On the Employment Effects of Part-Time Labor
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Publication date:
2003

Citation for published version (APA):
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January 2003
On the employment effects of part-time labor

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January 10, 2003

Abstract

The Netherlands experienced a major increase in the number of jobs over the past decade. We show that the spectacular growth of the number of part-time jobs was an important reason for employment growth and the related decline in unemployment.

keywords: part-time employment, unemployment

JEL-codes: J21, C22

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We thank Richard Paap for helpful comments and suggestions.
1 Introduction

Across the OECD there are big differences in the share of part-time employment in total female employment. For the year 2001 the range was from as high as 57% in the Netherlands to as low as 9% in Greece (OECD, 2002). Also for males there are important differences. While in the Netherlands 13% of the employed males had a part-time job, this was in Austria only 2.6% (OECD, 2002). In the UK 41% of the females and 8% of the males had a part-time job, for the US these numbers were 18% and 8%. The main suspects causing these differences are institutional arrangements and union resistance. Part of the opposition against part-time jobs is based on the idea that part-time jobs are created at the expense of full-time jobs. In fact, total employment as counted in the number of jobs may increase while total employment as counted in full-time equivalents does not grow at all. In the latter case one decent job is replaced by two inferior jobs. An opposite view is that the growth of part-time jobs even stimulated total employment. Part-time jobs can be used more flexible than full-time jobs for example in peak hours. The possibility to hire a worker on part-time terms may induce employers to open vacancies that they otherwise would have not opened. It may even be the case that the creation of part-time jobs triggers the creation of full time jobs. (opening a retailer shop may only possible if sufficient part-time workers can be found to work in peak hours).

This paper presents an analysis that addresses the issue of whether part-time jobs in the Netherlands grew at the expense of full-time jobs. For this we use a unique set of Dutch data on employment in which both full-time jobs and part-time jobs are specified in terms of total numbers of working
2 Part-time labor in the Netherlands

We start by giving a short description of the developments and structure of part-time labor in the Netherlands. Figure 1 shows the number of hours worked in part-time and full-time jobs in The Netherlands during the period 1970-2000. On the one hand we see that full-time employment (in number of hours worked) shows a strong decreasing trend from about 7.5 billion hours in 1970 to 6.3 billion hours early 1980s. After that, full-time working hours stay roughly constant until the second half of the 1990s, which shows a strong increase again to about 7 billion in 2000. Part-time employment on the other hand shows a strong increase during the period under observation from about 700,000 in 1970 to 2.6 billion in 2000.

The huge increase of part-time labor is a combination of several developments. For a long time labor market participation of Dutch females has been rather low compared to other European countries. The increase in female participation is partly a catch-up effect. Furthermore, barriers for part-time employment have been removed. In the Wassenaar agreement (1982) the unions agreed to reduced working hours and they gave up their resistance to part-time jobs. After the unions gave up their resistance to part-time jobs there has been a positive interaction between supply and demand. For employers part-time jobs are useful because they give flexibility to allocate more labor towards weekly peak hours in production (for example in retailing) and because it attracts new labor supply. Females that withdrew from the la-
bor market for family reasons return to take up part-time jobs and females that would otherwise have left the labor market are now staying in part-time jobs. So, the effective labor supply has increased. For females part-time jobs are valuable because they allow them to combine paid work with child care. Growth of part-time labor was also stimulated by the implementation of laws that made part-time work more attractive. In 1993 the statutory exemption of jobs of less than one-third of the normal working week from application of the legal minimum wage and related social security entitlements were abolished. Currently, most taxes are neutral and social security benefits are usual pro rata. Also since 1993 unions and employers representatives have recommended that employers grant workers’ request to work part-time unless there are compelling business reasons for rejection. In 1995 unions and employers signed the first proper collective agreement for temporary workers. (Visser and Hemerijck, 1997). Summarizing, it follows that the increase in part-time employment can largely be attributed to institutional changes.

As shown in Figure 2 real GDP increased strongly over the period of analysis. Combined, the total number of working hours is dominated by full-time hours, but in particular after 1982 the strong increase in part-time employment is reflected in the total number of hours. As shown in Figure 2 the total number of working hours increased from about 7.5 billion in 1984 to almost 10 billion in 2000. Correspondingly, total unemployment has dropped dramatically since the early 1980s. Whereas the OECD standardized unemployment rate in the Netherlands was as high as 12% in 1982 and still as high as 8% in 1992, it was down to 2% in 2001. Nickell and Van Ours (2000) conclude that the unemployment rate in the Netherlands went down because
of a significant reduction of the equilibrium unemployment rate since the early 1980s. Responsible for this are wage moderation, the re-enforcement of financial incentives for work for unemployed workers collecting benefits and the popularity of part-time work. In the next section we investigate the relationship between part-time work and total employment in more detail.

