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# **FRIEDRICH-ALEXANDER-UNIVERSITÄT ERLANGEN-NÜRNBERG**

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## **Self-employed individuals, time use, and earnings**

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# Self-employed individuals, time use, and earnings<sup>\*</sup>

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**ABSTRACT:** This paper analyzes the time allocation of self-employed men and women compared to men and women in paid employment and the impact of housework on earnings of self-employed individuals using data from two German datasets. Self-employed women spend more time on housework activities and self-employed men spend more time on market work than their paid counterparts. While descriptive statistics and pooled OLS earnings regressions show a negative impact of time spent on housework on earnings, fixed-effects earnings regressions show only a negative impact on monthly earnings of self-employed men. This impact disappears after controlling for potential endogeneity via instrumental variable estimators.

**ZUSAMMENFASSUNG:** Auf Grundlage zweier deutscher Datensätze untersucht diese Studie die Zeitallokation von selbständigen Frauen und Männern im Vergleich zu abhängig beschäftigten Frauen und Männern sowie den Einfluss der Hausarbeitszeit auf die Verdienste der Selbständigen. Im Gegensatz zu abhängig Beschäftigten verwenden selbständige Frauen mehr Zeit für Hausarbeit, während selbständige Männer mehr Zeit für Marktarbeit aufwenden. Sowohl die deskriptiven Analysen als auch gepoolte OLS Einkommensregressionen zeigen einen negativen Einfluss der Hausarbeitszeit auf die Einkommen der Selbständigen auf. Im Gegensatz dazu wird in den Fixed-Effekts-Einkommensschätzungen nur beim Monatslohn selbständiger Männer ein negativer Zusammenhang gefunden. Dieser Effekt verschwindet nach einer Kontrolle auf potentielle Endogenität mittels Instrumentenvariablen.

**Keywords:** Self-employment, time use, earnings, gender pay gap, Germany

**New JEL-Classification:** J16, J31, J22

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## 1 INTRODUCTION

It is well known that women in self-employment earn less than men. The literature uses different approaches in order to explain this gender earnings gap. Hundley (2001), Walker (2009), and Rybczynski (2009) explain it with financial constraints of self-employed women. Other approaches are the discrimination by consumers (e.g., Aronson, 1991) or discrimination by capital lenders (e.g., Coleman, 2000; Orser *et al.*, 2006). Compared with the gender pay gap in paid work (e.g., Altonji and Blank, 1999; Weichselbaumer and Winter-Ebmer, 2005) it is not clear whether the gender earnings gap in self-employment is higher or lower (e.g., Moore, 1983; Eastough and Miller, 2004). Gather *et al.* (2010) and Lechmann and Schnabel (2012) analyze the determinants of the gender earnings gap in Germany. Both find that the gender earnings gap is higher in case of self-employment. Lechmann and Schnabel conclude that neither family characteristics nor working time flexibility and career aspirations seem to contribute much to the gender earnings gap.

In this paper I follow Hundley (2001) and Walker (2009) and analyze the impact of time spent on housework on the earnings of self-employed men and women.<sup>1</sup> To my knowledge, no study for Germany exists which is engaged in this framework for self-employed individuals. For the empirical analysis I use the German Socio-Economic Panel<sup>2</sup> (GSOEP) with waves 2000 to 2009. While Hundley and Walker only use cross-sectional data and net earnings of self-employed individuals, I can use information on net and gross earnings for self-employed individuals. Furthermore, with the GSOEP as a longitudinal data set it is possible to control for person fixed effects via fixed-effects earnings regressions (FE). In addition both Hundley and Walker do not control for potential endogeneity of housework hours in the earnings equation. If endogeneity occurs the housework coefficient will be downward biased as will be explained later. In this paper I extend the existing analysis by using fixed-effects instrumental variable techniques.

The argumentation why time spent on housework activities should have an impact on the earnings of self-employed individuals goes back to Becker (1985). Becker argues that housework activities are more demanding than leisure or other non-market activities, so that individuals engaged in housework may spend less effort on market activities thus earning lower wages. Further explanations are that individuals with higher housework responsibilities are less able to engage in network activities after work or to work late to complete projects. It is also possible that individuals with higher housework

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<sup>1</sup> Hundley (2001) and Walker (2009) show that time spent on housework activities can explain parts of the gender earnings gap.

<sup>2</sup> SOEP v26.

responsibilities may select themselves into jobs offering more flexible working arrangements and thus earn lower wages.

Indeed, for paid workers the literature mainly finds a significantly negative impact of time spent on housework activities on the workers' wages (e.g., Hersch, 1991a; 1991b; Hersch and Stratton, 1997; 2002; McAllister, 1990; Bonke *et al.*, 2005, Hersch, 2009; Bryan and Sevilla-Sanz, 2010)<sup>3</sup>. But there also exist some studies which do not find a significantly negative impact of time spent on housework on workers' wages (e.g., McLennan, 2000; Hirsch and Konietzko, 2011). The results of the literature for self-employed individuals are ambiguous. While Hundley (2001) finds a significantly negative impact of housework activities on the annual and hourly earnings only for women, Walker (2009) finds a significant negative effect on the annual earnings only for self-employed men. Aronson (1991) conclude that women in self-employment are compensated for lower earnings by an increase of utility which arises from the higher time allocation to housework activities. One reason for the contradictory results can be the potential flexibility of self-employment as will be discussed later.

Furthermore my study attempts to fill the gap of time use analysis of self-employed individuals for Germany. This is done by descriptive analysis based on the GSOEP and the German Time Use Survey (GTUS) from 2001/2002 as a second dataset. The GTUS contains detailed information on the total amount of time spent on a specific activity and the exact timing of the activity during a day. In order to gain insights into the time use of self-employed individuals, I use the following research questions: (1) Do self-employed individuals have a different time allocation than paid workers? (2) Does time allocation differ by gender and if it does what are the differences between self-employed men and women compared to paid men and women? (3) Are there differences between men and women in self-employment with respect to the time allocation at weekdays and weekend days compared to paid men and women? (4) Are there differences in the timing of market work and housework activities during an average working day between self-employed men and women and men and women in paid employment?

In the time use analysis for paid workers the main finding in the literature is that women spend more time on housework activities than men and that men spend more time on market work (e.g., McAllister, 1990, Hersch, 1991a, 1991b, Kalleberg and Rosenfeld, 1990; Burda *et al.*, 2012; Stratton, 2012).<sup>4</sup> The existing international literature for self-employed individuals and their time use is small. Hyytinen and Ruuskanen (2007) use Finnish time use data to analyze the time allocation of self-employed men and women

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<sup>3</sup> For a recent survey on the existing empirical and theoretical literature on time spent on housework hours on workers' wages I refer to Maani and Cruickshank (2010).

<sup>4</sup> Hersch (1991a) finds that married men with children spend 8.96 hours a week on housework whereas married women with children spend 19.42 hours on housework.

compared to paid workers. The authors find that self-employed individuals work longer effective hours<sup>5</sup> and work more hours on weekend days than paid workers. Additionally individuals seem to have less pure leisure<sup>6</sup>. Overall, Hyytinen and Ruuskanen conclude that their findings deliver little evidence that self-employed individuals are more independent or autonomous than paid workers. Using U.S. data, Gurley-Calvez *et al.* (2009) find that self-employed women mostly spend less time on market work and more time on childcare activities (direct and indirect childcare) than paid women. Self-employed men usually allocate less time on market work and more time on child care than their paid counterparts.

The remainder is organized as follows: Section 2 shows the data and descriptive evidence with the time use analysis for self-employed men and women. The empirical strategy is described in section 3. Section 4 presents and discusses the results and section 5 concludes.

