research article

Helping helpers? The role of monetary transfers in combining unpaid care and paid work

Klara Raiber, klara.raiber@ru.nl
Ellen Verbakel, ellen.verbakel@ru.nl
Mark Visser, mark.visser@ru.nl
Radboud University in Nijmegen, The Netherlands

Applying fixed-effects models using Waves 2 to 13 (2007–19) of the German Labour Market and Social Security panel study, we examine how unpaid caring changes labour supply and if monthly monetary transfers from the care recipient to the carer motivate a reduction in labour supply. We find that for both women and men, starting high-intensity caring increased the likelihood of becoming non-employed. Women were already likely to reduce working hours when starting non-intensive caring, whereas only intensive caring reduced working hours for men. Receiving low monetary transfers was a higher motivation to become non-employed for men, and receiving low monetary transfers only reduced working hours for women.

Key words unpaid care • labour supply • monetary transfers • gender

Introduction

The number of people in need of care is growing steadily in many European countries because of population ageing and a rise in chronic illnesses (Colombo et al, 2011). Countries handle this new demand for care differently. In Germany, individuals are encouraged by the long-term care insurance scheme (LTCI) to get care at home, provided by their family or friends, rather than institutional care (Schulz, 2010). This non-institutional care is called 'unpaid care' (also often referred to as 'informal care'): providing health-related care or help to friends and relatives who suffer from a disease or need to be cared for due to reasons of old age (Broese van Groenou and de Boer, 2016). Receiving care at home might be preferable for the care recipient, and many carers report positive experiences (Broese van Groenou et al, 2013). At the same time, however, providing unpaid care can be time- and energy-consuming, and can conflict with employment

(Lee and Tang, 2013). This raises the question of how policies and care recipients can help carers with their work–care conflict. Many countries have implemented policy instruments that financially support unpaid carers. Financial compensation can allow carers to reduce their working hours or (temporarily) exit employment, which may facilitate the combination of work and care, without serious financial consequences. This study does not, per se, evaluate the role of the cash benefits available in the German LTCI directly, but instead assesses whether the underlying assumption holds that monetary transfers to the unpaid carer stimulate employment reductions. This is important to know because although financial transfers may offer relief in terms of work–care conflict, employment reductions may worsen carers' position in the labour market in the long run, as work careers are known to be cumulative (Ehrlich et al, 2019).

Germany, the country of study, has a long-standing policy of cash for care. The social security system supports people who are cared for in their homes by transferring monetary benefits to cover the costs of unpaid care; in addition, some receive professional care at home (Schulz, 2010). The monetary benefits are given to the person in need of care and mainly aim to offer care recipients autonomy in how to arrange their care. Money from the LTCI can be used explicitly to compensate the carer (cash for care), and may thus simultaneously support carers (Schulz, 2010). This means that care recipients have access to financial resources through the LTCI to compensate their carers. At the same time, care recipients may compensate their carers using their personal financial resources (other than from the LTCI). This is important to consider, as the cash benefits provided by the LTCI can be used to cover any type of care cost and may not be sufficient to compensate the carer(s) financially as well. To explore this, the study presented here includes not only the monetary transfers that may come (indirectly) from the LTCI, but also any monetary transfers that come from the care recipient's resources. It is the total amount of compensation that can offer carers some (financial) relief, which could result in a reduction of labour supply.

Previous studies have found that carers are more likely than non-carers to both be, or to become, non-employed (see, for example, Pavalko and Henderson, 2006; Lee and Tang, 2013; Gomez-Leon et al, 2019; Hohmeyer and Kopf, 2020) and reduce their working hours (see, for example, Schmitz and Westphal, 2017; Gomez-Leon et al, 2019). We extend these studies by examining whether receiving monetary transfers fuels decisions to reduce employment among unpaid carers. Moreover, we explicitly acknowledge differences between women and men, as caring in general is considered to be gendered (Wattis et al, 2013). However, whether women and men make different employment decisions and react differently to monetary transfers in making these decisions is yet unclear, especially for the context of Germany. This could have wider implications for gender inequality in the labour market, especially against the backdrop of rising demand for care. In sum, we answer the following research questions: 'To what extent is unpaid caring negatively related to working hours and to being employed?'; 'To what extent are these expected negative relations conditional upon whether carers receive money directly from the care recipient?'; and 'To what extent do all these relations vary for women and men?'.

This study contributes to the literature in three ways. First, previous research on monetary compensation lacked information on whether carers receive money from the care recipient. Only carers who lived with the care recipient and received benefits from the LTCI were examined. In this specific context, it was found that cash benefits from the LTCI indeed provide an incentive to reduce labour supply (though only for

men) (Geyer and Korfhage, 2015; 2018; Korfhage, 2019). The current study comes to a closer understanding of the actual mechanism behind monetary compensation by concentrating on the received amount of money for caring.

Second, many scholars exclusively focused on women when looking at the association between care and employment (see, for example, Ehrlich et al, 2019; Korfhage, 2019; Kelle, 2020), while those that compare women and men have reported mixed results. For North America, scholars have found that women are more likely than men to quit working (Pavalko and Henderson, 2006) and to decrease their working hours (see, for example, Smith et al, 2020) when they start caring. In a German sample, Meng (2013) found only small effect sizes, but men reduced their working hours more than women. The increasing demand for unpaid care will presumably affect everyone, both women and men. Thus, we argue that it is important to consider women as well as men.

Third, we use Waves 2 to 13 of the Labour Market and Social Security (PASS)[1] panel study, covering the period 2007–19. This allows us to use a rich database with observations spanning 11 years and to take a longitudinal approach. We do so by using fixed-effects panel models to relate changes in labour supply to changes in caring and in receiving monetary transfers. These models have the advantage that time-invariant characteristics are automatically controlled for. This is especially important because carers are a selective group in terms of personality traits and background characteristics (Broese van Groenou and de Boer, 2016). Although we do not claim a causal understanding, we come closer to understanding the relationship between unpaid care, labour supply and the role of monetary transfers by controlling for all time-stable characteristics.

