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Abstract

It is widely accepted that temporary jobs tend to be associated with low pay which, in turn, will have negative consequences for household income. Evidence in support of such claims, however, is surprisingly thin. This study seeks to fill this void. In particular, it is both the first study to examine the consequences of temporary employment for workers' household income within a multivariate framework, and the first to quantify the relative importance of the different channels through which temporary employment affects income. Fixed-effects regression and decomposition analyses are applied to longitudinal survey data from Australia, a country where the incidence of temporary forms of employment, and especially casual work, are very high by Western standards. As expected, workers in casual and temporary agency employment are found to live in households with lower average incomes. In contrast, employment on a fixed-term contract is not associated with living in a household with a significantly lower income. The estimated size of the income penalty, relative to households of comparable permanent employees, is about 5% for temporary agency workers and 12% for casual employees. These differentials, however, are not primarily the result of lower wages, but instead are due to the fewer hours worked by these groups. In the case of casual workers, lower annual individual earnings are partly offset by higher incomes of other household members. This compensatory effect, however, is relatively modest in size – the income gap with permanent workers remains substantial.

JEL classification: D10, J41, J82

Keywords: casual work; decomposition analysis; HILDA Survey; household income; temporary employment

1 Introduction

Recent decades have seen rising concerns in many Western countries about the incidence of temporary forms of employment (such as fixed-term contracts, temporary agency work and casual work), and especially the extent to which these employment contract types entail economic disadvantages for workers. While considerable attention has been paid to the immediate consequences of contract type for workers' wages (e.g., Booth et al. 2002, Bosio 2014, Kahn, 2016), researchers have shown relatively little interest in whether, and under what circumstances, potentially lower wages of temporary workers translate into low household incomes. One possible explanation here is that this relationship may be seen as self-evident – given the widespread finding that temporary employment is associated with a wage penalty (e.g., OECD 2015), it might be assumed that this must necessarily translate into relatively low incomes. But households pool and share their various income sources, and it is thus the financial situation of the household, rather than individual earnings, that should be of most importance for the well-being of individual household members. The extent to which temporary job holders live in low-income households thus depends on whether they live with others and, if they do, on the incomes of those other household members.

Despite this, there are few rigorous quantitative studies that have investigated the relationship between employment contract type and household income. Further, most of the studies that do exist have focused on the bottom of the income distribution, usually finding a positive effect of temporary contracts on the risk of poverty (Debels 2008, Amuedo-Dorantes and Serrano-Padial 2010, van Lancker 2012, 2013). Temporary employment has also been found to be associated with an increased likelihood of experiencing financial difficulties (such as being unable to pay bills on time) (Buchler et al. 2009, Scherer 2009, Swami, 2017) and lower levels of financial satisfaction (Buchler et al. 2009). With respect to household income, however, only a small number of descriptive studies exist (Kalleberg et al. 1997, Schäfer 2010). We are unaware of any previous study that has examined the relationship between temporary employment and household income within a multivariate framework.

Existing studies also reveal little about the mechanisms linking temporary employment to income, which we argue is critical for the development of effective income assistance measures targeting the working poor. The only studies that come close are those of Swami (2017) and van Lancker (2012, 2013), which focused on associations with measures of poverty and financial difficulty. They first included contract type and a handful of demographic control variables, and then added potential explanatory factors to see whether

the impact of contract type diminishes when controlling for these factors. Van Lancker (2012, 2013) found that the poverty difference between permanent and temporary workers shrinks markedly when controlling for monthly wages, leading him to conclude that it is differences in wages that is the major cause of the increased poverty risk of temporary workers. However, no potential causes were included in the model other than wages (and household composition). Further, the analysis did not reveal whether the wage gap was due to differences in working hours or in hourly wages. Swami (2017), in contrast, investigated four different potential mechanisms linking contract type to a measure of financial difficulties: household income, weekly working hours, whether the worker was fired in the past year, and whether the worker changed jobs. She concluded that all these factors are important mechanisms linking casual work to the likelihood of experiencing financial difficulties.

This study moves beyond the narrow focus on poverty and financial difficulties by analysing the effect of temporary employment on total household income. Using panel survey data from Australia, workers on permanent contracts are compared with workers employed on: (i) fixed-term contracts (i.e., contracts that specify a date or event when employment will be terminated); (ii) a casual basis (the main characteristic of which is the absence of any advance commitment on the part of the employer to both the continuity of employment and the number of days or hours to be worked); and (iii) as temporary agency workers (where the employer – that is, the agency – acts as an intermediary between the worker and the firm for whom the labour services are to be provided). The results reveal a sizeable income gap between casual and temporary agency workers on the one hand, and permanent workers on the other. An innovative feature of the analysis is the use of decomposition methods to quantify the relative impact of the different channels that give rise to this income gap. These include workers' current employment (especially their hourly wage and usual weekly hours of work), employment participation across the entire year, alternative sources of individual income, and the role of other household members.