## 2 DATA AND DESCRIPTIVE EVIDENCE

For the empirical analysis I use two German data sources: The German Socio-Economic Panel (GSOEP) with the waves 2000 to 2009 and the German Time Use Survey from 2001/2002. The GSOEP as a representative longitudinal survey administrated by the German Institute for Economic Research (DIW) covers about 11,000 households and more than 20,000 individuals. It contains detailed annual information on individuals' socio-demographic characteristics, labour market experience, gross and net wages and earnings for wage and salary workers and self-employed individuals respectively, working hours, and household structure.<sup>7</sup> Furthermore, in every wave, household members are asked about the number of hours spent on different housework activities like "washing, cooking, cleaning" or "repairs on and around the house, car repairs, garden work" on working activities, and on leisure activities on a typical working day (i.e., Monday to Friday). Every second year household members are asked to quote their time use for the same activities on a typical Saturday and Sunday. Together with the wage data included I can use the information about the time allocation to analyze the impact of time spent on housework activities on hourly and monthly gross wages and earnings, respectively (deflated by the 2005 consumer price index).

The second data set is the German Time Use Survey (GTUS) from 2001/2002 collected by the German Federal Statistical Office in form of time use diaries. It contains detailed information about daily activities (timing and duration on working days and weekend

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<sup>5</sup> By using time use data it is possible to identify interruptions during the market work.

<sup>6</sup> Pure leisure is defined as the time use without housework activities and personal regeneration.

<sup>7</sup> For details on the GSOEP I refer to Wagner *et al.* (2007).

days) and information about socio-demographic and job characteristics.<sup>8</sup> Because the GTUS contains insufficient earnings information for self-employed men and women I use the GTUS for a detailed descriptive analysis only.

For both GSOEP and GTUS I use individuals aged 20-60 years and who are working full-time or part-time (i.e., not more than 30 hours a week) in paid work or in self-employment. Apprentices and individuals on military or civilian national service are excluded. To eliminate potential outliers in the GSOEP data, I further exclude the bottom one percent of observations with respect to hourly gross wages for both paid workers and self-employed individuals. Weekly working hours are delimited for wage and salary workers up to 60 hours and for self-employed individuals up to 90 hours. The total working hours as the sum of market work and housework is limited for both groups up to 100 hours. After dropping observations with missing covariates the used GSOEP-sample comprises 72,605 observations (66,652 for wage and salary workers and 5,953 for self-employed individuals)<sup>9</sup>.

The summary statistics based on both datasets for hours spent on housework, market work, and leisure on weekdays and weekend days<sup>10</sup> and information on socio-demographic characteristics for paid workers and self-employed individuals can be found in table 1. Further table 1 contains information about wages and earnings from the GSOEP-sample and information about time spent on personal regeneration from the GTUS-sample. Table 1 shows that the time allocation of self-employed individuals differs from the time allocation of paid workers in both datasets. Self-employed individuals allocate significantly more time on market work on weekdays and weekend days than paid workers do. In contrast to market work, self-employed individuals use significantly less time for housework activities and leisure at weekdays and weekend days than paid workers. The descriptive statistic for the GTUS in the lower part of table 1 shows that self-employed individuals allocate more time to their personal regeneration on weekdays and less time on weekend days. The higher time allocation to personal regeneration on weekdays might be seen as an indication that self-employment is more fatiguing than paid work (Hyytinen and Ruuskanen, 2007). The findings of table 1 indicate that self-employed individuals have a different time allocation than paid workers as asked in research question (1).

(Table 1 about here)

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<sup>8</sup> For details on the GTUS, see Federal Statistical Office (2005) or Ehling *et al.* (2001).

<sup>9</sup> Paid work: 34,441 observations for men and 32,211 for women; self-employment: 3,963 observations for men and 1,990 for women.

<sup>10</sup> The time use information of the GTUS differs from that of the GSOEP because the information in the GTUS is more detailed.

In a next step I look at the time allocation of both worker groups differentiated by gender. The upper panel of table 2 shows the descriptive statistics based on the GSOEP. Self-employed women have the smallest amount of time spent on market work at weekdays with 35.72 hours on average while self-employed men spend with 49.32 hours the highest amount on market work. Women in paid employment allocate 36.67 hours and men in paid work 47.44 hours on market work at an average weekday. At weekend days both self-employed men and women allocate more time to market work than their paid counterparts. The GTUS-sample (in the lower panel of table 2) shows equal results for the time allocation to market work at weekdays and weekend days. Interestingly the time allocation to market work at weekdays is lower for all groups than in the GSOEP-sample: For example self-employed women use only 26.97 hours for market work and self-employed men only 43.10 hours.

In the GSOEP-sample self-employed women allocate slightly less time to housework activities than paid women (23.81 versus 24.46 hours). Self-employed men spend less time on housework activities than paid men (11.04 versus 13.90 hours). The statistics for weekend days are more mixed: On Saturdays both self-employed men and women spend less time on housework activities than paid men and women whereas on Sundays self-employed women spend more time on housework activities than paid women and self-employed men spend less time than their paid counterparts. The statistics of the GTUS-sample in the lower panel of table 2 are different. Again, women in self-employment and paid work do more housework than men but in the GTUS-sample self-employed women spent much more time on housework activities than paid women (21.28 versus 16.72 hours) at an average weekday. On Saturdays self-employed women spend more time on housework than paid women and less time on Sundays. In contrast to that self-employed men spend less time on Saturdays and more time on Sundays on housework than paid men.

In table 2 both GSOEP and GTUS show that self-employed women allocate more time to leisure than paid men and women at an average weekday and an average weekend day. Further the GTUS in the lower panel of table 2 shows the time allocation to personal regeneration. While self-employed men and women allocate more time to personal regeneration on weekday than paid men and women they allocate less time to this activity on weekend days.

Therefore the answer to research question (2) is that sex differences with respect to time allocation exist with women performing more housework and men performing more market work. But women and men in self-employment have a different time allocation than women and men in paid employment. Additionally there exist differences in time allocation on weekdays and weekend-days between self-employed men and women and men and women in paid employment as asked in research question (3).



The answer of research question (3) is that self-employed men and women have a different time allocation on weekdays and weekend days.

(Table 2 about here)

Furthermore, table 2 documents gender pay gaps for self-employed individuals and paid workers within the GSOEP data. In contrast to Gather *et al.* (2010) and Lechmann and Schnabel (2012) I find a smaller gender earnings gap for self-employed individuals: The hourly gross earnings of self-employed women are 22.02 percent lower than for self-employed men, whereas the hourly gross wage of women in paid work is 23.73 percent lower than for men in paid work. In case of monthly earnings and wages, respectively, the gender earnings gap is larger for self-employed individuals. Women in self-employment earn 44 percent less than men, women in paid employment only 42 percent. Descriptive statistics for time allocation and the lower earnings of self-employed women might indicate a negative correlation of time spent on housework activities and earnings.<sup>11</sup>

Additionally I analyze two subgroups of self-employed individuals, namely (1) married individuals with and without children in the household<sup>12</sup> and (2) self-employed individuals with and without employees.<sup>13</sup> In both subgroups women are performing more housework while men spend more time on market work. In the first subgroup the gender differences in the division of housework and market work are more pronounced if children are present. In the second subgroup the division of housework and market work is more pronounced in case of solo-self-employed men and women. The gender earnings gap exists for both subgroups with women earning less than men.

In the GTUS information about activities is collected in form of time use diaries with intervals of 10 minutes. Therefore it is possible to reconstruct an average weekday with the timing of an activity during the day. Figure 1 shows the development of the percentage of men and women in self-employment and paid work, respectively, who participate in market work. As can be seen self-employed men and women start to work in the market later than paid workers. In the evening both self-employed men and women work later than their paid counterparts. While only 20 percent of male paid workers are working at 18h, the percentage amounts about 50 percent in case of self-employed men.

(Figure 1 about here)

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<sup>11</sup> Related to this, I find a negative correlation between time spent on housework and earnings of -0.1281 for self-employed women. Interestingly the correlation is slightly higher for self-employed men with -0.1631.

<sup>12</sup> The descriptive statistics can be found in the appendix table A1

<sup>13</sup> The descriptive statistics can be found in the appendix table A2.