Theory and hypotheses

Work–care conflict

Most scholars report a negative association between providing unpaid care and labour supply (see, for example, Pavalko and Henderson, 2006; Schmitz and Westphal, 2017). The explanation for this negative association is that when an individual starts caring for a relative or friend, they take on a new social role: the role of carer. This new role competes with other roles and causes conflicts, especially with the work role. In classic literature on conflicts between work and family roles, three major causes for conflict are described: *strain*, *time constraints* and *contradicting behaviour* (Greenhaus and Beutell, 1985). The theory of role *strain* states that having multiple roles can have a negative impact because of worries resulting from one role spilling over to another (Lee and Tang, 2013). The second cause of conflict between care and work is *time constraints*. Time can only be devoted to one role at a time, which hinders carrying out multiple roles. At some point, the carer might be unable to combine work, care and leisure (Heitmueller, 2007), as well as other duties, such as household tasks or childcare. *Contradicting behaviour* means that behaviour in one role is incompatible with behaviour and expectations in another role. An example is that at work, a person needs to generally display emotional distance, whereas from a carer perspective, emotional interaction is expected (Greenhaus and Beutell, 1985). All three causes – *strain*, *time constraints* and *contradicting behaviour* – have in common that by having multiple roles, a conflict between the roles occurs, as it is difficult to meet expectations in all roles.

Working carers may come to a point where they have to decide how to solve the (role) conflict between care and work (Lilly et al, 2007). Carers basically have

three major options (others are possible but less likely): first, giving up leisure time and combining work with caring; second, reducing care by outsourcing care or by finding other carers who can take over some of the tasks; and, third, reducing their labour supply. The actual choice depends on the existence of alternatives for care and the costs and quality of these alternatives. People who start caring are likely to value caring, which is why some carers are willing to reduce leisure time and/or adapt their working arrangements, rather than reduce their care tasks. Moreover, if there is no other preferred or feasible form of caring for the person in need, and if the time for leisure, housework and childcare is already reduced to a minimum, the only option left is to reduce labour supply. This means that labour supply reduction is a likely option for carers who suffer from a role conflict due to *strain*, *time constraints* or *contradicting behaviour*.

In adapting work, the most common strategy is to reduce full-time to part-time work (Wattis et al, 2013). Although relatively many people work part-time in Germany (48 per cent of employed women and 11 per cent of working men) (see Bundesagentur für Arbeit, 2019), part-time employment is not always feasible in every kind of job. Some people might just reduce their commitment to work by two or three hours. Those who cannot reduce their hours in their occupation, those who already work part-time and those who feel that they can no longer work may drop out of the labour market completely to manage caring. The risk of role conflict increases the more time a person spends caring for someone. Intensive carers, meaning those spending a workday (eight hours) or more on caring, are expected to have the highest likelihood of encountering conflict between work and care, and are thus also more likely to reduce their labour supply (see, for example, Kelle, 2020). This leads to the following hypotheses: a change towards (more) caring is associated with a higher likelihood of becoming non-employed (H1a) and/or of reducing working hours (H1b). Similarly, this implies that when caring stops or the time spent on caring is reduced, the conflict between the caring role and the work role diminishes. Carers who reduced work, quit work or did not search for a new job because they cared for someone are assumed to increase their labour supply when caring ends or reduces.

Monetary transfers

Monetary compensation is supposed to help carers reduce a potential conflict between work and care by financially compensating the carer for their caring efforts. In the decision about whether to reduce working hours or to quit working, direct cash transfers from the care recipient might give an incentive to reduce labour supply. The cost of reducing labour supply is lower because the transfers make the carer less dependent on income from their job (Korfhage, 2019). Lundsgaard (2005) illustrated that monetary transfers for care can also incentivise unemployed carers not to search for a (new) job, even when the amounts are relatively low (€205 per month in specific situations). Monetary transfers may work not only as an incentive in the calculation of opportunity costs related to work, but also as a form of appreciation by the care recipient, increasing the value of the care activities. This could lead to a preference and stronger incentive for a reduction in labour supply than a reduction in care. Hence, the following is hypothesised: when carers start receiving (more) money from the care recipient, they are more likely to become non-employed (H2a) and/or to reduce their

working hours (H2b). Again, this also works the other way around. Once monetary compensation stops or decreases, carers would lose the incentive to be non-employed or to work less, and will need to compensate for the loss in income by taking up a job or increasing their working hours.

Differences between women and men

Women with the same working hours as men are more likely to experience a work–care (role) conflict because their higher involvement, on average, in household and childcare tasks induces a higher risk to experience *time strain* (Treas and Hilgeman, 2007). Furthermore, Swinkels et al (2017) found that women who care for their partners more often experience problems in combining different tasks compared to their male counterparts. Consequently, women are more likely than men to come into a situation where they have to adjust something.

   In their decision-making process, women and men might then choose differently when it comes to work versus care. Even when women participate fully in the labour force, it is assumed that they are the primary carers and therefore more likely to adjust their work situation (Wattis et al, 2013). The literature on childcare includes the argument that women value family norms more and consider it their role to care for their families (Kaufman and Uhlenberg, 2000). Women not only take on more care, but also more often adjust their work role rather than their caring role. Men, by contrast, are often still seen as the breadwinner, whose role is to provide (most of) the family income (Kaufman and Uhlenberg, 2000; Smith et al, 2020), which is why they may be less willing to reduce work for care and may try to organise care around their work (see Auth et al, 2015). We therefore hypothesise the following: women who experience a change towards (more) caring are more likely to become non-employed (H3a) and/or to reduce working hours (H3b) compared to men.

