction* was measured by items such as 'I feel free to conduct job search activities in my own way'; *competence satisfaction* with 'I feel confident that I can do well in all activities needed to secure a job'; and *relatedness satisfaction* measured with 'I feel understood by my Employment Consultant'. Items measuring the three frustration scales included, for example, 'I feel pressured to follow the advice of my Employment Consultant' for *autonomy frustration*; 'I don't feel competent to do what needs to be done to get a job' for *competence frustration*, and for *relatedness frustration*, 'I feel misunderstood by my Employment Consultant'. Responses were scored on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

Well-being at Time 2

A 3-item scale was used to measure *well-being*. Two items were taken from the vitality scale of Ryan and Frederick (1997), and participants asked to indicate the extent to which they agreed with the following two statements over the past two weeks; 'I felt alive and vital' and 'I felt alert and awake', and one item from the Satisfaction with Life item (Diener *et al*., 2013), 'Taking everything into account, I am satisfied with my life as a whole'. Responses were scored on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

Ill-being at Time 2

The 5-item Kessler Psychological Distress scale was used to measure *ill-being*. This scale has been found to be valid and reliable for both First Nations and non-Indigenous people (Brinckley *et al*., 2021). The question stem was with reference to time spent feeling this

way during the last two weeks: 'about how often did you feel nervous; about how often did you feel without hope; about how often did you feel restless or jumpy; about how often did you feel everything was an effort; about how often did you feel so sad that nothing could cheer you up? Responses were on a 5-point Likert scale: 1 (none of the time), 2 (a little of the time), 3 (some of the time), 4 (most of the time), 5 (all of the time).

Control variables

Many unemployment and reemployment studies have examined the numerous antecedents of mental health. Given the number of variables that have been associated with these outcomes, it was considered important that the findings of the SDT-based model proposed in this study were able to distinguish between those variables which might additionally or separately contribute to the study's outcome variables.

Two variables were determined to be of relevance. First, was *perceived future job prospects* (or reemployment expectations), which following Vansteenkiste et al. (2005) were measured by asking survey participants at Survey 1 the following two questions: 'Within the next 4 weeks, how likely do you think it is that you will find a job that is a good fit with the type of work you want?' To gauge the participants' expectancy of gaining any form of employment, the second question then asked 'Within the next 4 weeks, how likely do you think it is that you will find any job, regardless of whether it is a good fit?' Responses to both questions were given on a 5-point Likert scale: 1 (extremely unlikely), 2 (somewhat unlikely), 3 (neither likely or unlikely), 4 (somewhat likely) and 5 (extremely likely). The responses for the two items were combined to create an average score for perceived future job prospects.

Following Warr and Jackson (1984), the second control variable, *perceived financial strain* was measured by a single item, 'Thinking back over the past 4 weeks, how often have you had serious financial worries?'. Responses were scored on a 5-point Likert scale: 1 (never), 2 (hardly ever), 3 (frequently), 4 (nearly all the time), and 5 (all the time).

Results

Preliminary analyses

As assessed by the Shapiro-Wilk test, data for all variables in the study were found to be non-normally distributed and accordingly, as recommended, all measurement models were estimated using robust maximum-likelihood estimation (MLR) procedures (Kline, 2016). To assess construct validity, confirmatory factor analysis (CFA) using Mplus 8.6 (Muthen and Muthen, 1998-2021), were conducted for all measurement models. As Mplus does not allow MLR to be used with bootstrapping (which is necessary for assessing direct and indirect effects), maximum-likelihood (ML) was used in the mediation analysis.

Need Support and Thwarting at Time 1

As the scales for need support and need thwarting had been developed for use in this new context, data collected in Survey 1 (n = 304) for the measurement model were examined with confirmatory factor analysis (CFA), a method that is recommended for explicitly testing a priori relationships between observed variables (Jackson *et al.*, 2009).

The 34 items of this scale were expected to load onto two factors, need support and need thwarting, however, the model fit for a two-factor solution was poor, a number of items had poor factor loadings, and there was a high correlation between the two factors (r = -.80). Consequently, alternative models were explored which sought to meet the three attributes suggested by Kline (2016); that is, the respecified model makes theoretical sense, is relatively parsimonious, and has an acceptable fit with the data. Two items were removed due to poor factor loading and an additional four items which, upon examination of face validity, indicated some duplication with other items that could be removed for parsimony. The retained items had factors loadings >.7 and the 11-item sub-scales for need support and need thwarting determined to have internal reliability, with Cronbach's alphas of .95 and .93 respectively. The goodness-of-fit statistics[1] (GOF) for a respecified model are as follows: SBS-χ^2(*df* = 208) = 606.429, *p* = .0000, CFI = 0.901, RMSEA = 0.079, SRMR = 0.074.

