Labor Market and Income Effects of a Legal Minimum Wage in Germany

Kai-Uwe Müller
Viktor Steiner

DISCUSSION PAPER SERIES

Labor Market and Income Effects of a
Legal Minimum Wage in Germany

Kai-Uwe Müller
DIW Berlin

Viktor Steiner
*Free University of Berlin, DIW Berlin
and IZA*

ABSTRACT

Labor Market and Income Effects of a Legal Minimum Wage in Germany[*]

In view of rising wage and income inequality, the introduction of a legal minimum wage has recently become an important policy issue in Germany. We analyze the distributional effects of a nationwide legal minimum wage of 7.50 € per hour on the basis of a microsimulation model which accounts for the complex interactions between individual wages, the tax-benefit system and net household incomes, also taking into account potential employment effects as well as indirect effects on consumption. Simulation results show that the minimum wage would be rather ineffective in raising net household incomes and reducing income inequality, even if it led to a substantial increase in hourly wages at the bottom of the wage distribution. The ineffectiveness of a minimum wage in Germany is mainly due to the existing system of means-tested income support and the position of minimum wage earners in the income distribution.

JEL Classification: I32, H31, J32

Keywords: minimum wage, wage distribution, employment effects, income distribution, inequality, microsimulation

Corresponding author:

Viktor Steiner
DIW Berlin
Mohrenstraße 58
10117 Berlin
Germany
E-mail: vsteiner@diw.de

1 Introduction

Germany is one of the few OECD countries where no general legal minimum wage currently exists (see Immervoll, 2007). However, in view of rising wage inequality, the introduction of a legal minimum wage has become an important policy issue in Germany. One argument for the introduction of a minimum wage is that the existing wage bargaining system no longer prevents 'excessive' downward wage flexibility. This is said to be related to the significant decline of union coverage in the economy and an expanding low wage sector partly as a result of recent labor market reforms in Germany. In this regard, a minimum wage prevents 'unfair' competition as a result of wage subsidies aimed at increasing employment in the low-wage sector. Another argument is that earnings of people working full-time should be sufficient to cover at least the means-tested social minimum. In that respect, a minimum wage is a means to prevent the emergence of the so-called 'working poor'.

Whereas the extensive literature on the economic effects of minimum wages primarily focuses on their wage and employment effects (see, e.g., Brown, 1999; Neumark and Wascher, 2007), there has been comparatively little research on the important policy question to what extent minimum wages affect the available income at the household level and thus the income distribution and inequality.[1] This literature, which mostly deals with the U.S., has shown that only a small fraction of families at the bottom of the income distribution includes workers that are employed at the minimum. Low income households often do not work at all or have only a single wage earner with the spouse caring for children. Therefore, a change of minimum wages is only weakly or not at all related to household income and has no significant effect on income inequality. In order to comprehensively analyze the potential income effects of minimum wages, the composition of households, the interplay of minimum wages and the tax-benefit system, as well as the adjustment of labor supply and demand have to be taken into account.

For Germany, there are hitherto only a few explorative studies on the potential effects of a statutory minimum wage on the wage and income distribution. On the basis of data from the German Socio-Economic Panel Study (SOEP), DIW (2006) documents that in West Germany very low wages are concentrated among marginally employed persons working few hours in jobs exempted from social security contributions (so-called 'Mini jobs'), whereas in East Germany low-wage jobs are also common among regularly employed people. It is also shown that minimum wages would disproportionately affect employees working in small firms and certain sectors, in particular agriculture and services. The relationship between lower wages and low incomes is found to be rather

---

[1]   This literature includes Johnson and Browning (1983), Burkhauser *et al*. (1996), Burkhauser and Sabia (2005), Bluestone and Ghilarducci (1996), MaCurdy and McIntyre (2001); Neumark and Wascher (1997, 2000), Neumark (2008) for the US; Goldberg and Green (1999) for Canada; Gosling (1996) and Sutherland (2001) for the UK, and Knabe and Schöb for Germany (2008). OECD (1998) and Brown (1999) summarize the older literature.

weak since low wages contribute only a relatively small share to household incomes. Bosch and Weinkopf (2006) report similar results for full-time employed people on the basis of administrative employment register data. Using SOEP data for 2004, Kalina and Weinkopf (2007) show that about 14 % of all dependent employed persons would have received a hypothetical minimum wage of 7.50 €in Germany, with higher shares among unskilled workers, women, youth, and people in marginal employment. Also using SOEP data, Knabe and Schöb (2008) find that households eligible to means-tested unemployment benefits would, on average, not benefit from a minimum wage because of the high benefit-withdrawal rate implicit in the German social welfare system. A legal minimum wage of 7.50 €per hour has been suggested, inter alia, by the governing Social Democratic Party and the trade unions.

In this paper we investigate the effects of the introduction of a nationwide minimum wage of 7.50 €per hour on the distribution on household incomes and income inequality while taking labor demand and supply reactions into account. The next section provides some information on the evolution of the low-wage sector as well as the relationship between low wages, means-tested income support and household incomes in Germany. Section 3 describes our methodological approach to estimate minimum wage effects on wages, employment, and ultimately net household income. In a first step, it is shown how a minimum wage in the suggested amount would affect the distribution of hourly wages abstracting from behavioral adjustments. To move from shifts in hourly wages to changes in net household incomes, we apply a microsimulation model based on the SOEP. This model accounts for the complexity of the German tax-benefits system, in particular means-tested income-support schemes, exemptions of very low earnings from social security contributions, and the joint income taxation of married couples imposing relatively high marginal tax rates on secondary earners. In addition to the static simulation of income effects ('first round effects') we allow behavioral adjustments of labor supply and demand and calculate net household incomes after the adaptation of employment ('second round effects'). Moreover, we analyze indirect effects of the minimum wage on consumer prices and on net household incomes, without and with the adjustment of consumption behavior. Simulation results, summarized in Section 4, show that the proposed minimum wage would have little impact on the overall distribution of net household incomes and the reduction of inequality among households with at least one low-wage worker. If negative effects on labor demand are taken into account the average effects on income are reduced by about 50 %. To a large extent the ineffectiveness of a minimum wage to increase net household incomes of the working poor and to reduce income inequality can be explained by the system of means-tested income support already existing in Germany. Section 5 summarizes our main findings and concludes.

2 Wage and Income Inequality, and the "Implicit Minimum Wage"

Policy proposals to introduce a legal minimum wage in Germany are often made with reference to the alleged increase in wage and income inequality as well as in the share of the working poor associated with an expanding low-wage sector. These developments are often said to have especially affected women, who are disproportionately employed in low-wage jobs, and people in East Germany due to the still much higher unemployment and comparably weak union coverage.