   Following again the argument that women are more willing to adjust work when caring, we expect that they may not need an incentive like monetary transfers to do so. Men, who are seen as breadwinners, in contrast, may need a financial incentive before deciding to reduce labour supply in order to be sure that their household income will not suffer too much from their work reduction. This argument is in line with the findings of Geyer and Korfhage (2018), who found that LTCI payments at the household level influence the labour supply of men but not of women. We therefore hypothesise the following: women who start receiving (more) money from the care recipient are less likely to become non-employed (H4a) and/or to reduce working hours (H4b) than are men.

Methods

Data

We use data from Waves 2 to 13 of the PASS panel study, covering the period 2007–19.[2] PASS is a household panel study on such topics as people's socio-demographics, economic situation, social situation, unemployment and benefits receipt, and work-related attitudes and behaviour. The interviews were conducted as computer-aided telephone or personal interviews (Trappmann et al, 2013; 2019). The panel is composed of two subsamples; the first is drawn from unemployment benefit recipients; and the second is drawn from

the German residential population, where low-status households were oversampled (Trappmann et al, 2013). It is important to keep the composition of the original sample in mind when interpreting the descriptive results (see also the section on robustness checks), as the numbers only represent the distribution in the sample, not in the population.

We considered respondents in the 18–64 age range only and excluded respondents who were still in full-time education, so as to include only people for whom a conflict between care and work can arise. As our second research question is on sex differences, respondents with missing values on sex or a transition in their sex were excluded (N_{res} = 32). Finally, we included only respondents who participated in two or more waves (that is, an unbalanced panel). For the analysis of employment status, we used the full sample (N_{obs} = 110,418; N_{res} = 21,995). For the analysis of working hours, we selected employed people because only they are at risk of reducing their working hours (N_{obs} = 50,371; N_{res} = 10,499).

Measures

Dependent variables

Employment status was defined as being employed versus not being employed. Being employed meant paying social security contributions, which in Germany, equals average monthly earnings above €450 (€400 until 2012) (Hohmeyer and Kopf, 2020). Working hours were defined as the 'weekly contractual working hours for all positions held by the respondent at the time of the interview' (Berg et al, 2020: 45). We chose contractual working hours over actual working hours (including overtime) because reducing the former is a decision with more consequences for employment and is thus more interesting from a social policy perspective (for results on actual working hours, see the robustness checks). The measurement of working hours was based on the generated variable provided with a top coding at 60 hours a week.

Main predictors

Carers were identified by the following survey question:

> We now come to the topic of caring for other people who are severely ill or have to be cared for due to reasons of age. Do you provide care, personally and on a regular basis, for relatives or friends in or outside your household? We are not referring to providing nursing care as an occupation. (Berg et al, 2020)

By also taking the care intensity into account, we created three dummy variables: (1) non-carers (reference category); (2) carers who provided care for fewer than eight hours per week; and (3) intensive carers who provided eight or more hours of care per week. We decided on a categorical variable for care and intensity because we can then disentangle starting and stopping care and changes in intensity among carers. Observations in which respondents provided care but did not indicate their care intensity were recorded as missing (N_{obs} = 389).

Monetary transfers were defined as regularly obtaining a certain amount of money from the person to whom they were providing care. In contrast to other research on

the topic that only considered payments to the care recipient (Geyer and Korfhage, 2015; 2018), we identified whether there was an active transfer of money to the carer. As non-carers cannot receive monetary transfers by definition (both non-carers and carers without monetary transfers receive no money), we constructed an extended version of the caring variable that also incorporates the reception of monetary transfers, distinguishing the following categories: (1) non-carers; (2) carers with no monetary transfers; (3) carers with low monetary transfers; and (4) carers with high monetary transfers. The cut-off point for low or high monetary transfers was based on the median amount of monthly monetary transfers among respondents who received transfers in that respective wave (median values varied between €205 and €300 per month). We decided to use a statistical cut-off point because a relational one, for instance, relative to (household or personal) income, would already include parts of the outcome. After all, a labour supply reduction will usually also mean an income reduction (for results using a relative measure, see the robustness checks).

Control variables

As we used fixed-effects models that focus on change, time-invariant characteristics (for example, sex and cultural background) were automatically controlled for, which is why, in the following, we only discuss the time-varying controls included in our analysis. We included age and age squared to account for curvilinear age effects because we assume that the willingness to work is higher earlier in life (Lilly et al, 2007; Ehrlich et al, 2019). Furthermore, families with children living in the household might experience a double burden due to multiple caring roles. Children in the household were indicated with dummy variables on the youngest child: (1) youngest child under four; (2) youngest child between four and 14; and (3) no children under 15 in the household. We also included whether a person had a partner and if this partner was living in the household.[3] A partner might help to cope with the work–care conflict by providing emotional support, helping with caring and/or doing other tasks like household duties (Wattis et al, 2013).[4] The partner variable was coded as follows: (1) no partner; (2) partner living in the household; (3) partner living outside the household; and (4) missing information on partner. All observations with missing values on unpaid care or monetary transfers were dropped (0.5 per cent of the observations [N = 554]).

Analytical strategy

To better understand how changes in labour supply were related to changes in caring, we first ran logistic fixed-effects panel models for the binary employment variable (Models 1 and 3), also known as 'conditional maximum likelihood' panel models (Allison, 2009). We used the function 'bife', including bias correction, in R and present average partial effects (see Stammann et al, 2016).[5] Second, we applied linear fixed-effect models (Models 2 and 4) for our second outcome variable of working hours by using the plm package (Croissant and Millo, 2008). In all models, between-variation was eliminated and only within-variation was considered. For the linear models, this was reached by transforming the data by subtracting personal means ('demeaning') (Brüderl and Ludwig, 2015). For the

logistic models, this was done by conditioning the maximisation of the likelihood for each respondent on the overall probability of observing a change in employment within one wave (Allison, 2009). Within-estimators give the association between a change in caring and a change in labour supply. This is why we refer to changes in the results section, even if a variable did not directly measure change. Also, only those who experienced a change contributed to the estimates (Brüderl and Ludwig, 2015). The estimated fixed effects were based on changes towards and away from a category, independent of the category the respondents were in before. For additional models, including the direction of change, see the online supplementary material.[6]