Need Satisfaction and Need Frustration at Time 2

A CFA was conducted on the sample from Survey 2 (n = 227). The 18 items used in this measure were expected to load onto two factors: satisfaction and frustration. However, the GOF statistics for a two-factor model were unacceptable, factor loadings were poor (12 items < .7), there was a very high correlation between satisfaction and frustration (r = -.921) and therefore the model was rejected. Guided again by a priori theory, alternative models were specified and the GOF statistics for the final measurement model (4-factor) are as follows: SBS-χ^2(*df* = 84) = 160.566, p = .0000, CFI = 0.949, RMSEA = 0.063, SRMR = 0.051. Factors loadings were > .70 with the exception of one item (.44). Internal reliability was assessed for each of the four factors and Cronbach's alpha determined as follows: autonomy satisfaction (.66), autonomy frustration (.82), competence need (.80) and relatedness need (.93).

Mental health outcome variables

Although the 5-item Kessler Ill-being scale remained unchanged from the previously validated scale, a CFA was also conducted to validate items loaded to a single factor (n = 224). A one-factor model showed a reasonable fit to the data, SBS-χ^2(*df* =10) = 418.263, p = 0.000, CFI = .958, RMSEA = .124, SRMR = .030. Factor loadings were all >.75. Internal reliability was also confirmed (α = .89). For the well-being measure, the three-item well-being scale showed good internal reliability (α = .84).

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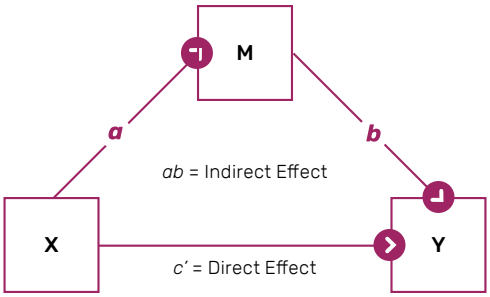
1 SBS = Satorra-Bentler scaled chi-square. CFI = Comparative fit index. RMSEA = Root mean square error of approximation. SRMR = Standardised root mean residual.

Mediation analysis approach

Before presenting the study's results, it may be helpful to review the concept of mediation analysis, and to explicate the position that will be taken with regard to the analysis in this study, with particular regard to the role of direct effects, the relevance of total indirect effects, tests of the significance of indirect effects, and the inference of mediation.

In simple mediation analysis, the independent (X) variable exerts an effect on an outcome variable (Y) directly and/or indirectly through M (Hayes, 2017). That is, as shown in Figure 2, the *direct effect* (c') estimates the effect of X on Y with the mediators being held constant, whereas the *indirect effect* of X on Y goes *through* the mediator variable (M) and is a product of the two path coefficients (a) and (b). The *total effect* of a simple mediation model is then the sum of the direct effect of X on Y and the indirect effect of X on Y.

Figure 2: Direct, Indirect and Specific Indirect Effect Paths



While it would once have been considered critical for the direct effect of an independent variable on an outcome variable to be significant (Baron and Kenny, 1986), more recently, methodologists have shown that a non-significant test of the direct effect does not preclude a finding of mediation (Hayes, 2017; Hayes and Scharkow, 2013), and in particular, where the effect being studied is distal to the 'cause' (Shrout and Bolger, 2002), as is the case in this research. Moreover, it has also been argued that an overemphasis on the independent to dependent variable relationship can lead to incorrect conclusions (Rucker *et al.*, 2011).

In addition, it has also been argued that when the stated hypotheses are specifically testing for indirect effects, as is the case in this study, the test for total effects (which includes the direct effect as well as the indirect effects) is not relevant to the analysis, particularly where data are collected over time (Agler and De Boeck, 2017) as is also the case in this study. Accordingly, to answer the research questions and test the hypotheses of whether need support and need thwarting exert an effect on jobseeker mental health indirectly through psychological need satisfaction and/or need frustration, while the direct effects will be reported, the analysis will focus on the specific indirect effects.

Specifying the hypothesised structural model

Based on a priori theory, the hypotheses in this study were premised on the indirect effects of the two independent variables (ESP need support and ESP need thwarting) on the two mental health outcome variables (jobseeker well-being and ill-being) being transmitted through the satisfaction of the three psychological needs (autonomy, competence, and relatedness) and the frustration of the same three needs. In other words, the indirect effect of ESP need support on jobseeker mental health would be through need satisfaction, whilst the indirect effect of ESP need thwarting would be through need frustration.