Figure 1 documents the evolution of *wage inequality* between the mid-1990s and 2006 based on representative data from the German Socio-Economic Panel (SOEP, see Section 3). Changes in the overall wage inequality, as measured by the ratio between the median and the mean of the hourly wage distribution in the respective group of employed people (excluding the self-employed), is mainly driven by the increasing divergence between the median and wages at the bottom of the wage distribution, as measured by the ratio between the first decile (p10) and the median. The decline in this wage ratio is particularly pronounced for men in West Germany and for both men and women in East Germany. By 2006, it had declined by a third to about 0.4 for men, which is roughly the same level as obtained by women in both regions. Except for women in West Germany, the decline of the p10/median wage ratio was much more pronounced in this period than the one recorded for the p25/median ratio.

The increasing share of *low-wage employment*, defined by an hourly wage of less than 50 % of the median, since the late 1990s, and in particular during the past few years, is documented in Figure 2. For men this share almost doubled in the observation period, reaching about 13 % in 2006, but the incidence of low-wage employment has also been increasing substantially for women, especially in East Germany. This strong increase occurred well before the recent labor market reforms which improved financial incentives to take up low-wage jobs, as described below.

The empirical evidence indeed seems to support the claim that inequality at the bottom of the wage distribution has been strongly increasing, and that this is related to an expanding share of low-wage employment. Contrary to what is usually assumed, though, the empirical evidence also shows that men have been even more strongly affected by this development than women, and that the low-wage sector has been expanding strongly in both West and East Germany. In terms of increasing income inequality, however, the situation is worse in East Germany, where – measured by the Gini coefficient – inequality has risen by more than 25% between 1995 and 2006 (see Table 1).[2]

---

[2] The new OECD scale has been used for the calculation of equivalent income which gives a factor of 1 to the head of household, of 0.5 to each adult person and of 0.3 to each family member younger than 18. The Gini coefficient is a summary measure of inequality normalized between 0 (equal distribution of incomes) and 1 (all incomes received by one person).

Figure 1: Evolution of wage inequality in Germany, 1995-2006

Men West

Men East

Women West

Women East
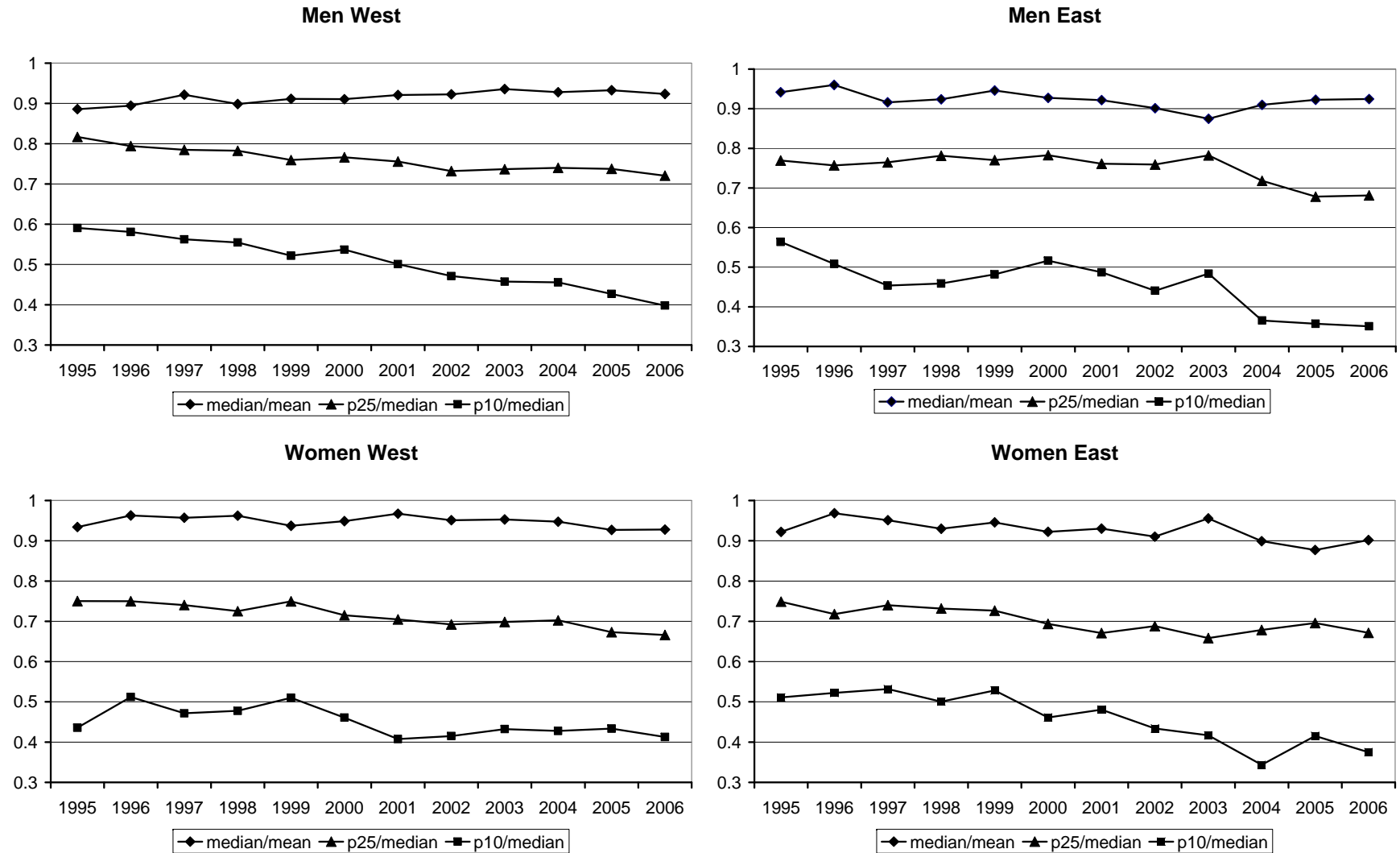
Notes: p10 is the 10th percentile, p25 is the 25th percentile of the wage distribution. Calculations are based on personal SOEP weights. Only employed people aged 18-65 are included, the self-employed are excluded.

Source: Own calculations based on SOEP, waves 1995-2006.