3 Empirical analysis

As shown above, the growth of part-time labor was mainly influenced by changes in labor market institutions. We therefore assume that part-time work can be used as a right-hand side variable in an employment equation. We estimated the following equation:

$$
\Delta \ln(e_{t}^{tot}) = \beta_0 + \beta_1 \Delta \ln(e_{t-1}^{tot}) + \beta_2 \Delta \ln(e_t^p) + \beta_3 \Delta \ln(y_t) + \beta_4 d_t + \varepsilon_t \quad (1)
$$

where $e_t^{tot}$ is the total annual number of working hours, $e_t^p$ is the annual number of part-time working hours, $y_t$ is real GDP, $d_t$ is a dummy variable with a value of 1 from 1996 onwards and 0 otherwise. This dummy is introduced for the change in data collection in 1996. Furthermore, $\varepsilon_t$ is an error term and $t$ is a subscript for time.

We use first differences in our analysis, because for all time-series involved we cannot reject the null hypothesis that the data contain a unit root. We have performed both Augmented Dickey Fuller tests and Phillips-Perron tests. Both procedures give similar results.

Secondly we estimated:

$$
\Delta \ln(e_{t}^{f}) = \beta_0 + \beta_1 \Delta \ln(e_{t-1}^{f}) + \beta_2 \Delta \ln(e_t^p) + \beta_3 \Delta \ln(y_t) + \beta_4 d_t + \varepsilon_t \quad (2)
$$
where $e^f_t$ is the number of full-time working hours and the other variables are defined as in equation 1.

In the estimation we use data over the period 1970-2000. The parameter estimates are shown in Table 1. As shown the lagged dependent variable has a positive effect. Furthermore, the change in the number of part-time working hours has a positive effect on the total number of working hours, as well as on the number of full-time working hours. The change in GDP also has a positive effect. The dummy (which we introduced for the change in data collection in 1996) has no significant effect. The constant is significantly negative, which may represent the influence of increasing labor market productivity.

The parameter estimates of the first equation indicate that the short-run effect of a 1% increase in part-time working hours is an increase of the total number of working hours with 0.4%. In terms of working hours this means that 1 hour of additional part-time work causes total working hours to increase with 1.5 hours. In the long run a 1% increase in part-time working hours causes total working hours to increase with 0.9%. This means that 1 hour of additional part-time work leads to 3 additional working hours in total, and thus 2 hours of additional full-time work. Assuming that on average a full-time job has twice as many hours as a part-time job, the results imply that one additional part-time job leads to 0.25 full-time job in the short run and 1 full-time job in the long-run.
4 Conclusions

We find that the increase in the number of part-time working hours has had a positive effect on the total number of working hours in the Netherlands. From this we conclude that the growth of part-time labor is at least partly responsible for the major increase in the number of jobs and the related decline in the unemployment rate.
References


Table 1. Parameter estimates employment equations$^a$)

<table>
<thead>
<tr>
<th>Term</th>
<th>$\Delta \ln(e^{tot})$</th>
<th>$\Delta \ln(e^f)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\Delta \ln(e^{tot}_{i-1})$</td>
<td>0.59 (6.0)</td>
<td>-</td>
</tr>
<tr>
<td>$\Delta \ln(e^f_{i-1})$</td>
<td>-</td>
<td>0.65 (5.7)</td>
</tr>
<tr>
<td>$\Delta \ln(e^p)$</td>
<td>0.37 (4.4)</td>
<td>0.25 (2.5)</td>
</tr>
<tr>
<td>$\Delta \ln(y)$</td>
<td>0.27 (2.5)</td>
<td>0.33 (2.6)</td>
</tr>
<tr>
<td>$d_t$</td>
<td>0.008 (1.6)</td>
<td>0.009 (1.5)</td>
</tr>
<tr>
<td>constant</td>
<td>-0.021 (5.4)</td>
<td>-0.021 (4.3)</td>
</tr>
</tbody>
</table>

| $R^2$                     | 0.82                   | 0.74              |
| Durbin’s $h$              | 0.24                   | 0.45              |

$^a$) $t$-values in parentheses
Figure 2: Real GDP and working hours

![Graph showing Real GDP and working hours from 1970 to 2000. The graph indicates a correlation between the two, with both increasing over time.](image-url)