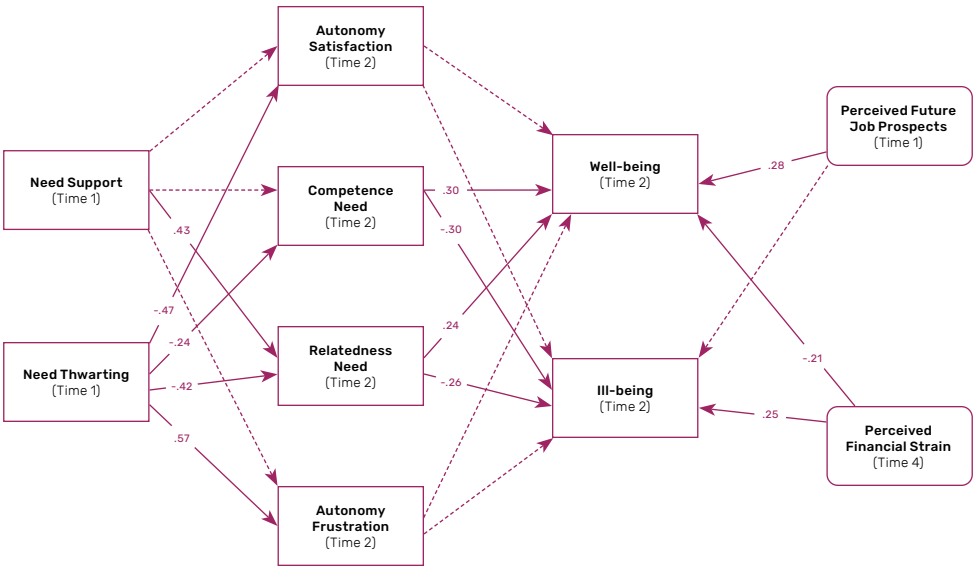
It may be recalled, however, that the expected two-factor measurement model for the (T2) mediating variables was rejected, and that a four-factor model was determined to have the best fit for the data, having lower inter-variable correlation, yet still being theoretically plausible. Two of the mediators for the path model then represent the parallel paths of satisfaction and frustration, namely, autonomy satisfaction and autonomy frustration, whereas competence is a composite factor representing competence satisfaction and frustration, and relatedness is a composite factor representing relatedness satisfaction and frustration. For clarity, when referring to results for competence and relatedness, we will refer to each as being the extent to which the need is satisfied, acknowledging that the composite factor includes reverse-scored frustration items.

The hypothesised mediation model showed a marginally acceptable fit to the data: SBS-χ^2(df = 10) = 37.701, p = .000, CFI = 0.940, TLI = 0.738, RMSEA = 0.095, SRMR = 0.057. Again, following (Kline, 2016), it was considered valid to explore the respecification of the model based on theory or prior empirical results. Accordingly, the modification indices produced by the Mplus statistical analysis software were consulted as a means of determining what changes (if any) could be made which met these criterion and improved model fit. Guided by both the original hypothesised paths, SDT, and the modification indices, it was determined that the model could be respecified so that the two paths that had not been included (previously described) were added to the model. That is, T1 need thwarting (T1NDTHW) was regressed on T2 autonomy satisfaction (T2AUTSAT), and for theoretical consistency, T1 need support (T1NDSUP) was also regressed on T2 autonomy frustration (T2AUTFRU) so that all possible mediated paths were examined in the model. The GOF statistics of the respecified model were reassessed and yielded a very good fit with the data: SBS-χ^2(*df* = 8) = 14.919, p = .061, CFI = 0.987, TLI = 0.927, RMSEA = 0.053, SRMR = 0.026. Finally, the two control variables were added to the model, and examination of the GOF statistics again found to be satisfactory, SBS-χ^2(*df* = 16) = 26.352, p = .049, CFI = 0.982, TLI = 0.934, RMSEA = 0.046, SRMR = 0.049. Although there was a non-trivial change in SRMR (.023), the overall model fit was assessed as very good.

Analysis of paths between hypothesised model variables

The final structural model, including the two control variables is presented in Figure 3, with the statistically significant path coefficients (those where 95 per cent confidence interval did not include zero) indicated in bold. Full details of all paths are shown in Table 1, including the r-squared statistics for the variables in the model.

Figure 3: Final Respecified Hypothesised Structural Model with Standardised Path Coefficients



Note: Statistical significance based on 95 per cent confidence intervals where the interval did not include zero. Bold lines denote significant path coefficients. Dotted lines denote non-significant path coefficients. Control variables are shown in rounded corner boxes.