4

Figure 2: Share of low-wage employment (< 50% median hourly gross wage, in %), 1995-2006
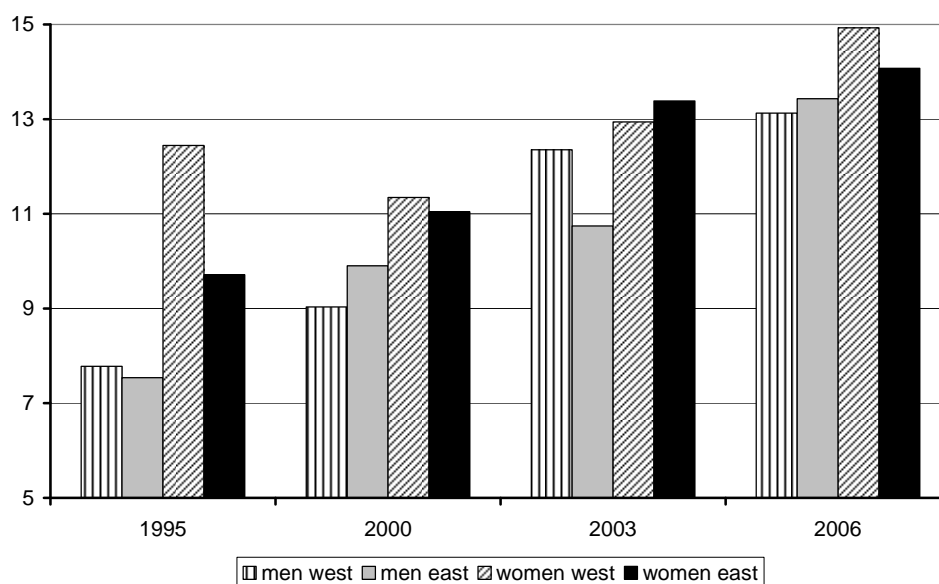
Notes: Low-wage share: share of people with an hourly wage < 0.5 median wage in the respective population subgroup (men in East Germany etc.). Only employed people aged 18-65 are included, the self-employed are excluded.

Source: Own calculations based on SOEP, waves 1995-2006, using sampling weights.

Table 1: Gini coefficients, net household equivalent incomes by region, 1995-2006

Year	West Germany	%Δ since 1995	East Germany	%Δ since 1995
1995	0.2590		0.2002	
	(0.2470; 0.2710)		(0.1892; 0.2112)	
2000	0.2496	-3.62	0.2076	3.69
	(0.2447; 0.2546)		(0.2018; 0.2134)	
2003	0.2841	9.68	0.2388	19.25
	(0.2780; 0.2901)		(0.2275; 0.2501)	
2006	0.2887	11.48	0.2533	26.50
	(0.2822; 0.2952)		(0.2454; 0.2612)	

Note: 95% confidence bands are given in parentheses.

Source: Own calculations based on SOEP, waves 1995-2006.

These developments are referred to in support for the introduction of a minimum wage in the current German economic policy debate. As a remedy, proponents of this view, including the governing Social Democratic Party and the labor unions, have suggested a legal minimum wage of 7.50 €per hour. Although this suggested minimum is well below the union wages already declared legally binding for all employees in some industries[3], it is said to raise in-

---

[3] Contract wages set at the industry level can be declared generally binding by the government based on a special regulation contained in the so called '*Entsendegesetz*' which was initially introduced in the construction industry in 1997 with the aim to prevent firms from other EU countries to compete at lower wages than the contract wage set by German employers and unions. Since then, this regulation has been extended to the cleaning and maintenance industry, the temporary work's industry and most recently to the postal service industry. In these industries, minimum wages range from about 6.50 € per hour in the cleaning and mainte-

comes of employees in industries with low union coverage and a large share of low-wage jobs. However, this view neglects that low hourly individual wages need not translate into low household income due to the existing system of means-tested income support and the distribution of low wage earners among households. The German transfer system is characterized by a comparatively high 'social minimum' relative to net in-work income of low qualified people and benefit-withdrawal rates close to 100 %. It includes a basic rate for each family member, which depends on the age of children, and a maximum amount for housing costs also depending on family size. Since 2005, the social minimum defines the amount of means-tested unemployment benefits (UB II) for people deemed 'employable' by the labor agency.[4]

This social minimum also defines the *implicit* minimum wage, i.e. the hourly wage which would yield the same net income in a full-time job as the means-tested UB II. As the illustrative calculations reported in Müller and Steiner (2009) show, this implicit minimum wage may well come close to or even exceed the current wage in the low-wage sector, it is especially high for one-earner couples with children and in East Germany. Furthermore, these illustrative calculations show that a minimum wage of 7.50 €per hour would not increase net household income for couples living in West Germany and would still not be sufficient to raise net household income for couples with both spouses working full-time in East Germany above the level of the means-tested unemployment benefit. Thus, the implicit minimum wage for families with children and one low-wage worker eligible for means-tested income support may be considerably higher than the suggested minimum of 7.50 €per hour.

However, these illustrative calculations do not account for various important features of the German tax-benefit system. These include income taxation, especially the joint taxation of couples, other means-tested transfers, such as housing benefits, the exemption of 'mini jobs' from social security contributions, and unemployment benefit withdrawal rates below 100 %. Moreover, not all households are entitled to means-tested unemployment benefits, and not all couple households with children consist of only one earner. In the subsequent empirical analysis we will analyze the relationship between the minimum wage, the hourly wage and net household income on the basis of a microsimulation model which also takes employment effects of the minimum wage into account, as described in the next section.

---

nance industry in East Germany to almost 12 €in the West-German construction industry. A prerequisite for the applicability of this regulation is that any existing union wage contract covers at least 50 % of all regularly employed people in the respective industry.

[4] 'Employability' is defined as the ability to work at least 3 hours a day and thus excludes persons with severe physical and mental disabilities only. People not fulfilling this criterion receive "social assistance" ('*Sozialgeld*') which is also means tested and paid at similar amounts as UB II.

3 Empirical Methodology

In order to simulate the effects of a shift in gross hourly wages induced by a federal minimum wage on net household income we employ a behavioral tax-benefit microsimulation model. Since the introduction of a minimum wage will also influence the allocation of labor, we incorporate potential employment effects into the model. This section sketches, first, our approach to calculate wage changes, second, the methods for the analysis of changes in labor demand and supply, and third, the simulation of income effects with and without behavioral adjustments of employment.

3.1 Simulation of wage effects without behavioral adjustment

In a first step, we abstract from behavioral adjustment and calculate minimum wage effects on the distribution of wages by substituting the suggested minimum wage of 7.50 € per hour for the hourly gross wage of employed people in our sample if a person's observed wage falls short of the minimum. We rule out spill-over effects, i.e. wages higher than 7.50 € remain constant. For each employed person, the gross hourly wage is obtained by dividing reported gross earnings in the month before the interview by the number of hours worked in that month, where paid overtime hours are included.[5] Using SOEP sampling weights, we then compare the observed wage distribution (no minimum wage) and the hypothetical wage distribution conditional on the minimum wage under the assumption of no labor market adjustment.

We make use of wage data from the latest available wave of the German Socio-Economic Panel Study (SOEP) collected in 2007. Since the great majority of respondents are interviewed in the first quarter of the year, we interpret these wage data to refer to the year 2006. To simulate the wage distribution in 2008 we extrapolate wages two years in the future, where the main simulation assumes constant growth rates.[6] Another critical assumption con-

---

[5] This hourly wage measure may underestimate the effective hourly wage, for at least two reasons: First, since the majority of people in the SOEP is interviewed in the first three months of the year, fringe benefits are underrepresented. Second, 'paid hours' may partly be paid for in later months, or may be compensated for by working less than normal hours in the future.