Australia is an interesting case study given it is a country that has traditionally placed a strong focus on wages policy (rather than social policy) to ensure that workers can cover their financial needs (Castles 1994). Key features of wage setting mechanisms in Australia include a comparatively high national minimum wage and a wide range of minimum wages over and above the national minimum covering specific job classifications. Being poor while in work is thus inconsistent with the traditional Australian "wage earners' welfare state" model (Eardley 2000), and indeed, the share of working poor in Australia is comparatively low (OECD 2009). However, Australia also stands out among Western nations because of its

relatively high temporary employment share. Data from the HILDA Survey for 2015, for example, show that 33% of employees are employed either on a fixed-term or casual contract or through a labour hire firm.

At this point, a clarification about terminology and nomenclature is required. For simplicity, a distinction is made in this article between temporary and permanent jobs. The reality, however, is that few jobs are "permanent". Further, when temporary jobs are referred to, attention is not restricted to those jobs with a predetermined end date, as is the practice in many European data collections. Instead, the terms "permanent" and "temporary" are used to describe the degree of commitment to employment continuity at the time of hire. Thus, temporary jobs include not only jobs with a predetermined end date, but also jobs where the employer provides no commitment to ongoing employment. Conversely, permanent jobs cover those jobs where there is a reasonable expectation on the part of both the employer and employee that employment will be ongoing, notwithstanding such contracts can often be relatively easily terminated (e.g., when justified by an insufficient volume of work).

2 Theoretical Considerations

Individuals have three main sources of income: a) their own earnings; b) government (or social) benefits; and c) income from other household members. Whether household income can be considered high or low, however, also depends on a household's financial needs, which in turn depend on the number and ages of household members. With respect to the impact of temporary employment on these factors, the most obvious link exists between the type of employment contract and individual earnings. However, an individual's employment participation is also interdependent with the presence and employment participation of other household members. Moreover, employment can also interact with entitlements to, and level of, social benefits.

2.1 Individual Earnings

Employment contract type influences individual earnings through hourly pay and the number of weekly working hours. It has, for example, been widely reported that workers employed on temporary contracts are paid less than workers employed on a permanent basis (e.g., Booth et al. 2002, OECD 2015, Kahn 2016). Australia, however, is a notable exception, with casual employment usually associated with a pay premium (Wooden 2001, Watson 2005, Booth and Wood 2008), though the size of this premium is typically judged inadequate to

compensate for the loss of other benefits associated with casual employment (notably paid leave entitlements). Additionally, temporary contracts are often linked to part-time working hours. In Australia, HILDA Survey data for the year 2015, for example, show that most casual workers (76%) are employed part-time, whereas most employees on permanent contracts (79%) work full-time. Part-time work, in turn, has frequently been linked to a relatively high risk of poverty (e.g., Rodgers 2003, Lohmann 2009, Shaefer 2009, Horemans et al. 2016). To some degree, however, these factors might be counterbalanced by the fact that temporary and part-time workers are also more likely to hold a second job (Lass and Wooden 2017).

Annual income is also a function of employment participation (and earnings) over the entire year, and temporary employment can be expected to be associated with a greater risk of non-employment during that year. To the extent that temporary contracts are entry ports to the labour market, they might more often be preceded by periods of unemployment or economic inactivity than permanent contracts. The comparatively low job security of casual and fixed-term contract workers also implies a higher risk of job loss and hence greater likelihood of experiencing episodes of unemployment (e.g., Giesecke and Groß 2003, Blossfeld et al. 2008, Mooi-Reci and Dekker 2015).

We thus propose the following two hypotheses:

H1: Temporary employment negatively impacts on household income.

H2: The link between temporary employment and household income is mediated by hourly wages, working hours, and the workers' employment participation over the year.

2.2 Other Individual Income Sources

Social benefits are another source of household income, with unemployment and family benefits expected to be most relevant (given the focus here on persons aged less than 65 and thus not eligible for the Age Pension). In countries that have social insurance schemes, where unemployment benefits are tied to the level of prior income or the duration of employment participation, temporary workers may have reduced access to unemployment benefits due to their more unstable employment patterns (Keller and Seifert 2009). In Australia, in contrast, unemployment benefits are universal and independent of previous earnings, meaning that permanent and temporary workers have the same entitlements to, and levels of, these benefits. As mentioned, due to their higher risk of unemployment, temporary workers can be expected to be more likely than permanent workers to receive benefits across the entire year. This difference in benefit receipt, however, should disappear once time spent unemployed is

controlled for. Furthermore, many unemployed workers can be expected to obtain (temporary) part-time jobs to top up their income support payments. Again, this effect should not show in the analysis given the model additionally includes the number of working hours.