Table 1: Standardised path coefficients for hypothesised model with r-squared statistic

	T2 Autonomy Satisfaction		T2 Autonomy Frustration		T2 Competence		T2 Relatedness	
a Paths	β	95% CI	β	95% CI	β	95% CI	β	95% CI
T1 Need Support	.03	[-.156, .248]	-.06	[-.255, .147]	.01	[-.197, .226]	**.43**	[.241, .593]
T1 Need Thwarting	**-.47**	[-.642, -0.271]	**.57**	[.402, .714]	**-.24**	[-.438, -.029]	**-.42**	[-.567, -.252]
R^2	.24		.37		.06		.60	

	T2 Well-being		T2 Ill-being	
b Paths	β	95% CI	β	95% CI
T2 Autonomy Satisfaction	.16	[-.016, 0.324]	.04	[-.138, .241]
T2 Autonomy Frustration	-.10	[-.283, 0.081]	-.06	[-.249, .132]
T2 Competence	**.30**	[.136, 0.457]	**-.30**	[-.460, -.144]
T2 Relatedness	**.24**	[.003, 0.504]	**-.26**	[-.484, -.036]
T1 Perc. Future Job Prospects	**.28**	[.134, 0.438]	.07	[-.085, .215]
T4 Financial Strain	**-.21**	[-.385, -0.025]	**.25**	[.044, .457]
R^2	.38		.33	

Mediation analysis results for hypothesised model with control variables

Esp Need Support to Jobseeker Well-being

Need support was found to exert an effect on well-being indirectly through relatedness satisfaction β = .10, CI [.007, .269] but not through autonomy satisfaction, autonomy frustration or competence satisfaction. The direct effect of ESP need support on jobseeker well-being was not significant and was of the opposite sign, β = -.14, CI [-.379, .086] to the indirect effect through relatedness. It may be also noted that there was a positive zero-order correlation between need support and well-being, r = .24, p < .001 indicating the presence of a suppression effect.

ESP Need Support to Jobseeker Ill-being

The hypothesis that a negative relationship between ESP need support and ill-being would be mediated by psychological needs was also partially supported, with evidence found for a medium, negative indirect effect through relatedness need, β = -.11, CI [.-.251, -.023]. Again, ESP need support was not found to be transmitted through any of the other three mediators via specific indirect (autonomy satisfaction, autonomy frustration, and competence).

The direct effect of ESP need support on jobseeker ill-being was significant, and as in the case of need support on well-being was of the opposite sign, β = .23, CI [.004, .449], to the indirect effect through relatedness. Again, there is evidence of a suppression effect with a negative zero-order correlation between need support and ill-being, r = -.18, p < . 05.

ESP Need Thwarting to Jobseeker Well-being

As hypothesised, the influence of ESP need thwarting on jobseeker well-being was transmitted negatively through the indirect effects of psychological need support. Results showed small, negative effects via competence need, β = -.07, CI [. -.168, -.013], and a medium effect through relatedness need, β = -.10, CI [. -.224, -.007]. The pathways through autonomy satisfaction and autonomy frustration were not statistically significant. The total indirect effect of need thwarting on well-being was large and negative, β = -.30, CI [. -.466, -.157]. The direct effect of ESP need thwarting on jobseeker well-being was positive, β = .15, CI [. -.005, .354] but was not statistically significant.

ESP Need Thwarting to Jobseeker Ill-being

Need thwarting was hypothesised to influence ill-being through either a reduction in need satisfaction or increase in need frustration. Evidence was found of a small, positive indirect effect through jobseekers' competence needs, β = .07, CI [.016, .164], and a medium positive effect through relatedness need, β = .11, CI [.019, .234]. The pathways through autonomy satisfaction and frustration were not statistically significant. There was a large, positive direct effect of need thwarting on jobseeker ill-being, which was significant, β = .29, CI [. 028, .535].

Table 2: Effects of Need Support and Need Thwarting at Time 1 on Well-being and Ill-being at Time 2 with control variables