[6] To check the sensitivity of our simulation results with respect to this assumption, we have also used individual specific growth rates derived from the following dynamic wage growth regressions estimated on SOEP data for the years 1995-2007: $\Delta \ln(w_{it}) = \alpha + \beta \times trend + \gamma \times \Delta \ln(w_{i,t-1}) + v_{it}$, where w_{it} is the hourly gross wage of individual i in year t ($t = 1997, 1998, \ldots, 2007$), α is a constant, $trend$ is a linear time trend and $v_{it} = u_{it} - u_{i,t-1}$ is a MA(1) error term. Since the error term is correlated with the lagged dependent variable, we estimated the equation with $\ln(w_{i,t-2})$ and $trend$ as instrumental variables separately for men and women and for East and West Germany. IV estimates yielded statistically significant positive γ-coefficients and significant negative β-coefficients for all groups, although both turned out relatively small in absolute terms. On the basis of the estimated wage growth equations expected growth rates for the years 2007 and 2008 were de-

cerns the question how to deal with very low hourly wages in the SOEP data. To account for measurement errors in the hours and wage data, we have excluded wages below 3 €/hour received in regular employment. This equals roughly the 1 % percentile of the raw hourly wage distribution. We have included hourly wages below 3 €/hour, though, if they refer to supplementary work of people drawing unemployment benefits (so-called "Aufstocker"). We provide sensitivity analyses of the scenarios where hourly wages below 3 € per hour remain in the analysis as measured or are set to the margin of 3 € per hour, respectively. We generally delete people in full-time vocational and apprenticeship training as well as disabled employees from the sample. "Secondary jobs", i.e. jobs held in addition to the main job, are excluded in the base simulations. We present a sensitivity analysis with regard to the latter exclusion restriction below.

3.2 Accounting for adjustment of labor supply, labor demand, and consumption

As mentioned in the Introduction, there is an extensive literature on the economic effects of minimum wages which primarily focuses on their wage and employment effects. In their recent survey of this literature Neumark and Wascher (2007) conclude that the majority of studies to date, which mainly refer to the US, have found no clear-cut evidence on the labor market effects of minimum wages.[7] Most of these studies are descriptive and do not aim at formally differentiating between labor supply and demand effects of the minimum wage, although the interpretation of negative employment effects is usually in terms of the negative impact of the minimum wage on the demand for labor, whereas the studies finding positive employment effects tend to relate this to the increase in labor supply induced by a minimum wage. Accounting for both labor supply and demand effects in an ex-ante evaluation of the impact of the minimum wage on the distribution of incomes requires identifying these effects, which we try to do in the following on the basis of empirically estimated labor supply and demand elasticities. We also calculate indirect effects of the minimum wage on consumer prices and impute consumption rates at the household level to derive the consumption effects of the minimum wage on net household incomes.

---

rived recursively, with $g_{ir} = E(\Delta \ln w_{ir} \mid \Delta \ln w_{i,r-1}), \tau = 2007, 2008$. Using these estimated growth rates and the relation $w_{i,2008} = w_{i,2006} \prod_{r=2007}^{2008}(1 + g_{ir})$, individual wages for 2008 are then derived for all persons for whom a wage was observed for 2006. For those individuals for whom growth rates could not be calculated due to sample attrition (at least three successive individual observations are required in the dynamic growth rate regressions), mean values of growth rates within the estimation sample were imputed.

[7] For Germany, the empirical minimum wage study by König and Möller (2008) refers to the construction sector, where the contract wage was declared generally binding by the "*Entsendegesetz*" (see footnote 3). The authors find negative employment effects in parts of the East German construction sector but insignificant or even positive effects for West Germany.

Labor supply effects of the introduction of a federal minimum wage are estimated on the basis of a static discrete-choice labor supply model at the household level.[8] As suggested by van Soest (1995) the basis is a household utility model where utility is jointly maximized by the choice of different bundles of disposable income and leisure. Net household incomes for different categories of working hours and the scenarios with and without minimum wage are obtained from the tax-benefit calculator of the microsimulation model (see next sub-section). The specification as a conditional logit model and the assumptions of the approach are discussed in greater detail, e.g., in Haan and Steiner (2006). To sketch the main idea, the labor supply model is first estimated on the status quo data without a minimum wage. Then the parameters of the model are used to predict changes in participation and hours worked for the status quo and also for the scenario of a federal minimum of 7.5 €per hour (including the resulting change in net household income). The difference between the predictions yields the labor supply effects of the minimum wage. For those households affected by the minimum wage who have higher incomes after its introduction the theoretically expected effect on labor supply is ambiguous, since income and substitution effects act in opposite directions.

Labor demand effects are determined, first, by the wage changes induced by a federal minimum (see last sub-section), and, second, by the wage elasticities of labor demand. Both elements vary for different groups on the labor market – by gender, qualification level or type of employment status (e.g. full-time contracts vs. marginal employment)[9] – and are influenced by institutional factors and the degree of substitutability between the different groups. With regard to demand elasticities direct and indirect effects have to be distinguished. For given wages, factors of production and demand for goods the direct effect for a specific labor market group results from the substitution due to an increase in the cost of labor. Indirect effects follow from the substitution between different categories of labor which are all, but to a different degree, affected by the minimum wage. Moreover, the demand for labor is further reduced by a decreasing demand for goods as a result of higher production costs and prices.[10]

To account for these factors, we use empirical labor demand elasticities for different labor market groups and distinguished by region and gender estimated by Freier and Steiner

---

[8] The model is estimated separately for different household types: couple households where both spouses' labor supply is assumed to be fix, couple households where one spouse's labor supply is assumed to be fix, and male and female single households.

[9] For the simulation of labor demand effects we distinguish between skilled (secondary school or vocational education) and unskilled (neither secondary school nor vocational education) full-time workers, part-time workers and marginally employed. Those groups are divided by gender, yielding 8 different categories and are estimated separately for West and East Germany. Highly skilled workers (with university degree) are assumed to be a quasi-fix factor in the short run.

[10] We do not consider adjustments of the capital stock. In the long run it is likely that low-skilled labor is substituted by capital.