To the extent that temporary jobs are taken up by individuals who wish to combine employment with child or elder care, temporary workers will also be more likely to receive family benefits. In Australia, casual work is often undertaken by individuals with family responsibilities, and particularly mothers (Hosking and Western 2008), arguably because of both the increased flexibility this employment arrangement can offer and the unavailability of permanent part-time positions.

These arguments lead us to our third hypothesis:

> *H3:* Temporary workers will benefit from higher non-wage incomes compared to permanent workers, which will decrease the income gap between temporary and permanent workers.

2.3 Employment of Other Household Members

The household context can both attenuate or aggravate the impact of individual earnings on the financial situation, depending on other sources of income and the number of dependents. Among the most important sources of additional household income are the earnings of other household members. Cohabitation with household members working on permanent contracts (and who thus usually have higher wages) can be expected to reduce the impact of temporary employment on income, while cohabitation with other temporary workers or persons who are not employed will exacerbate the income disadvantages from temporary employment. In this context, the literature provides opposing arguments.

On the one hand, it is well established that individuals tend to form homogamous relationships; i.e., partner with individuals with the same characteristics (especially socio-economic status) (Kalmijn 1998, Blackwell and Lichter 2004). To the extent that the likelihood of working in a temporary employment relationship is linked to characteristics such as educational attainment, labour market experience (and hence age) or occupation, homogamy on these traits might lead to a concentration of temporary employment in certain households. A similar argument can be put forward with respect to the employment situation of parents and their co-residing children: As a consequence of the intergenerational transmission of educational and occupational attainment, earnings, and cognitive ability, parents and children might have similar chances of working on a temporary contract. Additionally, local labour market conditions are shared by all household members, which

also increases the likelihood of a concentration of temporary employment at the household level. In line with these arguments, international evidence points to a "polarisation" of temporary employment, with workers with less than full-year employment found to be clustered in the same households (Horemans 2016).

On the other hand, specialisation theory (Becker 1981) predicts that the division of labour within couples is most efficient if one partner focuses on paid work and the other on house and care work. Following this reasoning, one might expect to see many couple households where the primary earner has a full-time permanent job, while the primary carer will be more likely to work in a part-time and often temporary job. In this case, the partner's earnings will attenuate the impact of employment type on household income. In the case of parent-child relationships, it can be expected that many young people, who often work in a casual job while studying, will continue living with their parents until they are economically independent. Their household income will thus mainly be determined by their parents', and not by their own, earnings.

Given these opposing arguments (polarisation of temporary employment vs. specialisation), it is not possible to predict a priori whether temporary workers will receive more or less income from other household members than permanent workers. We thus put forward two mutually exclusive hypotheses:

> *H4a:* Temporary workers will be subject to lower incomes of other household members than permanent workers, which will increase the income gap between temporary and permanent workers.
>
> *H4b:* Temporary workers will benefit from higher incomes of other household members than permanent workers, which will decrease the income gap between temporary and permanent workers.

2.4 Household Needs

Permanent and temporary workers may also differ in their number of dependents and thus in the household's income needs. As discussed above, individuals may accept temporary jobs to combine work with family responsibilities. The larger number of children or elderly relatives in the household will lead to a lower equivalised household income among temporary workers. Similarly, in the case of young people working in temporary jobs while studying and living in their parents' home, income needs will be relatively high given the income is shared among a larger number of adults. This leads us to our final hypothesis:

H5: Temporary work is negatively related to household income due to larger income needs of households of temporary workers compared to permanent workers.

3 Methods

3.1 Data

The data used in this analysis come from the first fifteen waves of the Household, Income and Labour Dynamics in Australia (HILDA) Survey (2001-2015). The HILDA Survey is a longitudinal study that commenced with a nationally representative sample of households living in private dwellings in Australia, and each year seeks to interviews all adult members of those households that agreed to participate in wave 1, together with other persons that join the households of these original sample members (see Watson and Wooden, 2012). By 2015 the responding sample comprised 17,606 individuals from 9,628 households.

The analyses are based on two different samples. First, the entire sample of households is used to calculate benchmark values, such as income quantiles and poverty lines, separately for each wave. Second, a sample of individuals of "working age" (between 15 and 64 years) is constructed. As the information on employment type and the corresponding annual household income are collected in two consecutive panel waves (see below), individuals must respond in at least two consecutive years to be included in this study. Observations with insufficient information on employment type (just 331 observations) are excluded. This leaves a working sample of 150,829 observations contributed by 21,477 persons.