Figure 2 shows the development of percentage of participating individuals in housework activities. The highest percentage rate for paid men and women occurs in the evening at 18h. In contrast self-employed women are performing more housework in the morning and at noonday. The percentage rate for self-employed men is nearly 10 between 6h to 16h and increases to 15 around 18h. The differences between self-employed individuals and paid workers with respect to the timing of market work and housework during an average working day might be seen as an indicator for a higher flexibility of self-employment in combining market career and family responsibilities. The graphical analysis indicates that self-employed individuals have a different timing of activities (i.e. market work and housework) during an average weekday than paid workers as asked in my research question (4).

(Figure 2 about here)

The descriptive statistics indicate that differences in time allocation and timing of activities exist between men and women in self-employment and men and women in paid employment. No differences occur within sexes with women performing more housework activities and men spending more time on market work.

### 3 EMPIRICAL STRATEGY

To investigate the impact of time spent on housework on self-employed individuals' earnings, I follow Hundley (2001) and Walker (2009) and run standard earnings regressions (OLS and FE) with the following specification<sup>14</sup>:

$$\ln w_{it}^{hourly} = \mathbf{x}_{it}'\boldsymbol{\beta} + \gamma_1 \text{housework}_{it} + v_i + u_{it}, \quad (1)$$

where  $\ln w_{it}$  is the log wage of individual  $i$  in period  $t$ ,  $\mathbf{x}_{it}$  a vector of control variables,  $\text{housework}_{it}$  the hours spent on housework per week (on weekdays)<sup>15</sup>,  $v_i$  a person fixed effect, and  $u_{it}$  the idiosyncratic error component. The vector of control variables  $\mathbf{x}_{it}$  includes standard measures of human capital endowments, i.e. years of schooling, labour market experience (linear and squared), tenure (linear and squared)<sup>16</sup>, and sets of dummy variables for children of different ages, living together with a partner, flexible working time, federal states, years, (one-digit) industry and occupation.

<sup>14</sup> The equations for OLS regressions are without  $v_i$ .

<sup>15</sup> Following the empirical literature for the housework-wage-nexus (e.g., Hersch, 1991a; Bryan and Sevilla-Sanz, 2010) I use simple hours. As a robustness check I use the logarithm of hours which do not change the insights qualitatively.

<sup>16</sup> Measured as years individuals pursue their actual business.

For the analysis of a possible impact of housework hours and working hours on log monthly gross earnings I further include the variable  $work_{it}$  with information about the actual working time of self-employed individuals into equation (1):

$$\ln w_{it}^{monthly} = \mathbf{x}_{it}'\boldsymbol{\beta} + \gamma_1 housework_{it} + \gamma_2 work_{it} + v_i + u_{it}, \quad (2)$$

A main empirical problem concerns the potential endogeneity of housework hours in the earnings regression equation caused by reverse causality or unobserved heterogeneity. Individuals with higher earnings have higher opportunity costs of housework activities and therefore may decide to reduce their time spent on housework activities, e.g., by substituting market purchases for home production (Hersch and Stratton, 1997). Additionally, individuals might have a higher ability in market work and therefore they are more likely to invest more time in market work than in housework activities. If potential endogeneity is present the coefficient of time spent on housework hours would be downward-biased and could therefore result in a spurious negative impact on the earnings. To address the potential endogeneity I follow the empirical literature for paid workers and use fixed-effects (FE) instrumental variable techniques (IV), where the instruments are three variables with information about the size of place and type and ownership of place (cf. Maani and Cruickshank, 2010). This should provide me with exogenous variation in hours spent on housework unrelated to earnings.

## 4 RESULTS

In order to get a first insight into the housework-earnings-nexus I use OLS techniques for estimation of self-employed individuals' log hourly and monthly earnings. The results are shown in table 3. For men significantly negative impact of time spent on housework activities on log hourly earnings can be found. But the impact is not economically significant. An increase of time spent on housework activities by one hour reduces the hourly earnings for men by 0.67 percent. For self-employed women the housework coefficient is negative but statistically and economically insignificant. When using log monthly earnings and controlling for working hours significantly negative impacts of housework can be found for both self-employed men and women. But again they are economically insignificant. An increase of time spent on housework activities by one hour reduces women's monthly earnings by 0.75 percent, men's earnings by 1.14 percent. There also exists a significantly positive impact of working hours on the earnings of self-employed individuals. One additional working hour increases log monthly earnings for women by 2.94 percent, for men by 1.47 percent.

(Table 3 about here)

As in the descriptive statistics I estimate the impact of time spent on housework activities on the earnings of self-employed individuals with and without children and for self-employed individuals with and without employees.<sup>17</sup> For self-employed women with employees or with children the time spent on housework activities has no significantly negative impact on the earnings. This result holds for log hourly and monthly earnings. For self-employed men and women without children and employees, respectively, the time for housework has significantly negative impacts. Especially the result of self-employed women with children might be seen as an indicator for the flexibility of self-employment.

Overall one can say that the impacts of time spent on housework activities are not economically significant. The highest impact of time spent on housework amounts 1.71 percent in the case of self-employed men without children and monthly earnings. Mostly the impacts are lower than 1.0 percent.

Now I turn to the FE regression results. Table 4 reports the results for the log hourly gross earnings regression of self-employed men and women. In the case of self-employed women a significantly positive impact of time spent on housework on earnings can be found. One additional hour of housework increases the hourly earnings by 0.61 percent which is in contrast to the expected negative impact of housework. This finding is in contrast to the two existing U.S. studies by Hundley (2001) and Walker (2009), which find no significantly positive but different significant negative impacts of housework on earnings.

One reason for the contradictory results can be the potential flexibility of self-employment. Self-employment might give individuals a higher opportunity for market career and family responsibilities. Both the higher flexibility and the independence of self-employment in combining market work and housework responsibilities are confirmed by numerous empirical studies (e.g., Macpherson, 1988; Carr, 1996; Boden, 1996; Arai, 2000; Lombard, 2001). These authors argue that higher flexibility of self-employment is reflected by a higher significantly positive coefficient of children variables in probability estimations (e.g., probit or logit estimations). In this case time spent on housework activities should not have any impact on the earnings of self-employed individuals. In contrast to these findings Taniguchi (2002) finds no empirical evidence that self-employment is characterized by a higher flexibility, so that there can be a negative impact of housework on earnings. Hyytinen and Ruuskanen (2007) find no clear empirical evidence that self-employment includes more flexible working arrangements than paid work. Following the literature I have estimated probit regressions (pooled and for each survey year) for being self-employed. While pooled probit re-

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<sup>17</sup> These results are not shown in tables but are available from the author on request.

gressions show a higher probability of being self-employed if children live in a household, the results for each year are ambiguous.<sup>18</sup>

(Table 4 about here)

Additionally I looked at the log monthly gross earnings in order to analyze the impact of hours worked on the earnings of self-employed individuals. Table 4 shows the FE estimation results for the log monthly gross earnings for self-employed men and women. An increase of actual working hours has a significantly positive impact on the monthly earnings of self-employed women. One additional working hour increases the earnings by 1.33 percent. For self-employed men an additional working hour increases the monthly earnings by 0.64 percent (significant at 1 percent level). The results for the housework coefficient are mixed. For self-employed women the housework coefficient is insignificant and has a positive sign. In contrast it is significantly negative for self-employed men. An increase of time spent on housework activities of one hour reduces the monthly gross earnings by 0.42 percent (significant at 1 percent level).

As discussed in section 3 time spent on housework may be endogenous, I also fit FE earnings regressions instrumenting hours on housework with dummies for living in a house and residence ownership and the size of the place. In line with the empirical literature for paid workers (e.g., Hersch and Stratton, 1997; Bryan and Sevilla-Sanz, 2010), Durbin-Wu-Hausman tests fail to reject the exogeneity of hours spent on housework in all cases. Therefore endogeneity of housework hours in the earnings regression does not seem to play an important role. The instrument “ownership” is strong and the Sargan-Hansen test shows that it is valid in case of self-employed men. The results in table 5 show that after controlling for potential endogeneity the negative effect on monthly earnings for self-employed men becomes insignificant. Interestingly the significantly positive housework coefficient in case of women’s hourly earnings becomes insignificant but the coefficient is still positive.