	β	*SE*	*p*-value	Lower CI 95%	Upper CI 95%
T1 Need Support on T2 Well-being through					
T2 Autonomy Satisfaction	.01	.02	.774	-.021	.061
T2 Autonomy Frustration	.01	.02	.696	-.012	.059
T2 Competence Need	.00	.03	.900	-.065	.070
T2 Relatedness Need	**.10**	**.07**	.120	**.007**	**.269**
Total Indirect Effect	.12	.08	.149	-.024	.300
Direct Effect	-.14	.12	.233	-.379	.086
T1 Need Support on T2 Ill-being through					
T2 Autonomy Satisfaction	.00	.01	.894	-.011	.046
T2 Autonomy Frustration	.00	.01	.791	-.011	.054
T2 Competence Need	.00	.03	.900	-.074	.060
T2 Relatedness Need	**-.11**	**.06**	.049	**-.251**	**-.023**
Total Indirect Effect	-.11	.07	.094	-.256	.004
Direct Effect	**.23**	**.12**	.047	**.004**	**.459**
T1 Need Thwarting on T2 Well-being through					
T2 Autonomy Satisfaction	-.07	.04	.098	-.173	.002
T2 Autonomy Frustration	-.06	.05	.292	-.168	.044
T2 Competence Need	**-.07**	**.04**	.061	**-.168**	**-.013**
T2 Relatedness Need	**-.10**	**.06**	.065	**-.224**	**-.007**
Total Indirect Effect	**-.30**	**.08**	.000	**-.466**	**-.157**
Direct Effect	.15	.10	.153	-.050	.354
T1 Need Thwarting on T2 Ill-being through					
T2 Autonomy Satisfaction	-.02	.05	.656	-.121	.067
T2 Autonomy Frustration	-.03	.06	.545	-.144	.074
T2 Competence Need	**.07**	**.04**	.042	**.016**	**.164**
T2 Relatedness Need	**.11**	**.05**	.047	**.019**	**.234**
Total Indirect Effect	.13	.07	.090	-.016	.274
Direct Effect	**.29**	**.13**	.027	**.028**	**.535**

Note: Significant effects are denoted in bold type.

The impact of control variables

As recommended by (Bernerth and Aguinis, 2015), a comparison between the hypothesised model with and without the inclusion of control variables was also conducted. The inclusion of the control variables was found to reduce the size of effects

of the mediators on the outcome variables but did not materially influence the pattern of effects. That is, the indirect effects that were significant without controls remained so when the control variables were added to the model, and those effects that were non-significant remained so. The direct effects also decreased once the control variables were added to the model.

Discussion

Recall that, from the perspective of SDT, in the hypothesised model of this study, the employment services environment could be considered either psychologically need supportive or need thwarting. A need supportive social context, or at the micro/interpersonal level, the need supportive motivating style of the ECs, would be one in which the EC's behaviour addressed the unemployed person's psychological need for autonomy, competence, and relatedness. That is, for example: ECs who provide options and choices for the jobseeker, perhaps in the types of jobs they might refer to the unemployed person and give rationales for tasks that must be undertaken, such as the value of a training initiative, would be supportive of the individual's need for autonomy. To support competence, ECs would provide helpful feedback and assistance that is practical and useful, for example, how a resumé might be improved for a particular job type, whilst ensuring that goals and tasks are agreed to be within the individual's capability. To support relatedness, the ECs would enact behaviours such as taking the time to get to know the individual in their meeting, and allowing them to express themselves, including the expression of negative emotions.

By contrast, a need thwarting social context would be one in which autonomy would be not supported (thwarted) through behaviours such as the use of guilt and threats, for example, as might occur in the context of compliance sanctions, and where the EC's communication style is authoritarian and directive in tone and content. Competence would be thwarted by, for example, the recommendation of job and skills training that are unsuitable, or beyond the perceived capability of the individual, and the need for relatedness thwarted through interactions which are impersonal and rejecting, failing to acknowledge the difficulty of the experience of the unemployed person.

Also, in SDT, the experience of the environment by the individual is referred to in terms of either the satisfaction of the three needs for autonomy, competence, and relatedness or the frustration of same. These are the mediators in the hypothesised model, that is, the variables which are proposed to explain the relationship between the effect of need support and need thwarting on the mental health outcomes of well-being and ill-being. Taking a SDT perspective, the study's aim was to identify the extent to which jobseekers experience the employment services system in Australia as need supportive or thwarting, and the effect of that experience on jobseeker well-being and ill-being via the three psychological needs.

The role of autonomy in unemployment studies

From an SDT perspective, the three psychological needs are proposed to be interrelated in that social contexts which support (or thwart) one need are likely to support (or thwart) the other needs. For example, a need supportive motivating style would be characterised by ECs conveying to jobseekers that they understood a jobseeker's goals about work, providing them with practical assistance to help them achieve their goals, and informational feedback on how they might improve their job search activities. ECs would also provide rationales for the job search requirements set for the jobseeker and acknowledge the feelings of the jobseekers, while being willing to accept jobseekers may express negative emotions as a consequence of their circumstances. Delivered in such a manner, this interaction would be predicted to be supportive of autonomy, competence and relatedness needs.