3.2 Dependent Variable

The outcome variable is based on total annual disposable household income. The individual income components, such as wages and salary, business income, private transfers and government transfers have been collected separately from each adult household member (aged 15 years or older) and then summed. For around 24% of the sample, at least one component of this income measure has been imputed due to missing information (see Hayes and Watson, 2009). Additionally, very high income values have been top-coded to prevent identification of individual respondents in the dataset. However, top-coding affects only half of one per cent of the sample (or 748 observations). Additionally, the top-coding has been conducted in a way that ensures that the weighted mean is preserved. To account for differences in household size, disposable household income is equivalised using the modified OECD scale. Observations with negative income values (n=326) are assigned an equivalised

income of zero (mostly contributed by persons who are self-employed or not in the labour force). Income values are additionally deflated using the official Consumer Price Index to account for increases in incomes over time.

The annual income information collected in the HILDA Survey relates to the Australian financial year (1st July in one year to 30th June in the following). It is collected retrospectively from respondents in the interview following the completion of the financial year, with the median interview month usually being September. In contrast, information on employment type is only collected for the time of interview. The information on employment type (reported in one wave) is therefore linked to the income information for the corresponding financial year (reported in the following wave).

3.3 Independent Variables

The variable of interest is the worker's employment type. Among employees, the study distinguishes between permanent workers, fixed-term contract workers, casual workers and temporary agency workers. The first three categories are mutually exclusive. Temporary agency workers, however, could be employed on either a permanent, fixed-term or casual basis. Thus, a fourth category of employee is created, with all employees who report being employed through a labour-hire firm or temporary employment agency, regardless of their contract type, classified as temporary agency workers. A joint category for the self-employed and unpaid family workers, and additional categories for unemployed workers and persons outside the labour force, are also created.

The emphasis of this analysis is on the worker and household characteristics that help explain the relationship between temporary employment and household income: the current employment situation, the worker's employment participation during the entire year, and other income sources in the household. Current employment is represented by the hourly wage in the main job (with extreme values – below A$1 and above A$500 – excluded), usual weekly working hours in the main job (with cases reporting 0 or more than 100 hours excluded), and whether the worker has a second job. Annual employment participation is represented by the percentage of the financial year spent not in employment (i.e., either unemployed or outside the labour force). Two other income sources are considered: individual disposable non-wage income, and disposable income received by other household members. Individual disposable non-wage income is calculated as the difference between an individual's gross total annual personal income and their gross annual income from wages or salary, after deducting estimated taxes. The disposable income received by other household

members is calculated by subtracting the respondent's disposable total income from the disposable income of their entire household.

Differences in income needs are accounted for by controlling for the number of adults and children in each household. The analysis does not control for any other worker and household characteristics (such as age or education level) given such characteristics can be expected to affect household income through the channels hypothesised above. However, year dummies are included to account for rising real incomes over the observation period.

3.4 Method of Analysis

In a first step, descriptive information on income situations by employment type is provided. To ensure results are representative of the Australian population, data are weighted using paired longitudinal weights.

In a second step, multivariate regression methods are used to investigate whether the observed relation between employment type and household income is due to differences in worker and household characteristics. The longitudinal nature of the data is exploited by applying linear fixed-effects regression models. In contrast to cross-sectional regression, fixed-effects regression accounts for (time-constant) unobserved heterogeneity arising from, for example, differences in motivation or ability. As the fixed-effects estimator is entirely reliant on within-person variation, respondents must be observed in at least three waves to be included in this regression (to obtain two measurements for both income and employment type).

In a third step, the impact of each of the identified explanatory factors is quantified by means of a Blinder-Oaxaca decomposition (Blinder 1973, Oaxaca 1973). This method allows decomposing the mean differences in household income between employment types into one part that is due to worker and household characteristics (the "explained" part) and one part that is due to the differing effects of these characteristics on household income (the "unexplained" part). The detailed decomposition enables the estimation of the relative contribution of each of these characteristics to explaining the overall income gap. In three separate decomposition analyses, permanent workers are compared with: (i) fixed-term contract workers; (ii) casual workers; and (iii) temporary agency workers. Least squares regression is applied to a pooled sample from all survey waves due to the difficulties of combining panel regressions with decomposition methods (Heitmüller 2005). The 'oaxaca' command in Stata is used with the pooled option, which uses the coefficients of a joint regression model of both groups (including a dummy variable for employment type) as

reference coefficients – an adaptation by Jann (2008) of the approach proposed by Neumark (1988) and Oaxaca and Ransom (1994). The reported standard errors are cluster-robust to account for repeated observations of individuals.

4 Results

4.1 Descriptive Results

Table 1 provides descriptive information on the household income and poverty risk of workers by employment type. In line with OECD conventions, a household is defined as poor if the equivalised disposable household income falls below 60% of the population's median equivalised household income.