Results

Sample descriptives on caring

We first present a description of the answer patterns of the respondents in our sample (which cannot be generalised to the German population). A first important note is that only a few respondents in our sample provided care at the time they were interviewed (see descriptive Table A1 in the online supplementary material). In each wave, similar to numbers from the Socio-Economic Panel (SOEP) (see Ehrlich et al, 2020), around 6.2 to 7.9 per cent (depending on the wave) of the respondents provided care. Among those who provided care, 54.4 per cent cared for eight or more hours per week (intensive carers). Looking at all waves, we see that 16 per cent of the respondents cared at least once. Figure 1 (left panel) shows the percentage of women and men who were employed by caring status (all waves combined). Among both women and men, intensive carers worked the least. Non-intensive carers worked as often or even slightly more often than non-carers. Considering changes, we found that, on average: 4.1 per cent of respondents in our sample experienced a change from employment to non-employment; 6.0 per cent experienced a change from non-employment to employment between two consecutive waves (see Table A2 in the online supplementary material); 3.8 per cent of respondents changed towards more care; whereas 3.4 per cent made the opposite transition between two consecutive waves (see also Table A2). Becoming non-employed occurred relatively often among

Figure 1: Employment status (left) and average working hours (right) by carer status, averaged over all waves
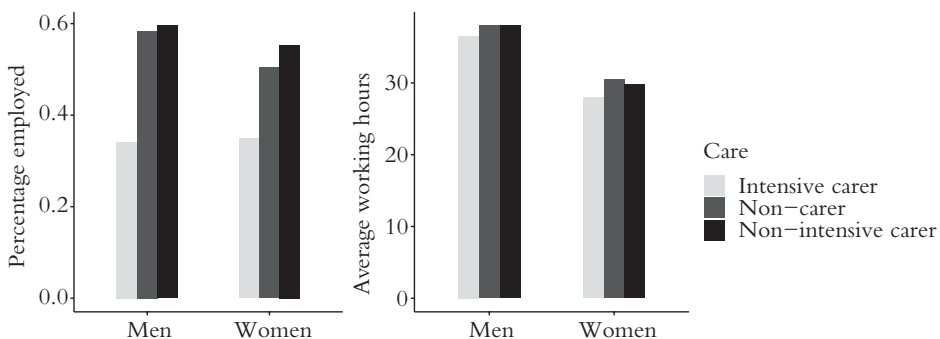
Note: All groups differ significantly based on chi-square tests.

Table 1: Changes in care by changes in employment for succeeding years (in row percentages)

Changes	Employed to non-employed	Non-employed to employed	No changes in employment status	N
Towards non-intensive caring	3.72%	5.86%	90.41%	2,014
Towards intensive caring	5.20%	4.13%	90.67%	1,501
Towards non-caring	3.42%	6.88%	89.70%	2,428
No changes in care	4.05%	5.98%	89.96%	76,964
N	3,355	4,953	74,599	82,907

Source: Waves 2 to 13 of the PASS panel study, change rates are based on respondents with observations in two subsequent waves.

those who started intensive caring. Becoming employed was most likely among those who stopped intensive caring (see Table 1).

In the reduced sample, we focused on employed respondents and, as a consequence, observed fewer carers, especially fewer intensive carers. A total of 13.5 per cent of respondents included in the analysis of working hours cared at least once. In Figure 1 (right panel) we display the average working hours across carer states. Female carers, especially intensive carers, worked fewer hours. Men, in comparison, worked fewer hours only when they provided care intensively.

Multiple regression results of caring

In line with the descriptive results, we found that for both women and men, becoming an intensive carer was negatively related to employment (see Model 1a for women and Model 1b for men in Table 2). People who started to care intensively had a higher likelihood of becoming non-employed. Changes towards intensive caring increased the likelihood of becoming non-employed by 3 percentage points for women and 4 percentage points for men. H1a is therefore supported for intensive caring but not for non-intensive care. By including interaction terms, we found no statistical indication that the effect of caring on employment status differed for women compared to men (non-intensive care∗women: $APE = -0.00$, $p = 0.38$; intensive care∗women: $APE = 0.01$, $p = 0.11$). H3a is thus rejected.

The analysis of working hours showed the same pattern as the descriptive results. We see that women reduced working hours when they changed towards intensive or non-intensive caring (see Model 2a in Table 3). Other things being equal, women worked 0.6 hours a week fewer when they experienced a change towards non-intensive caring and 1.0 hours fewer when they experienced a change towards intensive care. For men, we only found a negative association with intensive caring (see Model 2b in Table 3). When men started intensive caring, they decreased their weekly working hours by 0.7 hours. H1b is thus largely confirmed, as we found that a reduction in working hours was related to changes towards more caring among women and towards intensive caring among men. These relations, however, were not statistically different for women and men (non-intensive care∗women: $b = -0.41$, $p = 0.14$; intensive care∗women: $b = -0.27$, $p = 0.48$), which means that H3b was rejected.

Table 2: Conditional fixed-effects analysis of binary employment status

	Women		Men	
	Model 1a	**Model 3a**	**Model 1b**	**Model 3b**
Non-carer	ref	0.02*** (0.00)	ref	0.26* (0.11)
Non-intensive carer	−0.01 (0.00)		−0.00 (0.00)	
Intensive carer	−0.03*** (0.00)		−0.04*** (0.00)	
Carer without monetary transfers		ref		ref
Carer with low monetary transfers		0.01 (0.02)		−0.05* (0.03)
Carer with high monetary transfers		0.01 (0.00)		0.03 (0.04)
N	59,068		51,350	
N$_{events}$	29,417		29,679	

Notes: The presented coefficients are average partial effects, controlled for age, age squared, partner and youngest child (for the models including the control variables, see the online supplementary material). Standard errors in parentheses. Significance levels: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.
Source: Waves 2 to 13 of the PASS panel study.