However, the present study found that both relatedness and competence predicted well-being and/or ill-being whereas autonomy, individually, did not. Given the predominance of autonomy satisfaction as a predictor of well-being, and autonomy frustration as a predictor of ill-being in extant SDT studies (see a review by Van den Broeck *et al.*, 2016), this is a somewhat unexpected finding. Noting the depth of past evidence on these pathways, these findings might suggest that there is something contextual at play; perhaps there are some circumstances in which one need is more (or less) salient than another, such as the need for relatedness during times of social exclusion when unemployed, and competence support when undertaking particularly challenging tasks such as searching for work in a difficult labour market, or the challenge of job loss and forced career changes.

The role of the control variables

Finally, it may be instructive to consider the role of the two control variables commonly included in the unemployment and related literature: perceived future job prospects and perceived financial strain. As previously discussed, based on prior research, these two variables would be expected to independently influence the study's outcome variables and therefore it was important to take into account (or control for) this influence so that the role of the SDT variables was identifiable.

It may be recalled that perceived future job prospects was a composite score that measured the jobseeker's perceived likelihood of securing a job that was a good fit with one they wanted, and perceived likelihood of securing any job, regardless of fit. Consistent with previous research (McKee-Ryan *et al.*, 2005), perceived future job prospects was a statistically significant predictor of jobseeker well-being (r = .28) but did not predict ill-being.

Consistent with previous research of the effects of economic hardship on psychological well-being (McKee-Ryan *et al.*, 2005), perceived financial strain negatively predicted well-being and positively predicted ill-being. Thus, taken together, it is evident

that the assessment an unemployed person makes of their likelihood of finding work, and the financial strain under which they live, are important factors for the mental health of unemployed people engaged in the mandatory employment services system. Consequently, the evidence offered by this study that interactions between the unemployed person and the employment services system itself additionally influence the mental health of unemployed people should be of concern to policy makers and ESPs alike.

Mental health as an outcome

To our knowledge, this is the first Australian study, and one of only a few internationally, that has used a contemporary psychological theory to examine the impacts of mandatory reemployment interventions on the mental health of program participants. Historically, research on these types of programs is typically focused on the assessment of their effectiveness, and, in particular, the effectiveness of sanctions to increase exits from the system and reduce the unemployment period. In examining the experience of jobseekers in the context of a system in which a rigorous sanctions regime is embedded, this study provides an alternative outcome variable worthy of consideration in these research domains, namely the human – and consequential economic – cost of adverse mental health impacts which appear to emanate from these types of programs.

Implications for employment services delivery

The aim of this study was to examine the Australian employment services system through a new lens: a contemporary psychological perspective which, we argue, stands in contrast to the 'carrots and sticks' approach that underpins the current system. Using SDT as a theoretical framework, we investigated how engagement with the system impacts the mental health of the unemployed people who are required to participate in it.

The role of relatedness on mental health

Although the study did not intend to examine whether need support and need thwarting were transmitted through one psychological need more than another, a critical finding is the important role the need for relatedness played in explaining the effects of both a need supportive and a need thwarting social context on the well-being and ill-being of unemployed people. Better mental health outcomes (higher reported levels of well-being and lower levels of ill-being) were achieved when jobseekers' psychological need for relatedness was satisfied in their interactions with ECs; in other words, when jobseekers reported feeling supported, cared about, and understood by ECs. In parallel, there was an adverse effect on jobseeker mental health (higher ill-being and lower well-being) when the social context was experienced as need thwarting and frustrating of their need for

relatedness. As was presented in Table 1, together, need support and thwarting explained 60 per cent of the variance in relatedness need at Time 2, an effect size that can quite reasonably be described as large.

From a practical perspective, whilst it is disturbing to find such compelling evidence that the interactions between ECs and their vulnerable jobseeker clients have the capacity to adversely affect the mental health of jobseekers, the results also suggest that when ECs are supportive of jobseekers psychological need for relatedness, mental health outcomes might be somewhat improved, or at the very least, not exacerbated. For ESPs, this could be regarded as encouraging news, an opportunity to improve the experience of employment services and the consequential mental health of their unemployed clients by implementing practices at the front-line which reflect a more need supportive engagement with jobseekers.

Implications for policy

The present study found jobseekers were adversely affected by the experience of a need thwarting environment via the frustration of the individual's psychological need for competence. That is, jobseekers' well-being was diminished, and ill-being increased, when they felt ineffective or less than capable of navigating their current world, more particularly, to successfully search for, and find, suitable employment. Based on the assumptions proposed to underpin this system which focus on the attributes of the individual, it might be argued this effect is more a reflection of 'employability' deficits of unemployed people themselves; mismatches between the skills and attributes of the individual and the available job market of the day, a conclusion which would naturally align with the implementation of training/retraining programs and/or 'activation' measures.