The table shows that permanent and fixed-term contract employees have the highest mean and median incomes. Correspondingly, these types of workers have a particularly low poverty risk, with less than 3% of workers living in households below the poverty line. Temporary agency and casual workers earn considerably less than permanent and fixed-term workers: Averaged across all waves, the median casual worker only had an income of 78% of that of permanent workers. Also, the poverty rate of these workers is larger, with 9% of temporary agency workers and 13% of casual workers classified as poor. The self-employed have a comparatively high mean income; however, their median income only amounts to 89% of that of permanent workers. These workers also have a considerable poverty risk (12%). However, it is persons who are currently not working who have the lowest incomes: Both unemployed and economically inactive persons live in households whose median income is less than two thirds that of permanent employees. And accordingly, the non-working population also exhibits the highest poverty rates, with around 31% of the unemployed and those outside the labour force being defined as poor.

Next, the focus is broadened from single summary measures of income to the entire income distribution. Figure 1 presents the share of workers in each income decile, separated by employment type. If employment type was not related to household income, horizontal lines at the 10% level would be expected for all employment types. Clearly that is not the case. All forms of employment are underrepresented among the lowest income households; that is, those in the first and second deciles. This is because these deciles are dominated by the non-working population. Moving further up the income distribution, casual employees are overrepresented within low- to mid-income households: those between the third and the seventh decile. The distribution of temporary agency workers is relatively similar to that of

casuals, although they do seem to fare slightly better overall. In contrast, both the share of permanent and fixed-term contract employees increase steadily from the second to the ninth decile.

These descriptive results suggest there is no automatic link between employment type and household income – all types of workers can be found at all places in the income distribution. Nevertheless, permanent and fixed-term contract workers are better off on average than the other two types of workers, with a clear overrepresentation in the highest income deciles and a particularly low poverty risk.

Table 2 provides information about the characteristics that might explain the relationship between employment type and household income. This table shows that the characteristics of casual workers deviate most from those of permanent workers. Casual employees work considerably fewer hours per week and receive a much lower hourly wage. Furthermore, they spend a larger share of the entire year unemployed or not in the labour force. Additionally, casual workers live with more adults in the household. All these factors were hypothesised to reduce (equivalised) household income. However, there are also four factors that might offset potential income disadvantages. First, casual workers are more likely than permanent workers to hold a second job and thus generate additional income. Second, they receive more non-wage income than permanent workers. Third, their household receives more income from other members. Fourth, the needs of casual workers' households are reduced by the lower average number of children.

4.2 Multivariate Analysis

In a next step, regression analysis is used to investigate the explanatory power of worker and household characteristics with respect to the income gap between temporary and permanent workers. Table 3 presents results from linear fixed-effects regression models. Model 1 only controls for the different employment situations and the survey year, as well as all time-constant characteristics. The results show that even after controlling for (time-invariant) worker and household characteristics, casual contracts and temporary agency work are still negatively related to household income. Further, the estimated annual income gap, especially when comparing casual employees and permanent employees is quite large – A$6,265, which, when averaged across waves, represents about 11.7% of the average permanent employee's household income. The income gap between temporary agency workers and permanent employees is much smaller (A$2,555, or about 4.8%) but still sizeable. In contrast, the income gap between fixed-term contract workers and permanent is not statistically

significant and close to zero. Perhaps surprisingly, there is also a relatively large income disadvantage associated with self-employment (10.4%). But not surprising at all, it is unemployment (17.7%) and economic inactivity (19.4%) that have the largest negative effects on household income.

We next include employment-related and household characteristics linking temporary employment and household income. This requires the restriction of the sample to employees. Within a fixed-effects regression framework this necessarily entails the exclusion of not only all non-employees from the analysis, but also a certain share of employees (that is, persons who were observed as employees only once and were non-employees in other waves). Model 3 presents the full regression results including employment-related and household controls, with model 2 serving as an intermediate step with the purpose of highlighting what part of the change in the wage gaps between model 1 and model 3 is due to the described change in the sample (rather than the inclusion of additional covariates).

As can be seen from comparing model 1 and model 2, restricting the sample to employees results in a slight decrease in the absolute size of the coefficients on casual and temporary agency employment. The estimated income gaps as a percentage of the mean household income of permanent employees decline from 11.7% to 9.1% for casual employees, and from 4.8% to 3.7% for temporary agency workers. This result suggests that persons who (only) change between temporary employment and not being an employee (i.e., self-employment, unemployment or economic inactivity) tend to live in households with less income, even while they are employed, than employees who (also) change between different contract types.