Table 3: Linear fixed-effects analysis of working hours

	Women		Men	
	Model 2a	**Model 4a**	**Model 2b**	**Model 4b**
Non-carer	ref	0.61*** (0.16)	ref	0.24 (0.17)
Non-intensive carer	−0.58** (0.18)		−0.08 (0.19)	
Intensive carer	−1.01*** (0.23)		−0.70* (0.27)	
Carer without monetary transfers		ref		ref
Carer with low monetary transfers		−1.28 ** (0.46)		−0.92 (0.69)
Carer with high monetary transfers		−0.64 (0.58)		1.11 (1.05)
N	25,823		24,548	

Notes: All continuous predictors are mean-centred and scaled by 1 standard deviation. Standard errors in parentheses. Controlled for age, age squared, partner and youngest child (for the models including the control variables, see the online supplementary material). Significance levels: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.
*Source*: Waves 2 to 13 of the PASS panel study.

Sample descriptives on monetary transfers

Across waves, between 9.5 and 17.0 per cent of carers in our sample received monetary transfers, ranging from €5 up to €1,600 per month, with averages per wave between €255.6 and €358.8. The median – the cut-off point for low and high transfers – lay between €205 and €300. This amount could already be meaningful for carers as a motivation to reduce work. Intensive carers, women, older adults and non-employed individuals were more likely to receive monetary transfers. Both women and men who received monetary transfers were less likely to be employed according to the left–hand side of Figure 2. For men, no clear differences between low and high monetary transfers were visible, whereas for women, receiving high monetary transfers was associated with the lowest likelihood of being employed.

Figure 2: Employment status (left) and average working hours (right) by monetary transfer status, averaged across all waves
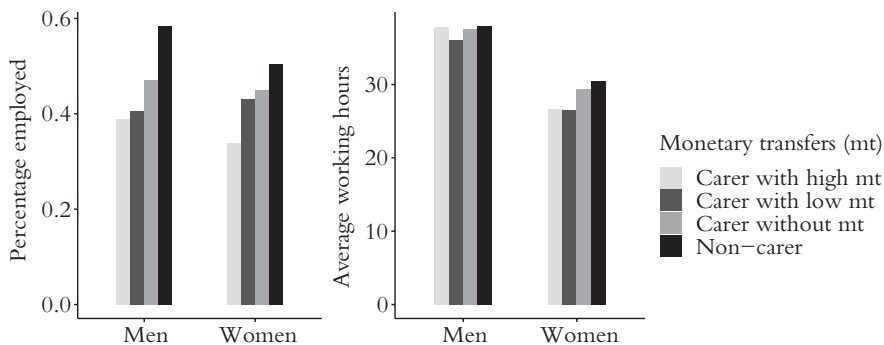
Note: All groups differ significantly based on chi-square tests.

Looking at the descriptive findings concerning monetary transfers and working hours (right-hand side of Figure 2), we observe that among men only, those with low monetary transfers had non-negligible lower average working hours. Working hours of women, on the contrary, seemed to be negatively related to the presence of any monetary benefits, regardless of the amount.

Multiple regression results of monetary transfers

The results of the regression analysis (see Model 3a for women and Model 3b for men in Table 2) show that men had a 5-percentage-point higher likelihood of becoming non-employed when they started to receive low monetary transfers. For women, we found no statistical evidence that starting to receive monetary transfers is associated with becoming non-employed. We thus found some support for H2a for men. The different results for women and men regarding low monetary transfers were significant (non-caring∗women: $APE = 0.00, p = 0.99$; care with low monetary transfers∗women: $b = 0.06$, $p = 0.02$; care with high monetary transfers∗women: $b = −0.0$, $p = 0.83$). Receiving low monetary transfers was a higher motivation for men to become non-employed ($APE = 0.11$) compared to women, meaning that we found some evidence for H4a with regard to sex differences in the role of low monetary transfers.

The descriptive pattern for monetary transfers in relation to working hours was confirmed by the fixed-effects panel model (see Model 4a for women and Model 4b for men in Table 3). For men, we found no clear indication that changes in monetary transfers mattered for reducing working hours. On the contrary, for women, a change towards low, but not high, transfers reduced working hours. Starting to receive low amounts of money reduced the working hours of women by 1.3 hours. Hence, we found some evidence for H2b, though only among women and for low monetary transfers, not among men. We also found no statistical indication that monetary transfers mattered differently for both sexes (non-caring∗women: $b = 0.41$, $p = 0.11$; care with low monetary transfers∗women: $b = −0.73$, $p = 0.45$; care with high monetary transfers∗women: $b = −2.48$, $p = 0.08$), which means that H4b is rejected.

Robustness checks

To evaluate the robustness of our results, we ran five additional analyses. First, when examining actual working hours (including overtime) instead of contract hours, we observed that changes towards intensive caring for men ($p = 0.14$) and to low monetary transfers for women ($p = 0.13$) were no longer related to a reduction of working hours. Second, we evaluated that taking 11 hours as a cut-off point (often used as a cut-off point in the literature) for caring intensity changed the results. We found that in contrast to the eight-hour cut-off point, with a cut-off point of 11 hours, changes towards non-intensive care for women ($APE = 0.002$, $p = 0.00$) were related significantly to stopping work. The effects of intensive care differed significantly between women and men, with women less likely to become non-employed when starting to care intensively (intensive care*women $APE = 0.02$, $p = 0.03$). Furthermore, intensive care ceased to be significantly associated with reducing working hours for men ($p = 0.06$). Third, we checked whether excluding respondents close to retirement made a difference, as their labour market decisions are arguably different. Reducing the sample to an age range of 18 to 55 changed the results regarding the employment status outcome. For women, a change towards non-intensive care also made them more likely to become non-employed ($APE = 0.02$, $p = 0.00$). Receiving low monetary transfers ceased to influence the employment status of men ($p = 0.25$) and the difference between women and men regarding low monetary transfers was similarly not found in this subsample ($p = 0.06$). These three robustness checks mean that some of the results depend on the decisions we took, and that in specific circumstances, non-intensive caring already made women more likely to become non-employed.