(Table 5 about here)

The insights of the FE earnings regressions do not change after several robustness checks like a variation of age of individuals in the sample, looking at individuals under or above 40 years, or using net hourly and monthly earnings or disaggregated housework activities. When using lagged housework hours, the coefficients for women are insignificant while they become significantly positive for self-employed men. Additionally I estimate FE regressions for self-employed men and women with and without children and for self-employed men and women with and without employees, respectively. While no significant negative impact occurs in case of self-employed individuals with and

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<sup>18</sup> Results are not shown in tables but are available from the author on request.

without children, significantly negative impacts on monthly earnings of self-employed men exist, regardless if they work with or without employees.<sup>19</sup>

Overall I can conclude that there seems to be no negative impact of time spent on housework activities on the earnings of self-employed men and women.<sup>20</sup> Whenever there show up negative impacts in the regressions they disappear after controlling for potential endogeneity or their economical significance is small. Instead FE earnings regressions show a significantly positive effects of time spent on housework activities on the log hourly earnings for self-employed women, which is difficult to reconcile with theoretical expectations.

## 5 CONCLUSION

In this paper, I have investigated the time allocation of self-employed individuals compared to paid workers and the impact of time spent on housework activities on the hourly and monthly earnings of self-employed men and women in Germany.

In the case of paid workers, self-employed women spent more time on housework activities and less time on market work than self-employed men. What is different, the differences between sexes are larger for self-employed individuals. In most cases, self-employed women are performing much more housework than men and self-employed men spent much more time on market work than women compared to paid men and women. Taking the gender earnings gap with women earning less than men into account, one can conclude that there should exist a negative correlation of housework hours and the earnings of self-employed individuals. OLS earnings regressions with GSOEP data from 2000 to 2009 show significantly negative impacts on the hourly and monthly earnings of self-employed men and women. In contrast fixed-effects earnings regressions show only a significantly negative impact for log monthly earnings of self-employed men. This impact disappears after controlling for potentially endogeneity via fixed-effects instrumental variable techniques.<sup>21</sup> These results still hold after several robustness checks.

These findings are in contrast to the studies by Hundley (2001) and Walker (2009) who find significantly negative impacts of time spent on housework activities on the earnings

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<sup>19</sup> Results are not shown in tables but are available from the author on request.

<sup>20</sup> In contrast to OLS earnings regressions FE earnings regressions show no significantly negative impacts of time spent on housework activities on earnings. A reason for the different findings might be the controlling for unobserved heterogeneity via fixed-effects.

<sup>21</sup> Overall endogeneity of housework hours does not seem to play an important role because the housework coefficients in the FE regressions are not negative. If endogeneity is existent, the coefficient will be downward biased.

of self-employed women and men, respectively. One reason might be that neither Hundley nor Walker control for potential endogeneity of the housework coefficient in the earnings equation. Further Hundley and Walker use cross-sectional data and cannot control for unobserved heterogeneity. Therefore it would be interesting to know whether my findings could be confirmed for other countries by using panel data.

A further reason that no impact of time spend on housework activities on earnings of self-employed individuals occurs might be the potential flexibility and the independence of self-employment in combining market work and housework responsibilities. The literature (e.g. Carr, 1996; Arai, 2000) argues that family responsibilities should not have an impact on earnings if this flexibility exists. The descriptive statistics show that self-employed men and women have a different time allocation at weekdays and working days than their paid counterparts. Self-employed individuals spend less time of leisure activities and use the additional time for market work. Another indicator for the flexibility of self-employment might be timing of market work and housework activities during a day. It seems that self-employed individuals have a higher flexibility for spontaneous rearranging of daily routine so that no conflict between market career and family occurs. These findings are in line with Hyytinen and Ruuskanen (2007) who conclude that the possibility to decide when to do one's work may be an indicator for flexibility but are in contrast to earlier literature (e.g., Hamermesh, 1999, 2002). Overall future research with international time use data will be useful to examine whether and whereby flexibility in self-employment exists.

Because time spent on housework activities has no significant negative impact on women's earnings it seems that self-employment provides flexibility in order to combine market career and family responsibilities. Therefore politics should encourage women to get self-employed as a way of combining career and family.

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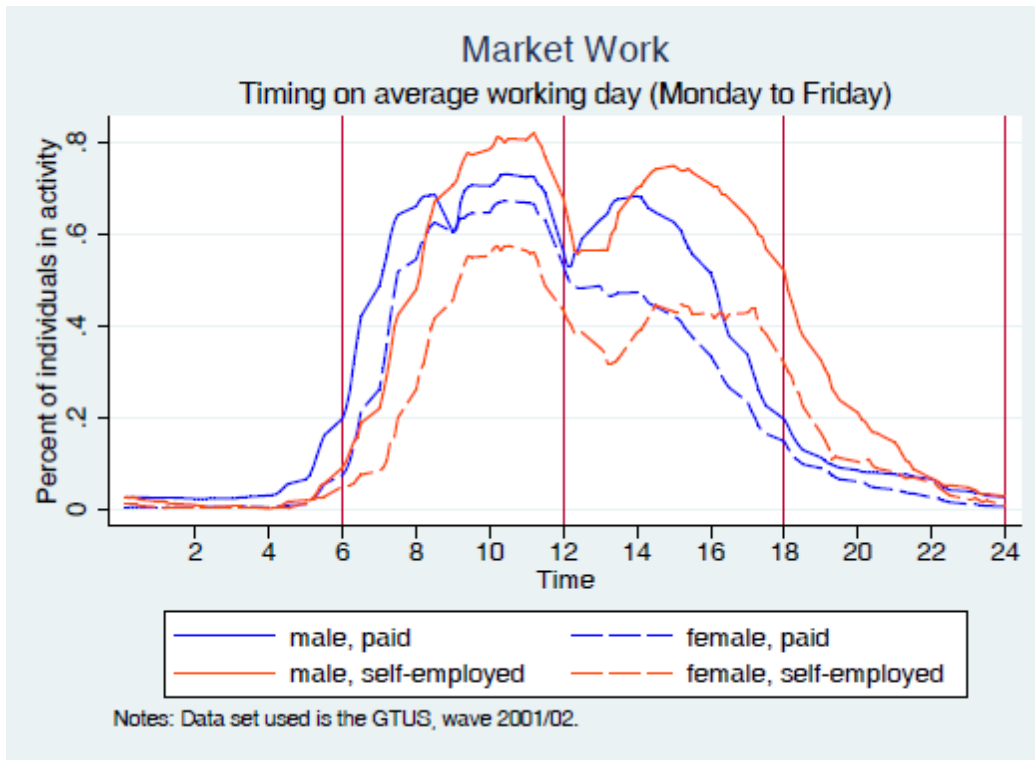