(2007). Given labor demand elasticities for $L=8$ groups, the change of the demand for labor of a specific group k (ΔB_k) to a relative change in the hourly wage of this group ($\Delta w_k / w_k$) can be estimated by:

$$\Delta B_k = \sum\nolimits_{l=1}^{8} c_l (\sigma_{kl} + \eta)(\Delta w_l / w_l) B_k \,,$$

where σ_{kl} is the (Hicks/Allen-) substitution elasticity, c_l is the share of the wage costs of group l in total wage costs, and η is the price elasticity of demand for goods.[11]

Consumption effects are taken into account, first, by calculating changes of consumer prices for different types of goods. The price increases result from higher wages due to the federal minimum for different sectors. Wage increases depend on the number of workers affected by the minimum in the respective sector and are calculated as described above. We assume perfect competition and perfectly elastic supply of goods (increases in labor costs are thus fully borne by consumers) and relate wage increases in different sectors to price increases for different types of goods via input-output tables.[12] On the basis of the German income and consumption survey ('Einkommens- und Verbrauchsstichprobe') we then estimate Engle curves for the consumption rate and shares of different consumption goods of the form:

$$C_i / Y_i = a + \beta_1 \log(Y_i) + \sum_{z=2} \beta_z x_{zi} + u_i \,,$$
$$S_{gi} / C_i = a + \beta_1 \log(Y_i) + \sum_{z=2} \beta_z x_{zi} + u_i \,.$$

where C_i are consumption expenditures, Y_i available household income, x_{zi} socio-demographic characteristics, and S_{gi} consumption expenditures for good g in household i. We impute household-specific consumption rates on the basis of the right-hand side variables in the SOEP and calculate the effects of the federal minimum on consumption without and with adaption of the consumption rate following the increase in consumer prices.[13]

---

[11] Bachmann et al. (2008) follow a similar approach but define different labor market groups. They use a slightly different specification of the labor demand model as well as a different data base for the employment figures. Ragnitz and Thum (2008) and Knabe and Schöb (2008) use a simpler method assuming the labor demand elasticity to be the same for all groups (see Müller, 2009).

[12] Price increases for goods produced in sector n Δp_n result from wage increases in the same sector Δw_n (scaled by the share of wage costs in this sector ws_n) and wage increases Δw_m in all other sectors m where intermediary inputs for sector n are produced scaled by the share of wage costs in sectors m ws_m and the share of intermediary inputs in sector n in relation to all inputs which is measured by the input coefficient a_{mn}:

$$\Delta p_n = (\Delta w_n) ws_n + \sum_m a_{mn} (\Delta w_m) ws_m \,.$$

[13] Estimation results for the consumption rate are reported in Table A6 in the Appendix. Further information on measurement, the exact calculation of the burden and detailed results from the consumption share equations are available from the authors upon request.

3.3 Effects on the distribution of net household incomes

To analyze minimum wage effects on the distribution of net household incomes we make use of the microsimulation model STSM which incorporates all major components of the German tax-benefit system. The STSM is based on the German Socio-Economic Panel (SOEP) which is a representative sample of households living in Germany with detailed information on household incomes, working hours and household structure.[14] The tax-benefit calculator embedded in the STSM allows us to compute net household incomes not only under the current wage structure but also for alternative wage structures, such as the one resulting from the introduction of a minimum wage. Earnings from dependent employment is the most important income component for the great majority of households. The SOEP also contains information on earnings (and working hours) from a "secondary job", i.e. a job held in addition to the main job, which we add to wage income for the calculation of net household income. Employees' social security contributions and the income tax are deducted from gross household income and social transfers are added to get net household income. Social transfers include child allowances, child-rearing benefits, educational allowances for students and apprentices, unemployment compensation, the housing allowance, and social assistance. Taxable income is calculated by deducting certain expenses from gross household income. Analogous to the wage analysis we compare the net household incomes under the status quo and the hypothetical minimum wage scenario using SOEP sampling weights.

First, we simulate the income effects as described without behavioral adjustments of labor supply and demand ('first round effects'). In a second step we explicitly take employment changes into account ('second round effects'). Since labor supply effects are very small (see sub-section 4.2 below), we abstract from those behavioral labor supply adjustments and focus only on the labor demand effects. Based on the simulated labor demand changes (see last sub-section) we calculate the share of people who become unemployed after the introduction of the minimum wage due to the demand side constraints for each group k of the labor market ($\Delta B_k / B_k$).[15] We then draw a weighted random sample of the same size among those who are affected by the minimum wage (i.e. earn wages below 7.50 € per hour) per group k with the weights being determined linearly by the distance between the earned wage and the minimum

---

[14] STSM basically consists of two parts: a tax-benefit calculator that computes net household incomes for each sample household on the basis of information on gross incomes, and for different (hypothetical) legislations and different working hours of individuals, and an empirical labor supply model. A detailed description of STSM is contained in Steiner et al. (2008). For more information on the SOEP, see http://www.diw.de/soep.

[15] Depending on the assumed size of η the demand change is positive for some i. Since we abstract from labor supply effects and in order to simplify the analysis we disregard positive employment changes in this version of the simulation. The only group where this simplification is relevant are women working part-time in West Germany.

wage. Those individuals selected in this manner become unemployed under the simulated minimum wage scenario. The procedure is repeated 50 times and average net household incomes are simulated as described above to get robust results.

We will show that an increase in gross wages induced by a federal minimum leads to substitution effects between wage and transfer incomes. Therefore gains in net household incomes are likely to be smaller than the gross wage effects. On the other hand the state saves transfer expenses and reaches higher income tax revenues which could be re-distributed to households. We do not simulate these 'third round' effects here, since we do not want to speculate about a re-distribution mechanism. More importantly, those savings are reduced substantially, if labor demand adjustment is considered and unemployment increases.

The data are taken from the current SOEP wave for the year 2007. Since the STSM is based on retrospective information on income components for the simulation of net household incomes for a given year, incomes computed on basis of the SOEP wave from 2007 refer to 2006. Because our analysis is focused on the year 2008, we extrapolate incomes to that year on the basis of realized average growth rates for 2007 and expected growth rates for 2008.[16] The tax-benefit system is also updated to include all known changes in regulations up to 2008.

4 Results

4.1 Effects on the wage distribution

Table 2 summarizes the effects of the introduction of a minimum wage of 7.50 €per hour would have on the wages of already employed people in the absence of employment effects. The upper part of the table shows for Germany overall and for various subgroups the average gross hourly wage prevailing in 2008 and the average wage of currently employed people if the minimum was introduced.[17] The numbers in parentheses give, for each group, the absolute and relative differences in these two wage measures. We also report the median and the mean of these two wages.[18] On average, a minimum wage of 7.50 €per hour amounts to about 52 %

---

[16] Since most interviews in the SOEP refer to the first quarter of the year, we have assumed that they will increase with the annual growth rate in that year. Average annual growth rates are derived from the following indices for the years 2007 and 2008: 1.016, 1.016 for consumer prices; 1.020, 1.025 for wages; 1.003, 1.012 for old-age pensions; 1.016, 1.016 for income from rents; and 1.04, 1.04 for income from profits (source: national accounts; BMWi, 2007; own calculations). We check the sensitivity of our simulation results to the assumptions underlying the forecasting of wages below.

[17] Expected wages of currently not employed people would also be affected by the minimum wage and thus also potentially increase labor supply (see sub-section 4.2).