Fourth, in the main analysis, we categorised monetary transfers as high or low on the basis of the median level of transfers. In a check, we related the monetary transfers to the household income in order to categorise them as high or low. We used respondents' household income as reported in the earliest wave and kept it constant in later waves to avoid household income being influenced by the monetary transfers or outcome variables (for example, reduced labour supply implies lower pay and thus lower household income). However, the first measurement of household income could already have been influenced by unpaid care and monetary transfers. Changing the monetary transfers to a relative measure (monetary transfers below and above 10 per cent of the household income) did not change the results. Last, we checked whether the oversampling of low-status households in the analysis of working hours affected our main relationships by including interaction terms between our main independent variables and socio-economic status (SES), based on the European Socio-economic Classification (ESeC) of the current job (a predefined variable coded into low, middle and high SES). There was no statistical evidence that SES was a moderator. It should be noted that the oversampling of non-employed people cannot influence the results regarding employment status, as this group is part of the dependent variable. Moreover, controlling for SES would not make sense because SES cannot be based on a job for non-employed persons, meaning that the outcome of being non-employed and the category of missing SES would be identical.

Discussion

In this study, we examined whether reducing working hours and becoming non-employed is more likely when providing unpaid care and receiving monetary transfers

for this care. As expected from the theory on work–care conflict, and in line with previous research (see Kelle, 2020), we first conclude that a change to intensive caring is associated with higher likelihoods of employment exit and working hours reductions among both women and men. By reducing work, carers can (partly) resolve a work–care conflict, especially by relieving the time-constraint elements of having to combine (intensive) care and work. We replicate previous findings through a panel analysis that accounts for time-invariant characteristics, strengthening the theoretical interpretation that carers come into situations where they are unable to combine work and care, and then choose to become non-employed or to reduce their working hours.

In the second part of this study, our focus was on direct monetary transfers from the care recipient to the carer. We assessed the underlying mechanism of how cash benefits can motivate carers to reduce labour supply. We found support for our hypotheses for low monetary transfers, albeit among men only for becoming non-employed and among women only for reducing working hours. These results add to the literature by showing that direct monetary transfers have the potential to incentivise carers to become non-employed or to reduce their working hours. Interestingly, this only holds for low monetary transfers, not for high ones. A potential explanation is that high monetary transfers may coincide with caring intensively. If the care is intense, care recipients may want to give back more to their carers. In this case, caring intensively drives the decision to reduce labour supply and offers sufficient motivation to do so. The extra incentive of monetary transfers is thus not needed. Future research could look at the interaction between monetary transfers and care intensity.

As our focus was on direct monetary transfers, we cannot conclude anything about the indirect effects of cash benefits. For instance, in the case of partner care (or, less likely, other care within the household [see Ehrlich and Kelle, 2019]), there is probably no direct monetary transfer; the cash benefits from the state may simply enter the joint household income without being explicitly transferred to the carer (Lundsgaard, 2005). This being the case, our sample will have included only those carers who did not share their household income with the care receiver. Nor can we rule out other financial transfers or benefits that carers could have received, and that may have influenced their employment decisions. To empirically disentangle indirect and direct cash transfers, data are needed that include information on caring relationships, caring location (inside or outside the household), direct transfers passed on, other sources of financial benefits for caring and the amount of the cash benefit provided by the LTCI. However, theoretically speaking, we have no reason to believe that the mechanism for indirect and direct transfers would differ for a reduction in labour supply.

Our second focus was on how the relation between care and labour supply, as well as the relation between monetary transfers and labour supply, varied for women and men. We found similar patterns for the association between starting to care intensively and reducing employment, but we also saw that the patterns in the female sample differed slightly from those in the male sample. For instance, among women, we saw that starting to care non-intensively is associated with reducing working hours. We expected that women would be more likely to reduce or stop work; however, we did not find this. This can be interpreted in at least three ways. First, it could be the result of the relatively low number of male carers in our sample. This makes it difficult to reach sufficient statistical power, especially when changes in caring are concerned.

Second, it may mean that differences between men and women were neutralised by time-invariant and important time-varying confounding factors, meaning that women and men in a similar situation may make similar decisions. Our study adds to the mixed results in previous studies, leaving it an open question as to whether there are indeed gendered choices among similar people when it comes to decreasing labour supply because of caring.

Third and lastly, it could also be that men do need monetary transfers to consider reducing labour supply. We argued that women and men might see monetary transfers as an incentive to reduce labour supply differently. Our results showed one difference between women and men, giving some credibility to our expectation. In line with our theoretical ideas, we found that low monetary transfers had a bigger incentive effect on men becoming non-employed than on women. Not finding more differences could also be due to the relatively low number of men in our sample and the even fewer men who received monetary transfers. We have, however, provided the first evidence that a financial incentive motivates men, but not women, to cut back on their employment. This indicates that classic gender norms play a role. Men, who stereotypically are expected to provide the income, are more likely to consider cutting back on paid work if they receive some financial compensation. With the prospect of increasing demand for unpaid care, which is likely to affect women and men, we hope future studies will be conducted that validate the gendered patterns that our results have revealed.