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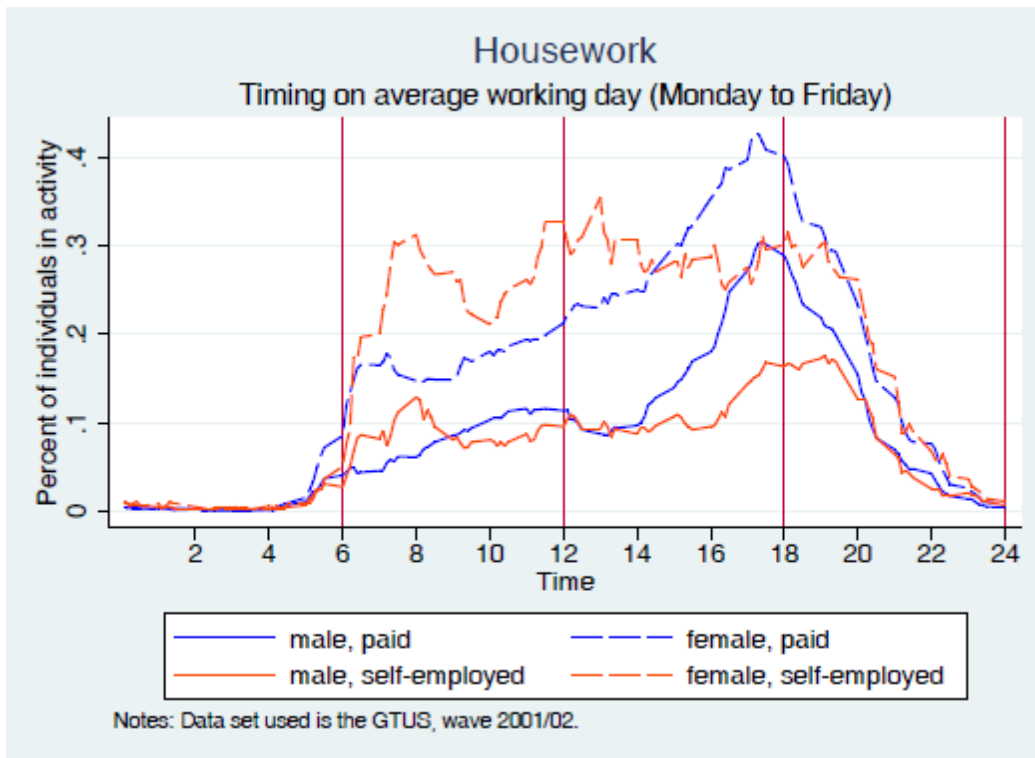
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**Figure 1:** Timing of market work during an average weekday



**Figure 2:** Timing of housework activities during an average weekday



**Table 1:** Descriptive statistics for earnings (wages) and time use of self-employed individuals (wage and salary workers) for Germany

	Self-Employed Individuals		Wage and Salary Workers	
	Mean	S.D.	Mean	S.D.
<b>GSOEP-sample</b>				
<i>Hourly</i> gross earnings/wage (€)	20.07	21.81	14.33	8.16
<i>Monthly</i> gross earnings/wage (€)	3,987.01	4,857.74	2,422.00	1,599.42
Market Work (Mon-Fri; hrs.)	44.79	15.01	42.24	12.73
Market Work (Sat; hrs.)	3.44	3.37	1.68	2.97
Market Work (Sun; hrs.)	1.28	2.37	0.77	2.20
Housework (Mon-Fri; hrs.)	15.31	13.70	19.01	14.30
Housework (Sat; hrs.)	5.50	4.09	6.58	4.41
Housework (Sun; hrs.)	3.49	3.84	3.83	4.19
Leisure (Mon-Fri; hrs.)	7.01	6.44	8.39	6.69
Leisure (Sat; hrs.)	2.56	2.16	3.01	2.40
Leisure (Sun; hrs.)	3.58	2.97	3.82	3.14
Years of Schooling	13.66	2.95	12.59	2.72
Experience (years)	19.92	9.38	18.37	10.15
Tenure (years)	8.95	7.76	9.60	8.72
Age youngest child (years)	8.47	4.72	8.67	4.74
Number of children in household	0.71	0.99	0.61	0.90
Living together with a partner	0.7941	0.4044	0.7829	0.4123
Female	0.3343	0.4718	0.4833	0.4997
Observations	5,953		66,652	
<b>GTUS-sample</b>				
Market Work (Mon-Fri; hrs.)	39.16	17.42	35.92	17.95
Market Work (Sat; hrs.)	3.64	4.07	1.34	3.00
Market Work (Sun; hrs.)	1.86	2.89	0.81	2.45
Housework (Mon-Fri; hrs.)	12.10	12.12	13.54	10.70
Housework (Sat; hrs.)	3.35	2.83	4.16	2.88
Housework (Sun; hrs.)	2.88	2.41	2.97	2.28
Leisure (Mon-Fri; hrs.)	18.20	10.71	21.00	10.89
Leisure (Sat; hrs.)	6.00	3.25	7.16	3.39
Leisure (Sun; hrs.)	6.73	2.78	7.3	2.79
Regeneration (Mon-Fri; hrs.)	50.54	8.28	49.54	9.02
Regeneration (Sat; hrs.)	11.01	2.16	11.34	2.48
Regeneration (Sun; hrs.)	12.53	2.18	12.99	3.14
Years of Schooling	14.01	3.33	11.89	3.01
Experience (years)	23.87	9.89	22.11	10.54
Age youngest child (years)	7.80	4.87	8.45	5.08
Number of children in household	1.12	1.13	0.93	0.97
Living together with a partner	0.7593	0.4279	0.6591	0.4741
Female	0.2437	0.4297	0.4086	0.4916
Observations	588		4,055	

Notes: Data sets used are the GSOEP, waves 2000 to 2009 and the GTUS, wave 2001/2002.

**Table 2:** Descriptive statistics for earnings (wages) and time use of self-employed individuals (wage and salary workers) by gender for Germany

	Self-employed individuals				Wage and salary workers			
	Women		Men		Women		Men	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
<b>GSOEP-sample</b>								
Hourly gross earnings (€)	16.89	16.51	21.66	23.88	12.34	6.47	16.18	9.08
Monthly gross earnings (€)	2,621.21	3,192.39	4,672.85	5,378.33	1,768.81	1,132.58	3,032.90	1,725.92
Market work (Mon-Fri; hrs.)	35.72	16.08	49.32	12.12	36.67	13.62	47.44	9.16
Market work (Sat; hrs.)	2.28	2.72	4.03	3.51	1.60	2.84	1.75	3.09
Market work (Sun; hrs.)	0.95	1.90	1.45	2.55	0.75	2.11	0.79	2.28
Housework (Mon-Fri; hrs.)	23.81	16.99	11.04	9.09	24.46	16.28	13.90	9.69
Housework (Sat; hrs.)	6.97	4.66	4.75	3.53	7.22	4.69	5.99	4.04
Housework (Sun; hrs.)	4.56	4.46	2.96	3.36	4.38	4.49	3.31	3.82
Leisure (Mon-Fri; hrs.)	7.23	6.24	6.90	6.54	8.36	6.64	8.43	6.73
Leisure (Sat; hrs.)	2.62	2.16	2.53	2.17	2.88	2.30	3.12	2.49
Leisure (Sun; hrs.)	3.46	2.88	3.64	3.02	3.69	3.02	3.94	3.24
Years of schooling	13.98	2.90	13.49	2.96	12.53	2.63	12.65	2.81
Experience ( <i>in years</i> )	18.57	9.19	20.60	9.40	17.39	9.96	19.30	10.23
Tenure ( <i>in years</i> )	7.51	6.66	9.67	8.16	8.73	8.20	10.42	9.10
Age youngest child ( <i>in years</i> )	9.24	4.47	8.12	4.79	9.72	4.37	7.87	4.85
Number of children in household	0.64	0.92	0.74	1.02	0.51	0.81	0.70	0.97
Living with partner	0.78	0.42	0.80	0.40	0.77	0.42	0.79	0.41
Observations	1,990		3,963		32,211		34,441	
<b>GTUS-sample</b>								
Market work (Mon-Fri; hrs.)	26.97	17.09	43.10	15.63	31.78	17.36	38.83	17.80
Market work (Sat; hrs.)	2.36	3.31	4.03	4.20	1.24	2.79	1.42	3.14
Market work (Sun; hrs.)	1.51	3.14	1.99	2.79	0.71	2.24	0.88	2.59
Housework (Mon-Fri; hrs.)	21.28	13.32	9.14	10.07	16.72	10.94	11.30	9.93
Housework (Sat; hrs.)	4.59	2.80	2.98	2.73	4.42	2.67	3.97	3.00
Housework (Sun; hrs.)	3.09	1.87	2.80	2.58	3.44	2.34	2.64	2.18
Leisure (Mon-Fri; hrs.)	19.49	10.70	17.78	10.69	20.76	10.44	21.17	11.20
Leisure (Sat; hrs.)	5.72	3.12	6.08	3.29	6.78	3.17	7.43	3.51
Leisure (Sun; hrs.)	6.55	2.78	6.79	2.79	6.74	2.80	7.57	2.73
Regeneration (Mon-Fri; hrs.)	52.26	7.87	49.98	8.34	50.74	8.78	48.70	9.10
Regeneration (Sat; hrs.)	11.33	2.17	10.91	2.15	11.57	2.29	11.18	2.60
Regeneration (Sun; hrs.)	12.85	2.22	12.41	2.16	13.11	2.10	12.91	11.20
Years of Schooling	14.01	3.38	14.01	3.32	11.86	2.83	11.90	3.13
Experience ( <i>in years</i> )	23.33	9.69	24.04	9.96	21.75	10.75	22.36	10.39
Age youngest child ( <i>in years</i> )	8.90	4.91	7.47	4.82	9.38	4.82	7.92	5.15
Number of children in household	1.14	1.08	1.11	1.14	0.83	0.92	1.00	1.00
Living together with a partner	0.75	0.44	0.76	0.43	0.62	0.49	0.69	0.46
Individuals	167		421		1,865		2,190	