[18] As mentioned above wages below 3 €hour earned in regular employment are excluded from the analysis. Wages below 3 €hour are included if they refer to supplementary work of people drawing unemployment benefits (see also Section 2).

of the median and 47 % of the average gross hourly wage in the German economy.[19] For the median, this share varies between about 43 % for men in West Germany to about 63 % for women in East Germany.

Table 2: Wage distribution before and after the introduction of a legal minimum wage of 7.50 €/ hour, currently employed people only, 2008

	Total		Men				Women			
	Germany		West		East		West		East	
	No MW	MW	No MW	MW	No MW	MW	No MW	MW	No MW	MW
1st-10th percentile	6.02	7.50	7.68	8.34	6.28	7.50	5.44	7.50	5.52	7.50
	(1.48; 24.58)		(0.66; 8.59)		(1.22; 19.43)		(2.06; 37.87)		(1.98; 35.87)	
1st-5th percentile	5.09	7.50	6.26	7.56	5.73	7.50	4.60	7.50	4.57	7.50
	(2.41; 47.35)		(1.30; 20.77)		(1.77; 30.89)		(2.90; 63.04)		(2.93; 64.11)	
6th-10th percentile	6.98	7.50	9.12	9.12	6.89	7.50	6.27	7.50	6.47	7.50
	(0.52; 7.45)		(0.00; 0.00)		(0.61; 8.85)		(1.23; 19.62)		(1.09; 17.00)	
11th-15th percentile	8.12	8.12	10.81	10.81	7.76	7.80	7.52	7.65	6.99	7.50
	(0.00; 0.00)		(0.00; 0.00)		(0.04; 0.52)		(0.13; 1.73)		(0.51; 7.30)	
16th-25th percentile	9.62	9.62	12.47	12.47	8.87	8.87	8.67	8.67	7.68	7.73
	(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)		(0.05; 0.65)	
Median	14.50	14.50	17.43	17.43	12.34	12.34	13.11	13.11	11.86	11.86
	(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)	
Mean	15.94	16.09	19.16	19.22	13.72	13.85	13.97	14.18	12.79	13.03
	(0.15; 0.94)		(0.07; 0.37)		(0.12; 0.87)		(0.21; 1.50)		(0.23; 1.80)	
MW as % of										
median		51.72		43.03		60.78		57.21		63.24
mean		47.05		39.14		54.66		53.69		58.64
People affected (%)										
overall		9.75		4.10		12.01		12.75		19.04
within 1st decile		97.56		41.06		100.00		100.00		100.00
Δ wage bill (1000 €/ month)	455,626.62		107,237.17		49,536.90		224,820.86		74,031.70	
% of wage sum		0.66		0.28		0.87		1.09		1.54

Notes: Only employed people aged 18-65 are included. Wage projections for 2008 are based on average growth rates. Percentiles are defined for the wage distribution without the minimum wage. Means are calculated within the range of given percentiles. Δ wage bill is the difference between the wage sum with and without the minimum wage, with wage sum = Σ (hourly wage×weekly working hours×4.2); employers' social security contributions not included.
The numbers in parentheses refer to absolute and relative differences in the two wage measures.

Source: Own calculations based on SOEP, wave 2007.

As shown in the lower part of the table, in Germany overall almost 10 % of all employees would be affected by the minimum wage. Whilst among men in West Germany only about 4 % of all employees would be affected, 12 % of males in East Germany and almost 13 % (19 %) of employed women in West (East) Germany earn wages below this minimum. Except

---

[19] People in full-time vocational and apprenticeship training as well as „secondary jobs", i.e. jobs held in addition to the main job, are excluded. With regard to the latter exclusion restriction see the discussion below.

for men in West Germany, all currently employed people in the bottom decile of the wage distribution would be affected by the minimum wage. Table A1 in the Appendix shows that the minimum wage would disproportionately affect younger employees, those with low qualification, marginally employed people (i.e., those in "mini jobs"), employees in certain industries, in particular in agriculture and forestry, in the textile and food industry and in wholesaled and retail trade, in private services, and those working in small firms.

Overall, the introduction of the minimum wage would increase the total wage bill by more than 450 million €per month, or 5.5 billion €per year, which is about 0.7 % of the wage bill in 2008. In absolute terms, the lion's share of this increase would go to female employees in West Germany, which reflects the still existing gender wage differential. The largest relative increase in the wage bill is estimated for women in East Germany (1.54 %), while the wage bill would only increase by about 0.3 % for men in West Germany.

Despite this substantial increase in the wage bill, the minimum wage would have very little effect on average wages: Overall, the average hourly gross wage would increase by 15 cent, or by less than 1 %. This direct wage effect varies between about 0.4 % for men in West Germany to about 1.8 % for women in East Germany. Table 2 also shows that for men in West Germany the modest wage increase would only occur in the bottom decile of the wage distribution, whereas wages would also slightly increase for the other groups with current wages just above the 10th percentile. However, compared to the very pronounced increase in the first decile of the distribution, and in particular in the 1st-5th percentile, these changes seem negligible. For Germany overall, the minimum wage would raise the average hourly gross wage in the first decile by almost 25%, from 6.02 to 7.50 €per month per hour. Within the first decile, the wage increase varies between 8.6 % for men in West Germany to almost 38 % for women in West Germany. Within the 1st-5th percentile of wage distribution, the average wage increase amounts to about 47 %, ranging from about 21 % for men in West Germany to about 64 % for women in East Germany.

Table A1 in the Appendix documents that these wage changes differ surprisingly little by age and qualification, but significantly by employment status. Low-pay of people in 'marginal employment', i.e. in jobs earning less than 400 €per month and not covered by social security, has been one alleged reason for introducing a minimum wage. As shown in Table A1 hourly gross wages of people holding such jobs would be raised by more than 30 %, on average, compared to about 15 % for full-time employed people. Part-time employed individuals in the bottom decile of the wage distribution would receive a relative wage raise of about 30 % as a result of the federal minimum similar to marginally employed people. Corresponding to the well-known firm-size wage differentials, minimum wage effects are declining

in firm size, with the share of affected individuals declining from more than 21 % in firms with less than 5 employees to less than 5 % in large firms.

In view of the recent development of wage inequality documented in Section 2 (see Figure 1) forecasting wages to 2008 on the basis of common growth rates may be questioned. To check the sensitivity of simulation results to this assumption, we have forecasted wages on the basis of individual specific growth rates derived from dynamic wage growth regressions estimated on SOEP data for the years 1995-2007. Although the correlation between wages updated this way and on the basis of the common growth rates (see footnote 6, Section 3.1) is surprisingly high (correlation coefficient of 0.99), the level of individually predicted wages is slightly below that obtained by updating wages by common growth rates, especially in the bottom decile of the wage distribution. The overall wage bill would increase by more than 0.8 % instead of only less then 0.7 % (compare Table 2 and Table A2 in the Appendix). Still, the effects of the minimum wage on the 2008 wage distribution are very similar if wages were updated on the basis of individual instead of common growth rates. Since estimated individual growth rates are derived from a period with an extraordinary decline in wages at the bottom of the distribution (see Figure 1), our wage growth regressions somewhat underestimate the relatively high wage gains realized between 2006 and 2008. The use of average growth rates seems therefore more appropriate from an empirical standpoint.