Although the use of fixed-effects panel models helps to bring us closer to understanding how changes in caring and monetary transfers are related to labour supply, we cannot claim to have found causal effects, as even the strong design we used has its limitations. First, we observed the outcomes and predictors at the same time point, so we cannot tell exactly which event came first. We would need monthly, weekly or even daily data to overcome this issue. Nonetheless, based on theory and prior studies, we assumed that, in most cases, the order of events is first a change in care or monetary transfers, and then a change in labour supply. Second, receiving monetary transfers is not random, but plausibly depends on unobserved characteristics. If monetary transfers are a way of valuing your carer, it may be that valued carers are more willing to reduce their paid work. Yet, it could also be the other way around: those with a good relationship may find it easier to handle both roles and thus be less likely to reduce work. It could also mean that care recipients transfer money if they think the carer needs this (Colombo et al, 2011). Furthermore, changes in the relationship may affect whether someone provides less or more care, or whether the carer receives monetary transfers, which, in turn, may affect their willingness to reduce their labour supply. We were unable to include the quality of the relationship between carer and care recipient. Analysis of data that includes information on relationship quality could enhance our insights.

Obviously, we are unable to generalise our findings to other countries directly, but our conclusions may apply to other contexts where cash benefits for care are implemented. Policies that support care at home also (implicitly) support care and the consequences for carers, such as the demonstrated reduction in working hours and the risk of becoming non-employed. Monetary benefits transferred indirectly or directly to the carer are another incentive offered to carers to reduce working hours. Although the idea behind monetary transfers is to help carers combine care and work,

they may have negative long-term consequences for carers. Without regulations in place for monetary transfers, carers may be trapped in low-paid positions that do not cover their forgone income from reducing paid work, both in the short and in the longer term. Monetary transfers can also make carers dependent on their care recipient as a source of income, which may change the relationship between carer and care recipient (Ungerson, 1997). Still, monetary transfers are there to compensate for time spent on caring and to recognise the efforts of carers (Colombo et al, 2011). Monetary transfers should not be the only form of help for carers. Germany already has a second benefit scheme in place to buffer the long-term consequences of a loss of income due to caring, as carers can receive more pension when they are carers in certain circumstances (Yeandle, 2020). For the conflicts perceived during caring, other support in the form of basic training, counselling and flexible work environments (Colombo et al, 2011) can additionally help to reduce stress and the negative consequences of caring.

Notes

[1] This study uses the anonymous data of Wave 14 of PASS. Data access was provided via a scientific use file supplied by the Research Data Centre (FDZ) of the German Federal Employment Agency (BA) at the Institute for Employment Research (IAB) (DOI: 10.5164/IAB.FDZD.2114.de.v1).

[2] We decided not to include more recent waves because the COVID-19 pandemic influenced unpaid care (as well as the gendered effects of it) (Raiber and Verbakel, 2021) and we wanted to rule out this influence.

[3] It should be noted that we do not have information on the relationship between the carer and the care recipient, which means that the partner might be the person cared for.

[4] The decision to reduce labour supply depends on the economic situation of the household (Ehrlich et al, 2019). However, our models would only capture changes in household income, and these are not a good predictor of the economic situation of a person and a household, as income arguably increases if a person receives monetary transfers. Therefore, we did not include household income in our models.

[5] We used R version 4.1.2 and RStudio version 1.2.5033.

[6] The online supplement material is available at: https://doi.org/10.6084/m9.figshare.19771630

Funding

Conflict of interest

The authors declare that there is no conflict of interest.

References

Allison, P.D. (2009) *Fixed Effects Regression Models*, Los Angeles, CA: SAGE.

Auth, D., Brüker, D., Dierkes, M., Leiber, S., Leitner, S. and Vukoman, M. (2015) *Wenn Mitarbeiter Angehörige Pflegen: Betriebliche Wege zum Erfolg [When Employees Care for Relatives: Operational Paths to Success]*, Düsseldorf: Hans-Böckler-Stiftung.

Berg, M. et al. (2020) Codebook and documentation of the panel study 'Labour Market and Social Security' (PASS), Datenreport Wave 12.

Broese van Groenou, M. and de Boer, A. (2016) Providing informal care in a changing society, *European Journal of Ageing*, 13(3): 271–9. doi: 10.1007/s10433-016-0370-7

Broese van Groenou, M., de Boer, A. and Iedema, J. (2013) Positive and negative evaluation of caregiving among three different types of informal care relationships, *European Journal of Ageing*, 10(4): 301–11. doi: 10.1007/s10433-013-0276-6

Brüderl, J. and Ludwig, V. (2015) Fixed-effects panel regression, in H. Best and C. Wolf (eds) *Sage Handbook of Regression Analysis and Causal Inference*, Thousand Oaks, CA: Sage, pp 327–56.

Bundesagentur für Arbeit (2019) *Die Arbeitsmarktsituation von Frauen und Männern 2018 [The Labor Market Situation of Women and Men in 2018]*, Nürnberg: Bundesagentur für Arbeit.

Colombo, F., Llena-Nozal, A., Mercier, J. and Tjadens, F. (2011) *Help Wanted? Providing and Paying for Long-Term Care*, Paris: OECD.

Croissant, Y. and Millo, G. (2008) Panel data econometrics in R: the plm package, *Journal of Statistical Software*, 27(2): 1–43. doi: 10.18637/jss.v027.i02

Ehrlich, U. and Kelle, N. (2019) Pflegende Angehörige in Deutschland: wer pflegt, wo, für wen und wie? [Nursing relatives in Germany: who cares, where, for whom, and how?], *Zeitschrift für Sozialreform*, 65(2): 175.

Ehrlich, U., Möhring, K. and Drobnič, S. (2019) What comes after caring? The impact of family care on women's employment, *Journal of Family Issues*, 41: 1387–419. doi: 10.1177/0192513X19880934

Ehrlich, U., Minkus, L. and Hess, M. (2020) Einkommensrisiko Pflege? Der Zusammenhang von familiärer Pflege und Lohn [Income risk care? The relationship between family care and wages], *Zeitschrift für Gerontologie und Geriatrie*, 53(1): 22–8.