Model 3 then additionally controls for the employment and household characteristics that were hypothesised to explain the link between employment type and household income: the current individual employment situation, the entire employment participation over the year, other sources of income, and household composition. The results show that all four factors are significantly related to household income in the expected directions. Concerning the employment situation, there is a positive effect of the number of working hours, the hourly wage, and having a second job. Employment participation over the year also matters, with time spent unemployed or out of the labour force significantly reducing household income. With respect to other sources of income, both individual non-wage income and other household members' income significantly contribute to household income. In contrast, higher needs of the household – as measured by the number of adults and children in the household – negatively impact on equivalised household income when, as in this regression, their financial contribution to the household is held constant. Moving from model 2 to model 3, the

magnitudes of the coefficients for casual and temporary agency employment decrease markedly, as we would expect, yet both remain statistically significant. This indicates that there are additional relevant (time-varying) characteristics that the model does not capture. One potential factor might be differences in wage growth over the year between permanent and temporary workers (e.g., due to promotions) that are not captured because wages are only measured at the time of interview.

While all employment and household characteristics added in model 3 are significantly impacting on household income, a regression model alone does not tell us which of these factors is most important in explaining the income gap between permanent and temporary workers. To investigate this, a Blinder-Oaxaca decomposition analysis is conducted, with the results presented in Table 4. The first row of data reports the raw income gap between permanent workers and workers on a specific temporary employment type (not controlling for any additional characteristics), while the remainder of the table reports what part of this raw gap can be attributed to the set of employment and household characteristics.

Starting out with fixed-term contract workers, the table shows that the raw gap in household income is both small (only around A$1,700) and negative, meaning that fixed-term contract workers have higher household incomes than permanent workers. Furthermore, the small gap is more than explained by the worker and household characteristics included in the model.

Quite different is the case of casual workers: Their household income is almost A$12,000 lower than that of permanent workers, with 83% of this gap being explained by the variables in the model. By far the most significant contributor to the income penalty of casual workers is their fewer weekly working hours: If casual workers had the same number of working hours as permanent workers (other things equal), the annual income of their household would increase by A$10,700. Other important factors are the larger numbers of adults in the household and the lower hourly wage of casual workers. These factors are partly offset by the higher income from other household members (which provides an income advantage of around $8,700 over permanent workers) and by individual non-wage income, the fewer dependent children, and the higher likelihood of having a second job.

Agency workers also experience an income disadvantage, although smaller than that of casual workers (around A$7,500), which can also be well explained by the factors in the model (81%). Again, fewer weekly working hours are the main contributor, generating an income disadvantage of around A$3,200 compared to permanent workers. In contrast to casual workers, other household members' income does not compensate for this disadvantage

but instead causes the gap to increase, by another A$1,200 (though this effect is statistically insignificant). Additionally, the longer time spent unemployed or outside the labour force contribute significantly to the income penalty. Only agency workers' higher likelihood of having a second job has a significant, but still small, positive impact on their household income compared to permanent workers. Finally, the impact of the (smaller) number of children is large but insignificant.

5. Discussion and Conclusion

Using data from a large-scale Australian household panel survey, this study has investigated the impact of temporary employment on household income and revealed the major mechanisms behind this relationship. A key finding is that some types of temporary employment are associated with lower household income compared to permanent employment, which confirms H1. However, the impact varies by employment type: While no income disadvantages are found for fixed-term contract workers, there is a small income gap for temporary agency workers and a large gap for casual workers. In Australia at least, it thus cannot be claimed that all forms of temporary employment are associated with lower household incomes.

Among the main factors leading to the income disadvantage of casual and temporary agency workers are the fewer numbers of hours worked, a lower hourly wage, and incomplete employment participation throughout the year (as proposed in H2). Overall, differences in working hours contribute by far the most to explaining the permanent-temporary income gap. Further, and as expected (H5), casual and agency workers tend to live in larger households, which increases their economic needs. These disadvantageous factors are only marginally offset by the greater likelihood that temporary workers hold a second job. Contrary to H3, individual non-wage income contributes little to closing the income gap for casual and agency workers. In the case of casual workers, the income disadvantage on the individual level is to some extent offset by higher incomes from other household members, while in the case of temporary agency workers other members' income acts to further increase the income gap. Both H4a and H4b are thus partly confirmed, but for different groups of workers, with H4a applying to agency workers and H4b to casual employees.

Neither social benefits nor the household context can compensate for the individual earnings disadvantages of casual and agency workers compared to permanent workers, and these types of temporary employment thus translate into household income disadvantages in

Australia. However, whether temporary employment is good or bad for the financial situation of households depends heavily on the reference category. While there are income disadvantages compared to permanent workers, the study has also shown that the financial situation of temporary workers is still far superior to that of non-working individuals. To the extent that the alternative to temporary employment is unemployment, temporary employment is thus still preferable.