However, the reality is that many of the mismatches are not readily or easily solved. One cannot make oneself younger, gain five years' experience overnight, or find an affordable carer for small children, and physical or mental health challenges cannot be wished away. For some people, the reality is that the labour market simply does not, or will not, see their value as an employee, highlighting an inherent conflict in the design of the employment services system; that is, whether it is indeed possible for ESPs to help those on income support to actually secure a job at all, and in particular, one they can sustain – a question that is even more salient in times of full employment.

It is worth noting that, irrespective of the labour market conditions of the day, due to the competitive environment in which they operate, ESPs often publicly claim that jobseekers can expect to find meaningful and sustainable employment when engaging with their services, despite this being often not the case. In any other commercial environment, when a business makes promises about services which it fails to deliver, the customer can draw upon the protections of consumer law concerning refunds and reparation, or even complain in order to correct false and misleading advertising.

Of course, the nature of this quasi-market means that jobseekers have no similar right to complain about the services that are advertised but not delivered, a situation which in itself would be likely to add to their frustration with the employment services system.

While we expected to find evidence that the controlling nature of the system and its mutual obligation requirements would thwart jobseekers' need for autonomy, it was, instead, the needs for relatedness and competence of jobseekers that were the more salient of the three psychological needs affected. We found that when jobseekers felt that no one in the system cared about them or their personal situation, or they were left to their own devices with little practical assistance, their mental health was adversely affected: well-being was diminished and ill-being increased. Conversely, when relatedness was supported, that is, when jobseekers' felt understood by their EC and that they mattered, well-being increased and ill-being decreased. Given the context of this study was the interpersonal engagement between the representatives of the system (the ECs) and the jobseeker, it is tempting to conclude that a focus on the nature of service delivery to unemployed people should be central to any proposed changes.

However, as many critics of the employment services system have concluded (for example, see Considine, 2000; Dunleavy and Hood, 1994; Dunleavy *et al.*, 2006), the employment services system operates as a quasi-market whereby the government purports to purchase services from ESPs 'on behalf of' the unemployed person, and stands in stark contrast with a traditional (or true) market arrangement in which the jobseeker's wants and needs (as the customer) would determine what services were of value to them and for what they would pay. In reality, the client or customer of the ESP is the government, not the unemployed person, and the government's wants and needs as a customer are to have unemployed people exit the income support system as quickly as possible.

Consequently, the policy that manifests as the contract for services between the government and ESPs is itself also an example of behaviourist assumptions, designed to reward (and punish) the organisational behaviours of ESPs which achieve (or fail to achieve) this objective. ESPs are remunerated based on how quickly they can place an unemployed person into a job, any job, and whilst the structure attempts to reward ESPs if a jobseeker sustains that employment, the initial placement is the priority. In other words, ESPs are not remunerated by the government according to how well, or poorly, jobseekers fare in their engagement with any ESP, nor are they rewarded for placing an unemployed person into a role in which they are well-suited and hopeful of being able to sustain. In practice, this means that there are inherent disincentives (or at least an absence of positive incentives) for ESPs to allocate their organisational resources (both financial and human) to processes or activities not aligned to fulfilling their contractual obligations even though for many ESPs, the results of our study provide evidence of their awareness that the mental health of their clients is being adversely affected.

For example, from our study's findings, we would be justified in arguing that the mental health of unemployed people would be better served if ESPs sought to improve the nature of the interpersonal relationships ECs had with jobseekers. Based on SDT

research in education, for example, by Aelterman *et al*., (2018) and Cheon *et al*., (2018), this might be achieved by way of a professional development program to train ECs in how they could interact with jobseekers using a need supportive motivating style and/or reducing or eliminating ECs need thwarting behaviours. It would also be suggested that the potential for positive results from this training would be enhanced through an aligned recruitment strategy which selected ECs who were more likely to have the capacity (and beliefs) to be need supportive in their engagements.

Of course, other organisational drivers must also be taken into account when considering the likely success of such an approach. For example, ECs have reported that they are heavily influenced by 'numerical targets', and by the attention paid by their employer to the income they generate though job placements (Lewis *et al*., 2016; O'Sullivan *et al*., 2021). In addition, anecdotal evidence suggests that the remuneration package of ECs in some ESPs includes financial incentives for ECs based on a jobseeker gaining and sustaining a job over a 4, 8 or 12 week period, and the employability level (the 'stream') of the unemployed person. Thus, taking these drivers of organisational behaviour into account, one might expect that recruitment and training initiatives alone may be insufficient to change the behaviour of ECs.