Geyer, J. and Korfhage, T. (2015) Long-term care insurance and carers' labor supply – a structural model, *Health Economics*, 24(9): 1178–91. doi: 10.1002/hec.3200

Geyer, J. and Korfhage, T. (2018) Labor supply effects of long-term care reform in Germany, *Health Economics*, 27(9): 1328–39. doi: 10.1002/hec.3663

Gomez-Leon, M., Evandrou, M., Falkingham, J. and Vlachatoni, A. (2019) The dynamics of social care and employment in mid-life, *Ageing and Society*, 39(2): 381–408. doi: 10.1017/S0144686X17000964

Greenhaus, J.H. and Beutell, N.J. (1985) Sources of conflict between work and family roles, *The Academy of Management Review*, 10(1): 76–88. doi: 10.2307/258214

Heitmueller, A. (2007) The chicken or the egg?, *Journal of Health Economics*, 26(3): 536–59. doi: 10.1016/j.jhealeco.2006.10.005

Hohmeyer, K. and Kopf, E. (2020) Caught between two stools? Informal care provision and employment among welfare recipients in Germany, *Ageing and Society*, 40(1): 162–87. doi: 10.1017/S0144686X18000806

Kaufman, G. and Uhlenberg, P. (2000) The influence of parenthood on the work effort of married men and women∗, *Social Forces*, 78(3): 931–47. doi: 10.2307/3005936

Kelle, N. (2020) Combining employment and care-giving: how differing care intensities influence employment patterns among middle-aged women in Germany, *Ageing and Society*, 40(5): 925–43. doi: 10.1017/S0144686X18001423

Korfhage, T. (2019) *Long-Run Consequences of Informal Elderly Care and Implications of Public Long-Term Care Insurance*, Berlin: Deutsches Institut für Wirtschaftsforschung (DIW).

Lee, Y. and Tang, F. (2013) More caregiving, less working: caregiving roles and gender difference, *Journal of Applied Gerontology*, 34(4): 465–83. doi: 10.1177/0733464813508649

Lilly, M.B., Laporte, A. and Coyte, P.C. (2007) Labor market work and home care's unpaid caregivers: a systematic review of labor force participation rates, predictors of labor market withdrawal, and hours of work, *Milbank Quarterly*, 85(4): 641–90. doi: 10.1111/j.1468-0009.2007.00504.x

Lundsgaard, J. (2005) Consumer direction and choice in long-term care for older persons, including payments for informal care: how can it help improve care outcomes, employment and fiscal sustainability?, *OECD Health Working Papers*, No. 20, Paris: OECD Publishing.

Meng, A. (2013) Informal home care and labor-force participation of household members, *Empirical Economics*, 44(2): 959–79. doi: 10.1007/s00181–011–0537–1

Pavalko, E.K. and Henderson, K.A. (2006) Combining care work and paid work: do workplace policies make a difference?, *Research on Aging*, 28(3): 359–74. doi: 10.1177/0164027505285848

Raiber, K. and Verbakel, E. (2021) Are the gender gaps in informal caregiving intensity and burden closing due to the COVID-19 pandemic? Evidence from the Netherlands, *Gender, Work & Organization*, 28(5): 1926–36. doi: 10.1111/gwao.12725

Schmitz, H. and Westphal, M. (2017) Informal care and long-term labor market outcomes, *Journal of Health Economics*, 56: 1–18. doi: 10.1016/j.jhealeco.2017.09.002

Schulz, E. (2010) The long-term care system in Germany, DIW Berlin Discussion Paper No. 1039.

Smith, P.M., Cawley, C., Williams, A. and Mustard, C. (2020) Male/female differences in the impact of caring for elderly relatives on labor market attachment and hours of work: 1997–2015, *The Journals of Gerontology: Series B*, 75(3): 694–704. doi: 10.1093/geronb/gbz026

Stammann, A., Heiss, F. and McFadden, D. (2016) Estimating fixed effects logit models with large panel data, Beiträge zur Jahrestagung des Vereins für Socialpolitik 2016: Demographischer Wandel - Session: Microeconometrics, No. G01-V3, ZBW - Deutsche Zentralbibliothek für Wirtschaftswissenschaften, Leibniz-Informationszentrum Wirtschaft, Kiel und Hamburg.

Swinkels, J., Tilburg, T.v., Verbakel, E. and Broese van Groenou, M. (2017) Explaining the gender gap in the caregiving burden of partner caregivers, *The Journals of Gerontology: Series B*, 74(2): 309–17.

Trappmann, M., Beste, J., Bethmann, A. and Müller, G. (2013) The PASS panel survey after six waves, *Journal for Labour Market Research*, 46(4): 275–81. doi: 10.1007/s12651–013–0150–1

Trappmann, M., Bähr, S., Beste, J., Eberl, A., Frodermann, C., Gundert, S., Schwarz, S., Teichler, N., Unger, S. and Wenzig, C. (2019) Data resource profile: Panel Study Labour Market and Social Security (PASS), *International Journal of Epidemiology*, 48(5): 1411–11g. doi: 10.1093/ije/dyz041

Treas, J. and Hilgeman, C. (2007) Trading off or having it all? Workers' preferences for work and family time, in T. van der Lippe and P. Peters (eds) *Competing Claims in Work and Family Life*, Cheltenham: Edward Elgar Publishing Limited, pp 93–108.

Ungerson, C. (1997) Social politics and the commodification of care, *Social Politics*, 4(3): 362–81. doi: 10.1093/sp/4.3.362

Wattis, L., Standing, K. and Yerkes, M.A. (2013) Mothers and work–life balance: exploring the contradictions and complexities involved in work–family negotiation, *Community, Work & Family*, 16(1): 1–19. doi: 10.1080/13668803.2012.722008

Yeandle, S. (2020) Peer review on 'Work–life balance: promoting gender equality in informal long-term care provision, thematic discussion paper', European Commission, DG Employment, Social Affairs and Inclusion.