The study also has some limitations. First, and most importantly, decisions over living arrangements and employment participation are made simultaneously. As a result, the study cannot make any claims about causality. Second, while the HILDA Survey provides complete information on household income over the entire year, a worker's employment type is only observed for the time of interview. The analysis can thus not capture changes in employment type during the year. Third, since information on employment type and income components is collected at different points in time (i.e., in two subsequent panel waves), there is some chance that household composition at these two dates will differ. Fourth, it is unclear whether the results reported can be generalised beyond Australia. The absence of any household income differential between fixed-term contract workers and permanent workers, for example, may be a direct reflection of the large importance of casual employment in Australia, with casual work instead of fixed-term contracts being employers' major source of flexible labour.

Finally, the considerable income disadvantage of temporary agency and casual workers compared to permanent workers suggests the need for policy interventions that improve the financial situation of temporary workers. Given low working hours are the main contributor to the income disadvantage for casual and temporary agency workers, and that underemployment is very prevalent among these groups of workers, a policy combatting income inequality begins with supporting workers in obtaining the working hours they desire.

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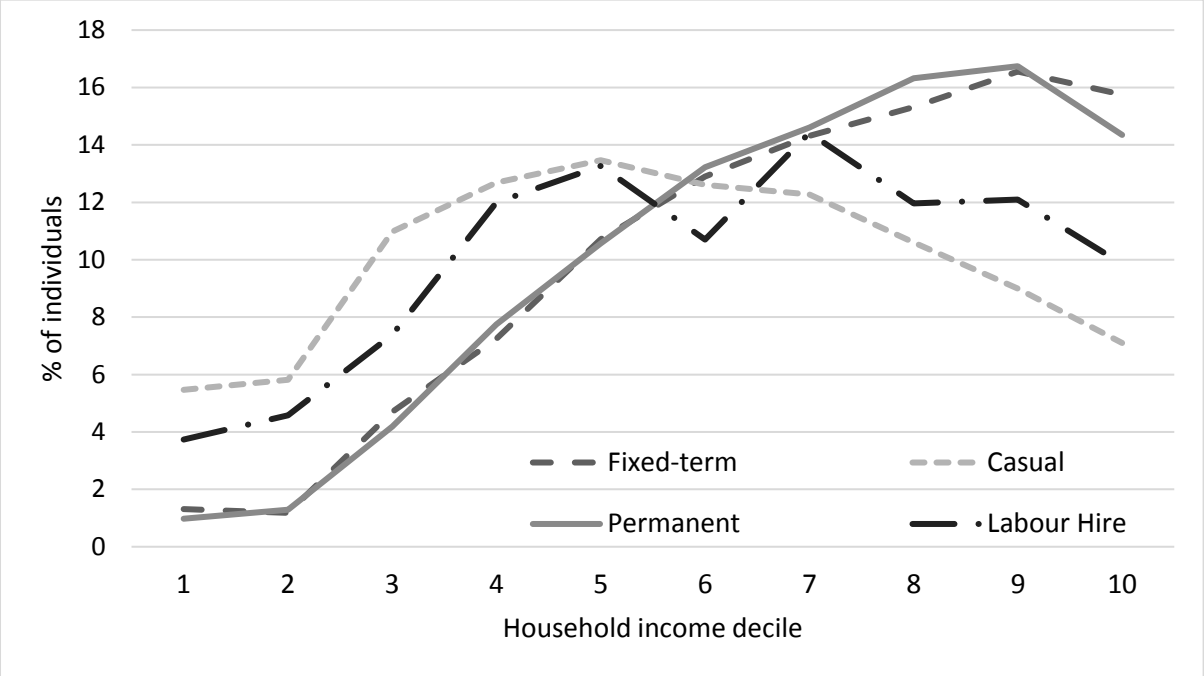
Figure 1 Position in the distribution of equivalised disposable household income by employment type (% in income decile)



Data are weighted using paired longitudinal responding person weights.

Table 1 Equivalised disposable household income and poverty rate by employment type and status, 2001/02-2014/15

	PER	FIX	CAS	TA	SE	UE	NIL	Total
Mean disposable household income (A$)	57,428	58,559	45,730	50,539	57,040	35,193	37,333	50,360
Median disposable household income (A$)	51,084	51,370	39,776	44,147	45,602	30,099	29,818	43,608
Poverty rate (%)	2.5	2.9	12.7	9.1	12.0	31.0	31.6	12.7

PER=Permanent employment; FIX=Fixed-term contract employment; CAS=Casual employment; TA=Temporary agency employment; SE=Self-employment; UE=Unemployment; NIL=Not in the labour force.

Figures are averages of wave-specific means / rates. Data are weighted using paired longitudinal responding person weights.