Notes: Data sets used are the GSOEP, waves 2000 to 2009 and the GTUS, wave 2001/2002.

**Table 3:** OLS earnings regression results for log hourly and monthly earnings of self-employed individuals by gender for Germany [GSOEP sample]

	Log <i>hourly</i> gross earnings		Log <i>monthly</i> gross earnings	
	Women	Men	Women	Men
Working hours			0.0294 (0.0020)	0.0147 (0.0014)
Housework hours	-0.0024 (0.0017)	-0.0067 (0.0017)	-0.0075 (0.0019)	-0.0114 (0.0018)
Years of schooling	0.0503 (0.0101)	0.0449 (0.0074)	0.0501 (0.0112)	0.0487 (0.0078)
Experience ( <i>in years</i> )	0.0266 (0.0100)	0.0180 (0.0077)	0.0394 (0.0114)	0.0307 (0.0080)
Experience <sup>2</sup>	-0.0006 (0.0003)	-0.0002 (0.0002)	-0.0009 (0.0003)	-0.0005 (0.0002)
Tenure ( <i>in years</i> )	0.0309 (0.0126)	0.0188 (0.0076)	0.0361 (0.0128)	0.0207 (0.0076)
Tenure <sup>2</sup>	-0.0004 (0.0005)	-0.0004 (0.0003)	-0.0005 (0.0005)	-0.0004 (0.0003)
Flexible working arrangement ( <i>dummy: yes=1</i> )	0.0324 (0.0604)	-0.0460 (0.0371)	0.1186 (0.0682)	-0.0280 (0.0387)
No. employees 1-9 ( <i>dummy: yes=1</i> )	0.2660 (0.0556)	0.1590 (0.0360)	0.2870 (0.0595)	0.2276 (0.0360)
No. employees > 9 ( <i>dummy: yes=1</i> )	0.4261 (0.1191)	0.5166 (0.0617)	0.4200 (0.1336)	0.5591 (0.0616)
Children < 2 years ( <i>dummy: yes=1</i> )	0.3007 (0.2128)	0.1638 (0.0853)	0.3392 (0.2192)	0.2036 (0.0820)
Children 2-5 years ( <i>dummy: yes=1</i> )	0.1083 (0.1041)	0.1651 (0.0531)	0.1522 (0.1063)	0.2241 (0.0530)
Children 6-10 years ( <i>dummy: yes=1</i> )	0.0747 (0.0886)	0.1363 (0.0514)	0.1339 (0.0918)	0.1749 (0.0521)
Children 11-17 years ( <i>dummy: yes=1</i> )	0.0355 (0.0663)	0.0591 (0.0430)	0.0610 (0.0719)	0.0699 (0.0437)
Living with partner ( <i>dummy: yes=1</i> )	-0.0840 (0.0602)	0.0132 (0.0508)	-0.0810 (0.0632)	0.0225 (0.0522)
Occupation (8 <i>dummy variables</i> )	Yes**	Yes***	Yes	Yes***
Industry (7 <i>dummy variables</i> )	Yes***	Yes***	Yes***	Yes***
Region (14 <i>dummy variables</i> )	Yes***	Yes***	Yes***	Yes***
Years (9 <i>dummy variables</i> )	Yes***	Yes***	Yes***	Yes***
Observations	1,990	3,963	1,990	3,963
R <sup>2</sup>	0.2806	0.3607	0.5422	0.4476
R <sup>2</sup> (adjusted)	0.2609	0.3518	0.5295	0.4398

Notes: Data set used is the GSEOP, waves 2000-2009. Standard errors clustered at the individual level are given in parentheses. \*/\*\*/\*\* indicates statistical significance at the 10/5/1% level.

<sup>a</sup> If a partner is present

**Table 4:** Fixed-effects earnings regression results for log hourly and monthly earnings of self-employed individuals by gender for Germany [GSOEP sample]

	Log <i>hourly</i> gross earnings		Log <i>monthly</i> gross earnings	
	Women	Men	Women	Men
Working hours			0.0133 (0.0019)	0.0064 (0.0011)
Housework hours	0.0061 (0.0021)	0.0004 (0.0015)	0.0013 (0.0018)	-0.0042 (0.0014)
Years of schooling	0.0409 (0.0325)	-0.0253 (0.0394)	0.932 (0.0256)	0.0714 (0.0463)
Experience ( <i>in years</i> )	0.1293 (0.0503)	0.0230 (0.0706)	0.1262 (0.0581)	0.0773 (0.0744)
Experience <sup>2</sup>	-0.0007 (0.0005)	-0.0003 (0.0003)	-0.0009 (0.0004)	-0.0007 (0.0003)
Tenure ( <i>in years</i> )	-0.0046 (0.0157)	0.0111 (0.0118)	-0.0163 (0.0170)	0.0116 (0.0112)
Tenure <sup>2</sup>	-0.0003 (0.0007)	-0.0003 (0.0003)	-0.0004 (0.0007)	-0.0002 (0.0003)
Flexible working arrangement ( <i>dummy: yes=1</i> )	-0.0000 (0.0509)	0.0022 (0.0289)	0.0196 (0.0438)	0.0239 (0.0289)
No. employees 1-9 ( <i>dummy: yes=1</i> )	0.1158 (0.0663)	0.0582 (0.0347)	0.1016 (0.0587)	0.1006 (0.0304)
No. employees > 9 ( <i>dummy: yes=1</i> )	0.4044 (0.1205)	0.1106 (0.0543)	0.3985 (0.0961)	0.1822 (0.0525)
Children < 2 years ( <i>dummy: yes=1</i> )	0.0031 (0.1533)	0.0275 (0.0799)	-0.1969 (0.1389)	-0.0183 (0.0505)
Children 2-5 years ( <i>dummy: yes=1</i> )	-0.0642 (0.1270)	0.0247 (0.0519)	-0.1866 (0.1009)	0.0296 (0.0461)
Children 6-10 years ( <i>dummy: yes=1</i> )	-0.0576 (0.1066)	0.0435 (0.0497)	-0.1039 (0.0968)	0.0372 (0.0438)
Children 11-17 years ( <i>dummy: yes=1</i> )	-0.0302 (0.0813)	0.0115 (0.0387)	-0.0803 (0.0751)	0.0017 (0.0364)
Living with partner ( <i>dummy: yes=1</i> )	-0.1107 (0.0823)	0.0743 (0.0501)	-0.1196 (0.0855)	0.1088 (0.0501)
Occupation (8 <i>dummy variables</i> )	Yes*	Yes	Yes*	Yes
Industry (7 <i>dummy variables</i> )	Yes	Yes	Yes	Yes
Region (12 <i>dummy variables</i> )	Yes***	Yes***	Yes***	Yes***
Years (9 <i>dummy variables</i> )	Yes	Yes	Yes	Yes*
Observations	1,990	3,963	1,990	3,963
Individuals	678	1,194	678	1,194
R <sup>2</sup> (within)	0.0343	0.0159	0.1424	0.0679

Notes: Data set used is the GSEOP, waves 2000-2009. Standard errors clustered at the individual level are given in parentheses. \*/\*\*/\*\* indicates statistical significance at the 10/5/1% level.