Despite many ESPs in the sector being mission-based not-for-profits, they are nevertheless still corporate entities which must maintain a level of viability and sustainability. Likewise, for the increasing number of large, for-profit ESPs, the financial imperative is strong and they are accordingly unlikely to modify these organisational drivers without a change to the outcomes upon which they are not only remunerated but by which their performance is assessed, the latter having implications for the renewal of their contracts for service with the government.

Taken together, these findings lead inexorably to a recommendation for policy change; the incorporation of a mental health outcome in the design and delivery of employment services. The measure should distinguish between the acknowledged effects of unemployment on mental health and, as we have done, identify the degree to which jobseekers are being additionally adversely impacted by engagement with the system itself. It is also recommended that the design of employment services considers the downstream effects of behaviourist-based 'carrot and stick' models and acknowledges the potential unintended consequences these systems may have for all stakeholders involved.

Conclusion

In this study, we have examined the employment services system in Australia from the perspective of unemployed people who are mandatorily required to engage in it. Although we found evidence that when unemployed people felt cared for as an individual, their

mental health benefitted, it was more likely than not that engagement with the system would have adverse negative effects on their mental health, a finding which is of grave concern.

As it is inconceivable that a social support system could knowingly be allowed to continue to adversely impact the mental health of unemployed people, policy change must therefore be a priority. For whether a person does or does not find a job, and for however long it takes, the guiding principle of the system must surely be to first, do no harm. In providing this research, we hope it may inform future policy direction and thus ensure that unemployed people truly can be assisted in a journey toward meaningful and sustainable employment.

A number of limitations must be taken into account when considering the overall findings of the study and further research could aim to address these limitations. First, is the sample size in relation to the total population. From approximately 16,000 emails and several posts to numerous Facebook groups, our final merged dataset contained 422 participant responses, which was disappointingly low. As a longitudinal study, it was also expected that attrition rates would be reasonably high and they were (although it was interesting to note that the level of attrition declined over the course of the study, for example, between survey one and two the attrition rates was 47 per cent whereas between surveys four and five it had reduced to 8 per cent). Consequently, missing data across the surveys is also a limitation of the study.

Based on their own communications with jobseekers, staff from the ESP who had sent out the email containing the invitation to participate in the research had warned that response rates would likely be low, a fact that was (perhaps unsurprisingly) attributed to general jobseeker disengagement with the job search process. If that assessment has validity, then it could be argued that our sample represents people who are more engaged in the job search process than those who did not participate. That might mean that the responses in our sample reflected those of individuals who were more frustrated by the system than those who did not participate, thereby representing selection bias. In other words, it may be the case that those who chose not to participate are highly satisfied, and not frustrated, in their engagement with the employment services system. It may also be the case, however, that the low engagement with the survey was a consequence of being so adversely affected by the system that participation was just not possible. We do know, however, that participant demographics indicated that the sample was broadly representative of the population of interest.

This study also sought to test a causal model, that is, that the experience of need support and need thwarting would predict mental health via the satisfaction or frustration of psychological needs. Ideally claims of causal explanations are best supported by experimental designs in which random assignment and manipulation of the variables of interest are possible. We might also have better tested the degree to which the motivating styles of ECs impact the mental health of jobseekers using matched data (EC and jobseekers) which was observational rather than self-reported survey data. However, in this field of research, such a study design would be both practically difficult to accomplish and, most importantly, would be considered to be highly unethical.

We submit that this study makes a contribution within the constraints inherent in this particular context.

Another limitation of the study were some issues concerning the construct validity tests of some of the measurement scale for need satisfaction and frustration, which, as was described in detail, did not load onto the two factors as expected. However, good fit was achieved for the alternative four-factor model, and the rationale for the decision to adapt the model accordingly was provided. There were also high correlations between need support and thwarting (and to a lesser extent) between need satisfaction and frustration, and future SDT research could examine the degree to which models can accommodate both constructs.

Future studies might also take into account the perspective of ECs, although it was noted in some initial attempts in this study to do so, that this might be difficult to achieve with several ECs reporting their employment contract prevented them from commenting (even anonymously) on their work.

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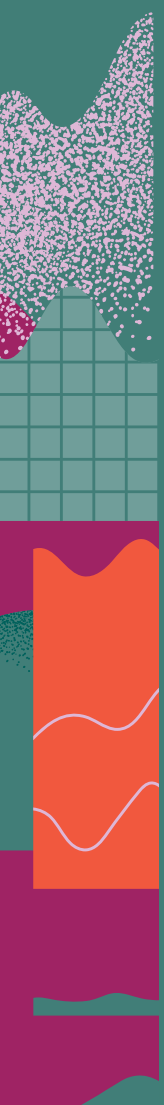

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