Another sensitivity check concerns the treatment of "secondary jobs". Since the 2003 "Mini Jobs" reform, jobs with earnings below 400 € per month have also been exempted from employees' social security contributions if held in addition to a main job (see, e.g., Steiner and Wrohlich, 2005). Our calculations of the wage effects of the introduction of a legal minimum wage do not include secondary jobs. Although it is currently not clear how they would be treated if a legal minimum wage was actually implemented in Germany, it seems rather difficult, both legally and politically, to exclude secondary jobs. Since the SOEP contains information on both earnings and hours worked in secondary jobs, we can include them in our analysis of the wage effects of the introduction of a minimum wage. Estimation results for this alternative simulation, which are summarized in Table A3 in the Appendix, show that the results deviate, albeit moderately (about 0.5 €/hour), within the first decile of the wage distribution. Since only a limited number of people is affected by potential changes of secondary incomes, the overall findings change only marginally and do not affect any of our conclusions.

Given that our simulation results seem quite robust with respect to the way we forecast wages and the inclusion of secondary jobs, we continue our analysis of how wage increases affect net household incomes on the basis of the simulation results in Table 2.

4.2 Employment effects

Labor supply effects

Table A4 in the Appendix shows the predicted effects of the introduction of the minimum wage on labor supply, regarding both labor force participation and total hours worked in relative and absolute terms. Detailed estimation results for the conditional logit models are presented in Table A5 in the Appendix. Crucial model assumptions, in particular positive first derivatives of the household utility index with respect to income, are satisfied.

As shown by Table A4, labor supply effects are very small. The total increase in labor force participation amounts to about 16,000 persons, the increase in total hours worked equals about 66,000 full-time equivalents. The main explanation for the small effects is the fact that the previously described wage changes correspond to relatively small increases of net household income (see discussion in sub-section 4.3) on which the labor supply decision is based. For couples labor supply effects are stronger for women compared to men both with respect to participation and hours choices whereas for singles the opposite is true. Overall households in the East show slightly larger labor supply responses compared to West Germany. Since the overall effects are fairly small, we will not consider labor supply changes in the simulation of household incomes with behavioral adjustment in this paper.

Labor demand effects

Table 3 summarizes compensated own and cross wage elasticities of the demand for labor (number of workers) for various labor market groups estimated in recent work by Freier and Steiner (2007). These elasticities are conditional on the level of output and the capital stock and were estimated separately for West and East Germany. They reveal a rather complex pattern of substitution and complementarity among labor inputs. For instance, marginally employed women in West Germany and women working part-time are substitutes in production whereas marginally employed women and skilled women with full-time jobs are complements. For given demand for goods a relatively high increase in wages for marginally employed women induced by the minimum wage will lead to a decrease in labor demand for this group and also for skilled women in full-time, but an increase in labor demand for women working part-time. The elasticities for East Germany follow a similar pattern for this example. Note that highly skilled individuals were assumed to be quasi-fixed in the labor demand estimations of Freier and Steiner (2007) which is why we do not calculate labor demand effects for this group.

Table 3: Compensated own and cross wage elasticities (number of workers)

West Germany	FT, U, M	FT, S, M	PT, M	ME, M	FT, U, W	FT, S, W	PT, W	ME, W
FT, U, M	*-0.510*	0.419	0.003	-0.001	0.050	0.034	-0.048	0.055
FT, S, M	0.085	*-0.200*	0.001	0.004	0.032	0.062	0.002	0.017
PT, M	0.023	-0.001	*-0.070*	-0.110	0.031	-0.268	0.204	0.186
ME, M	-0.019	0.316	-0.246	*-0.130*	-0.093	0.187	0.148	-0.162
FT, U, W	0.108	0.367	0.012	-0.013	*-0.370*	-0.055	-0.081	0.030
FT, S, W	0.020	0.136	-0.014	0.005	-0.009	*-0.160*	0.071	-0.051
PT, W	-0.044	0.007	0.033	0.011	-0.044	0.196	*-0.260*	0.099
ME, W	0.255	0.495	0.144	-0.058	0.056	-0.805	0.483	*-0.570*
East Germany	FT, U, M	FT, S, M	PT, M	ME, M	FT, U, W	FT, S, W	PT, W	ME, W
FT, U, M	*-0.300*	-0.086	-0.076	0.028	-0.036	0.487	-0.008	-0.008
FT, S, M	-0.002	*-0.110*	-0.008	0.005	0.006	0.091	0.015	0.005
PT, M	-0.135	-0.235	*-0.290*	0.006	0.114	0.235	0.302	-0.002
ME, M	0.172	0.476	0.019	*-0.300*	0.152	-0.778	0.332	-0.073
FT, U, W	-0.060	0.099	0.116	0.041	*-0.250*	-0.273	0.237	0.091
FT, S, W	0.044	0.128	0.012	-0.011	-0.014	*-0.230*	0.076	-0.010
PT, W	-0.010	0.063	0.055	0.018	0.040	0.245	*-0.440*	0.032
ME, W	-0.038	0.323	-0.008	-0.053	0.248	-0.582	0.437	*-0.330*

Notes: FT, U, M – Full-time unskilled men; FT, S, M – Full-time skilled men; PT, M – Part-time men; ME, M – Marginally employed men; FT, U, W – Full-time unskilled women; FT, S, W – Full-time skilled women; PT, W – Part-time women; ME, W – Marginally employed women. Numbers in italics are own-wage elasticities.

Source: Freier and Steiner (2007).

Another important factor for the changes in labor demand is the wage change per group in-duced by the minimum wage. In the first part of Table 4 the wage effects are broken down to the labor market groups used for the labor demand simulations. As mentioned above margin-ally employed workers are most strongly affected by the introduction of the minimum wage, followed by part-time employed and unskilled workers. The highest relative wage increase occurs for marginally employed workers with 13 % (8 %) for women in the East (West), and about 5% for men. Other notable wage changes affect part-time employed and unskilled women working full-time in East Germany.