<sup>a</sup> If a partner is present.



**Table 5:** Fixed-effects instrumental variables earnings regression results for log hourly and monthly earnings of self-employed individuals by gender for Germany [GSOEP sample]

	Log <i>hourly</i> gross earnings		Log <i>monthly</i> gross earnings	
	Women	Men	Women	Men
Working hours			0.0172 (0.0054)	0.0087 (0.0026)
Housework hours	0.0203 (0.0288)	0.0139 (0.0273)	0.0190 (0.0230)	0.0172 (0.0262)
Years of schooling	0.0504 (0.0375)	-0.0240 (0.0459)	0.0885 (0.0358)	0.0657 (0.0417)
Experience ( <i>in years</i> )	0.1158 (0.0551)	0.0280 (0.0534)	0.1081 (0.0532)	0.0802 (0.0502)
Experience <sup>2</sup>	-0.0007 (0.0004)	-0.0003 (0.0003)	-0.0009 (0.0004)	-0.0006 (0.0003)
Tenure ( <i>in years</i> )	-0.0111 (0.0167)	0.0061 (0.0125)	-0.0207 (0.0134)	0.0031 (0.0117)
Tenure <sup>2</sup>	-0.0002 (0.0006)	-0.0003 (0.0003)	-0.0003 (0.0005)	-0.0002 (0.0003)
Flexible working arrangement ( <i>dummy: yes=1</i> )	0.0133 (0.0490)	0.0134 (0.0326)	0.0306 (0.0463)	0.0252 (0.0299)
No. employees 1-9 ( <i>dummy: yes=1</i> )	0.1343 (0.0688)	0.0684 (0.0341)	0.1174 (0.0560)	0.1136 (0.0301)
No. employees > 9 ( <i>dummy: yes=1</i> )	0.4516 (0.1522)	0.1103 (0.0537)	0.4332 (0.1229)	0.1757 (0.0510)
Children < 2 years ( <i>dummy: yes=1</i> )	-0.4248 (0.8989)	-0.0362 (0.1585)	-0.6789 (0.6525)	-0.1254 (0.1452)
Children 2-5 years ( <i>dummy: yes=1</i> )	-0.2527 (0.4218)	-0.0174 (0.1031)	-0.3996 (0.3118)	-0.0473 (0.0970)
Children 6-10 years ( <i>dummy: yes=1</i> )	-0.1849 (0.3108)	0.0026 (0.0842)	-0.2516 (0.2347)	-0.0309 (0.0773)
Children 11-17 years ( <i>dummy: yes=1</i> )	-0.1055 (0.2170)	-0.084 (0.0586)	-0.1677 (0.1628)	-0.0377 (0.0543)
Living with partner ( <i>dummy: yes=1</i> )	-0.1344 (0.1045)	0.0717 (0.0482)	-0.1506 (0.0822)	0.1027 (0.0463)
Sargan test ( <i>p</i> -value)	0.0974	0.7448	0.0770	0.5124
Hausman test ( <i>p</i> -value)	1.0000	1.0000	1.0000	1.0000
Observations	1,963	3,899	1,963	3,899
Individuals	673	1,181	673	1,181

*Notes:* Data set used is the GSEOP, waves 2000-2009. Standard errors clustered at the individual level are given in parentheses. Further control variables included are a set of dummy variables for federal states, years, (one-digit) industry, and (one-digit) occupation. As instruments for the housework variable a set of dummy variables for type and ownership of a place and size of the place are used.

<sup>a</sup> If a partner is present.

## APPENDIX

**Appendix Table 1:** Descriptive statistics for earnings and time use time use of self-employed individuals and wage and salary workers by gender for individuals living together with a partner with and without children for Germany

	Without children				With children			
	Self-employed individuals		Wage and salary workers		Self-employed individuals		Wage and salary workers	
	Women	Men	Women	Men	Women	Men	Women	Men
<b>GSOEP-sample</b>								
Hourly gross earnings / wages (€)	16.50 (16.35)	22.38 (27.30)	12.61 (6.34)	16.45 (9.82)	17.07 (17.57)	22.55 (21.23)	12.02 (6.54)	17.28 (9.02)
Monthly gross earnings / wages (€)	2,785.09 (2,771.64)	4,865.02 (6,832.47)	1,909.83 (1,161.73)	3,087.36 (1,686.54)	2,227.58 (3,780.42)	4,919.70 (3,881.36)	1,396.26 (1,024.47)	3,284.30 (1,844.59)
Market work (Mon-Fri; hrs.)	39.36 (15.50)	48.85 (12.00)	38.63 (12.87)	47.72 (9.04)	29.19 (15.48)	50.88 (10.96)	30.17 (13.62)	48.21 (8.13)
Market work (Sat; hrs.)	2.50 (2.71)	3.78 (3.34)	1.60 (2.83)	1.71 (3.02)	1.82 (2.50)	4.07 (3.58)	1.38 (2.55)	1.71 (3.10)
Market work (Sun; hrs.)	0.93 (1.75)	1.31 (2.39)	0.73 (2.07)	0.79 (2.27)	0.79 (1.73)	1.41 (2.57)	0.63 (1.86)	0.76 (2.28)
Housework (Mon-Fri; hrs.)	17.26 (9.84)	9.27 (7.71)	13.38 (10.77)	11.87 (8.22)	37.23 (18.92)	12.41 (10.42)	38.37 (17.86)	16.79 (11.04)
Housework (Sat; hrs.)	5.33 (2.85)	3.85 (2.59)	5.83 (2.98)	4.78 (2.85)	10.38 (5.15)	6.05 (4.18)	10.86 (5.28)	7.92 (4.53)
Housework (Sun; hrs.)	2.75 (2.46)	1.70 (2.02)	2.75 (2.43)	1.79 (2.15)	7.98 (4.94)	4.66 (3.98)	8.20 (5.20)	5.59 (4.41)
Leisure (Mon-Fri; hrs.)	7.63 (6.83)	7.46 (6.89)	8.62 (6.66)	8.56 (6.60)	6.07 (4.98)	5.79 (5.40)	6.97 (5.85)	7.07 (5.85)
Leisure (Sat; hrs.)	2.87 (2.41)	2.77 (2.21)	2.98 (2.32)	3.21 (2.51)	2.05 (1.66)	2.14 (1.84)	2.26 (1.84)	2.58 (2.04)
Leisure (Sun; hrs.)	3.82 (3.25)	4.08 (3.19)	3.84 (3.13)	4.08 (3.40)	2.81 (2.30)	3.06 (2.60)	3.00 (2.45)	3.33 (2.70)
Years of schooling	13.84 (2.89)	13.62 (2.95)	12.47 (2.64)	12.72 (2.83)	13.99 (2.88)	13.49 (3.03)	12.50 (2.62)	12.64 (2.86)
Experience (in years)	22.91 (8.88)	24.98 (9.66)	20.80 (10.20)	23.76 (10.74)	14.50 (6.46)	18.48 (6.94)	13.75 (6.53)	17.82 (7.33)
Tenure (in years)	9.04 (7.50)	11.90 (9.31)	10.66 (8.98)	12.74 (10.45)	6.37 (5.59)	8.49 (6.58)	6.57 (5.96)	9.69 (7.50)
Age youngest child (in years)					9.09 (4.40)	8.06 (4.77)	9.56 (4.40)	7.77 (4.82)
Number of children in household					1.70 (0.71)	1.76 (0.83)	1.54 (0.68)	1.68 (0.79)
Observations	869	1,538	15,506	13,464	674	1,646	9,356	13,854
<b>GTUS-sample</b>								
Market work (Mon-Fri; hrs.)	34.73 (15.99)	44.27 (14.76)	33.08 (18.21)	36.05 (19.70)	21.67 (15.91)	45.10 (15.62)	28.44 (17.17)	39.07 (17.65)
Market work (Sat; hrs.)	1.49 (2.25)	4.36 (4.68)	1.24 (2.80)	1.28 (2.94)	2.77 (3.80)	4.32 (4.50)	1.23 (2.73)	1.30 (3.01)
Market work (Sun; hrs.)	0.91 (2.02)	1.58 (1.94)	0.49 (1.87)	0.86 (2.57)	1.67 (2.22)	2.10 (3.06)	0.92 (2.53)	0.71 (2.28)
Housework (Mon-Fri; hrs.)	16.59 (12.88)	8.50 (15.18)	14.72 (10.06)	12.07 (11.02)	27.16 (13.61)	8.83 (8.26)	20.02 (12.08)	11.86 (10.43)
Housework (Sat; hrs.)	4.37 (2.81)	1.99 (2.40)	4.33 (2.58)	4.18 (3.30)	4.91 (2.86)	3.44 (3.07)	4.87 (2.78)	4.21 (3.01)
Housework (Sun; hrs.)	2.30 (1.61)	2.76 (3.80)	3.34 (2.05)	2.58 (2.26)	3.78 (1.62)	2.70 (2.15)	3.72 (2.55)	2.85 (2.15)
Leisure (Mon-Fri; hrs.)	16.82 (8.53)	16.49 (8.81)	19.89 (9.91)	21.83 (11.87)	18.96 (10.29)	16.75 (9.97)	20.59 (10.25)	20.52 (10.64)
Leisure (Sat; hrs.)	6.44 (2.07)	6.86 (3.73)	6.61 (2.90)	7.47 (3.41)	5.51 (3.93)	5.38 (3.07)	6.21 (3.12)	7.19 (3.43)
Leisure (Sun; hrs.)	7.53 (2.97)	7.88 (2.59)	6.72 (2.56)	7.42 (2.70)	6.16 (2.25)	6.45 (2.90)	6.52 (2.96)	7.46 (2.64)
Regeneration (Mon-Fri; hrs.)	51.85 (7.86)	50.75 (9.55)	52.31 (9.11)	50.05 (9.34)	52.21 (8.10)	49.32 (8.12)	50.95 (8.11)	48.55 (9.21)
Regeneration (Sat; hrs.)	11.70 (2.86)	10.80 (2.12)	11.81 (2.09)	11.07 (2.66)	10.81 (1.85)	10.86 (2.38)	11.69 (2.32)	11.30 (2.57)
Regeneration (Sun; hrs.)	13.26 (2.86)	11.78 (2.58)	13.45 (1.71)	13.14 (2.15)	12.89 (1.62)	12.75 (1.86)	12.84 (2.24)	12.97 (2.14)