Table 2 Employment and household characteristics by employment type/status (mean values unless stated otherwise)

	PER	FIX	CAS	TA	SE	UE	NIL	Total
Current employment								
Weekly work hours (main job)	39.6	39.0	20.7	34.5	40.4	n.a.	n.a.	36.1
Hourly wage ($) (main job)	29.4	29.8	21.7	29.2	n.a.	n.a.	n.a.	28.0
Second job (%)	6.5	9.4	13.1	10.0	8.0	n.a.	n.a.	8.5
Employment participation								
% of year unemployed	0.8	1.5	3.5	4.1	1.1	40.2	8.5	4.6
% of year not in the labour force	1.5	2.3	6.6	3.5	3.9	27.7	79.0	20.0
Other income source								
Disposable individual non-wage income ($)	5,370	6,261	5,820	5,317	29,197	9,608	15,237	11,054
Disposable income from other h'h members ($)	53,037	53,275	71,260	50,718	53,053	56,567	58,841	51,835
Needs (household size)								
Number of adults	2.5	2.4	2.8	2.5	2.5	2.8	2.6	2.4
Number of children	0.6	0.5	0.5	0.6	0.8	0.6	0.7	0.7

PER=Permanent employment; FIX=Fixed-term contract employment; CAS=Casual employment; TA=Temporary agency employment; SE=Self-employment; UE=Unemployment; NIL=Not in the labour force.

Data are weighted using the relevant cross-sectional or paired longitudinal responding person weight.

Table 3 Effect of temporary employment on equivalised disposable household income (A$000) (coefficients from fixed-effects regression)

	(1) All	(2) Employees	(3) Employees
Employment type/status			
Permanent (ref.)	1	1	1
Fixed-term	-0.327	-0.067	-0.109
Casual	-6.265***	-5.003***	-1.749***
Temporary Agency	-2.555***	-2.014***	-1.573***
Self-employed	-5.557***		
Unemployed	-9.508***		
Not in the labour force	-10.416***		
Period			
2001 (ref.)	1	1	1
2002	0.128	0.548	-0.054
2003	0.704**	1.516***	0.395**
2004	2.789***	3.759***	1.181***
2005	5.782***	6.274***	1.919***
2006	7.365***	9.156***	3.356***
2007	8.436***	10.702***	4.265***
2008	10.278***	13.169***	4.832***
2009	11.173***	14.475***	6.202***
2010	11.655***	15.118***	6.424***
2011	13.624***	16.982***	6.710***
2012	13.368***	17.055***	7.112***
2013	14.019***	17.955***	7.054***
2014	13.771***	17.378***	7.272***
Explanatory factors			
Weekly working hours (main job)			0.352***
Hourly wage (main job)			0.165***
Second job			0.972***
% of year unemployed			-0.112***
% of year not in the labour force			-0.110***
Non-wage individual income			0.618***
Other household members' income			0.494***
Number of adults in the household			-12.621***
Number of children in the household			-6.764***
Constant	46.086***	45.205***	39.496***
N	150829	95157	94207

Cluster-robust standard errors; data are unweighted.
* $p < .10$: ** $p < .05$; *** $p < .01$.

Table 4 Blinder-Oaxaca decomposition of gap in equivalised disposable household income between permanent and temporary workers

	FIX			CAS			TA		
	$	%	Sig.	$	%	Sig.	$	%	Sig.
Income gap (PER – FIX/CAS/TA)	-1,468	*-3*	**	11,886	*21*	***	7,532	*13*	***
Explained	-1,681	*115*		9,845	*83*	***	6,129	*81*	***
Weekly hours (main job)	370	*-22*	**	10,700	*109*	***	3,188	*52*	***
Hourly wage (main job)	-174	*10*		3,851	*39*	***	308	*5*	
Second job	-60	*4*	***	-89	*-1*	***	-73	*-1*	***
% of year unemployed	130	*-8*	***	385	*4*	***	610	*10*	***
% of year NILF	119	*-7*	***	518	*5*	***	310	*5*	***
Non-wage individual income	-544	*32*	**	-251	*-3*	*	25	*0*	*
Other h'h members' income	-71	*4*		-8,736	*-89*	***	1,217	*20*	
Number of adults	-917	*55*	***	3,953	*40*	***	781	*13*	
Number of children	-496	*30*	***	-533	*-5*	***	-403	*-7*	
Year	-37	*2*		46	*0*	***	167	*3*	***
Unexplained	213	*-15*		2,041	*17*	***	1,402	*19*	*
N (PER)	63,195			63,195			63,195		
N (FIX/CAS/TA)	8,268			19,283			2,500		

PER=Permanent employment; FIX=Fixed-term contract employment; CAS=Casual employment; TA=Temporary agency employment.

Cluster-robust standard errors; data are weighted using longitudinal responding person weights.
* $p < .10$: ** $p < .05$; *** $p < .01$.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