Years of Schooling	13.37 (3.03)	13.68 (3.03)	11.74 (2.80)	12.03 (3.31)	14.05 (3.47)	14.13 (3.33)	11.77 (2.83)	11.70 (3.05)
Experience (in years)	28.31 (12.48)	28.31 (12.48)	24.60 (11.87)	27.30 (11.17)	21.19 (8.08)	23.10 (7.98)	19.83 (9.01)	21.31 (9.40)
Age youngest child (in years)					8.20 (4.76)	7.41 (4.82)	9.15 (4.89)	7.75 (5.10)
Number of children in household					1.92 (0.75)	2.01 (0.75)	1.62 (0.65)	1.73 (0.70)
Individuals	24	59	324	329	84	298	992	1,578

Notes: Data sets used are the GSOEP, waves 2000 to 2009 and the GTUS, wave 2001/2002. Standard deviations are given in parentheses.

**Appendix Table 2:** Descriptive statistics for earnings and time use of self-employed individuals by gender and number of employees for Germany

	Self-employed individuals without employees				Self-employed individuals with employees			
	Women		Men		Women		Men	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
<b>GSOEP-sample</b>								
Hourly gross earnings (€)	13.41	11.01	17.11	17.06	23.42	22.18	25.13	27.48
Monthly gross earnings (€)	1,730.73	1,626.67	3,285.00	3,029.51	4,295.2	4,483.41	5,728.37	6,432.47
Market work (Mon-Fri; hrs.)	31.76	15.90	45.81	14.06	43.19	13.60	51.99	9.59
Market work (Sat; hrs.)	2.21	2.76	4.05	3.55	2.42	2.64	4.02	3.48
Market work (Sun; hrs.)	1.01	2.03	1.58	2.65	0.86	1.61	1.35	2.48
Housework (Mon-Fri; hrs.)	26.03	17.97	13.13	10.05	19.65	14.05	9.45	7.93
Housework (Sat; hrs.)	7.04	4.83	4.77	3.50	6.85	4.33	4.73	3.56
Housework (Sun; hrs.)	4.54	4.55	2.94	3.40	4.58	4.29	2.97	3.34
Leisure (Mon-Fri; hrs.)	7.78	6.11	7.78	6.11	6.18	6.35	6.53	6.04
Leisure (Sat; hrs.)	2.68	2.10	2.68	2.10	2.51	2.26	2.50	2.14
Leisure (Sun; hrs.)	3.60	2.95	3.60	2.95	3.18	2.71	3.71	3.09
Years of schooling	13.67	2.80	13.11	2.78	14.56	3.00	13.78	3.05
Experience (in years)	18.08	9.31	19.87	9.99	19.49	8.88	21.15	8.88
Tenure (in years)	6.41	6.26	7.67	7.79	9.57	6.89	11.20	8.11
Age youngest child (in years)	9.26	4.46	8.12	4.87	9.22	4.48	8.12	4.74
Number of children in household	0.63	0.92	0.62	0.95	0.65	0.92	0.83	1.06
Living together with a partner	0.77	0.42	0.75	0.44	0.78	0.42	0.85	0.36
Observations	1,299		1,712		691		2,251	
<b>GTUS-sample</b>								
Market work (Mon-Fri; hrs.)	23.52	16.21	41.22	15.49	32.13	17.19	44.67	15.60
Market work (Sat; hrs.)	2.29	3.51	4.84	4.25	2.49	2.94	3.37	4.05
Market work (Sun; hrs.)	1.31	3.10	2.11	2.94	1.83	3.22	1.89	2.67
Housework (Mon-Fri; hrs.)	23.31	12.63	10.59	12.27	18.24	18.86	7.93	7.59
Housework (Sat; hrs.)	4.70	2.73	2.79	2.69	4.38	3.01	3.13	2.77
Housework (Sun; hrs.)	3.18	1.81	3.24	3.22	2.95	1.97	2.42	1.78
Leisure (Mon-Fri; hrs.)	19.26	10.02	17.92	10.88	19.83	11.72	17.67	3.45
Leisure (Sat; hrs.)	5.47	2.45	5.71	3.09	6.22	4.19	6.39	2.57
Leisure (Sun; hrs.)	6.34	2.68	6.59	3.01	6.89	2.93	6.97	1.44
Regeneration (Mon-Fri; hrs.)	53.91	7.70	50.27	9.12	49.80	7.54	49.74	7.65
Regeneration (Sat; hrs.)	11.54	2.13	10.67	2.22	10.90	2.23	11.11	2.08
Regeneration (Sun; hrs.)	19.26	10.02	12.07	2.47	12.34	1.93	12.72	1.80
Years of Schooling	13.43	3.35	13.33	3.14	14.95	3.24	14.62	3.35
Experience (in years)	23.12	10.33	24.77	9.56	23.68	8.63	23.39	10.28
Age youngest child (in years)	8.99	4.36	7.62	4.98	8.74	5.82	7.33	4.69
Number of children in household	1.21	1.09	1.10	1.16	1.04	1.08	1.12	1.13
Living together with a partner	0.80	0.40	0.67	0.47	0.65	0.48	0.85	0.36
Individuals	107		188		60		233	

Notes: Data sets used are the GSOEP, waves 2000 to 2009 and the GTUS, wave 2001/2002.

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