In the second part of Table 4 the employment effects are documented which were calcu-lated on the basis of the elasticities shown in Table 3, the wage changes per group, and 3 dif-ferent price elasticities for the demand for goods (0, -1, -2). The overall employment effects depend on the assumed price elasticity of demand. If the demand for goods was perfectly ine-lastic, labor demand would decrease only by about 57,000 persons. In this scenario the loss of marginal employment would partially be compensated by an increase in demand especially for part-time employed women. If the demand for goods was highly elastic with respect to price changes (assumed elasticity of -2), the overall decrease in demand for labor would amount to 384,000 persons. Again the lion's share of employment losses concerns marginal

employment. In this scenario the demand for skilled full-time labor would shrink considerably. We use the middle scenario with an assumed price elasticity of demand for goods of -1 and a resulting decrease of labor demand of about 220,000 persons for the simulation of household incomes that includes the behavioral adjustment of labor demand in the next subsection.[20]

Table 4: Changes in wages and labor demand (heads)

			Wage Effects				Employment Effects		
			Affected	No MW	MW		Output price elasticities		
West Germany			(%)	(€/hour)	(Δ€)	(Δ%)	0	-1	-2
Full-time	Skilled	*Women*	5.98	14.85	0.06	0.41	-13,433	-32,772	-52,110
		Men	2.19	17.79	0.03	0.19	14,874	-24,316	-63,505
	Unskilled	*Women*	12.12	11.33	0.10	0.90	-907	-4,097	-7,286
		Men	4.19	16.36	0.04	0.27	4,010	-1,521	-7,053
Part-time		*Women*	9.14	14.14	0.17	1.22	31,887	5,557	-20,773
		Men	13.32	14.56	0.30	2.06	5,132	2,198	-735
Marginally employed		*Women*	40.59	8.99	0.74	8.27	-81,463	-91,880	-102,297
		Men	36.35	10.48	0.58	5.56	-10,024	-12,362	-14,699
Total							**-49,924**	**-159,191**	**-268,459**
East Germany									
Full-time	Skilled	*Women*	20.19	11.53	0.17	1.45	-1,684	-13,689	-25,694
		Men	11.56	13.20	0.10	0.78	2,517	-19,717	-41,952
	Unskilled	*Women*	39.48	11.37	0.23	2.01	787	31	-725
		Men	18.68	11.05	0.12	1.12	-6	-1,838	-3,670
Part-time		*Women*	19.24	12.11	0.27	2.21	1,468	-9,230	-19,927
		Men	24.62	11.22	0.36	3.25	-64	-2,336	-4,607
Marginally employed		*Women*	51.53	7.68	1.00	13.05	-7,810	-10,607	-13,403
		Men	23.47	9.01	0.44	4.87	-2,305	-3,960	-5,616
Total							**-7,098**	**-61,346**	**-115,594**

Notes: Own- and cross-wage elasticities taken into account. Demand changes in numbers of employees ('heads').
Qualification categories according to Freier and Steiner (2007): 'skilled' = secondary-school education or vocational training, 'unskilled' = neither secondary-school education nor vocational training.

Source: Own calculations based on elasticity estimates taken from Freier and Steiner (2007), SOEP wave 2007.

---

[20] Our estimated employment effects are much smaller than those obtained by Bachmann et al. (2008), Ragnitz and Thum (2008) and Knabe and Schöb (2008). Bachmann et al. assume a rather small price elasticity of demand of -0.2 value and use different compensated labor demand elasticities which imply that most labor categories are gross complements. However, the main reason for differences in simulated employment effects seem to be that Bachmann et al. base their simulations on much larger relative wage changes induced by a minimum wage than we find in our study. One reason for this might be that their study is based on wage data from 2001, another reason might be that they include very low wages, e.g. of apprentices. Ragnitz and Thum use the same data set and assume a uniform labor demand elasticity of -0.7, which is also assumed in the study by Knabe and Schöb who use SOEP data instead.

4.3 Effects on the income distribution and inequality

To which extent are the substantial increases in hourly wages we observe at the bottom of the wage distribution translated into higher net household incomes and changes in the income distribution? This question is answered by Table 5 which summarizes, for various types of households affected by a legal minimum, income changes which would be induced by the minimum wage. The second column of the table shows that, whilst the overall share of households affected by the minimum wage in Germany is 9.2 %, it amounts to 13.6 % in East and 8.25 % in West Germany. In the total population the share is above average for families with children, if both spouses work, and also for singles with children.

Table 5: **Minimum wage effects on net incomes of households affected by the minimum wage, 2008**

			MW of 7.50 €/hour					
	Inci-dence	No MW	Δ Avg. income				Δ Total income	
			Without employm. effects		With em-ploym. effects		Without em-ploym. effects		With em-ploym. effects	
	%	€/ month	€/ month	%	€/ month	%	Mio. €/ month	%	Mio. €/ month	%
West Germany	8.25	2,655.88	47.40	1.78	24.29	0.91	87.0	70.68	45.0	60.35
East Germany	13.63	2,172.43	53.28	2.45	43.24	1.99	36.1	29.32	29.6	39.65
Germany, overall	9.23	2,525.54	48.99	1.94	29.40	1.16	123.1	100.00	74.6	100.00
Without children	6.26	1,641.61	66.98	4.08	44.34	2.70	69.1	56.15	46.2	61.93
With children	13.8	3,141.43	36.45	1.16	18.99	0.60	54.0	43.85	28.4	38.07
Germany, couples	12.17	3,022.23	45.73	1.51	22.90	0.76	80.9	65.69	40.9	54.81
Without children	8.26	2,200.11	67.45	3.07	34.86	1.58	32.8	26.66	17.1	22.96
With children	14.84	3,334.39	37.48	1.12	18.36	0.55	48.1	39.02	23.8	31.85
Both spouses work	15.24	3,324.86	54.51	1.64	29.29	0.88	71.2	57.83	38.7	51.79
One spouse works	7.61	2,384.23	17.37	0.73	2.13	0.09	4.3	3.46	0.5	0.71
Germany, singles	5.87	1,346.29	56.72	4.21	44.83	3.33	42.3	34.31	33.7	45.19
Without children	5.14	1,143.22	66.56	5.82	52.80	4.62	36.3	29.49	29.1	38.97
With children	9.52	1,901.49	29.80	1.57	23.03	1.21	5.9	4.83	4.6	6.22

Notes: Incidence = Households affected by the minimum wage as percentage of all households in each group. Percentage changes of average income refer to households within the respective group, percentage changes of total income are calculated relative to the whole population. Employment status refers to the situation before the introduction of a minimum wage. When accounting for employment effects of a minimum wage a fraction of the employed is simulated to become unemployed according to demand side constraints of Table 4. Wage projections for 2008 are based on average growth rates.

Source: Own calculations based on SOEP, wave 2007.

As documented in Table A7 in the Appendix, these differences by type of household can also be observed within the two regions, although they are more pronounced in West Germany. The minimum wage would increase net monthly incomes for those households affected by the minimum wage by about 49 €, on average, in Germany (see Table 5). The increase in income amounts to about 47 € in West and 53 € in East Germany. Relative to the current situation, net

household income would increase by about 1.8 % in West Germany and 2.5 % in East Germany. Compared to the very large wage increases at the bottom of the wage distribution documented in the previous section, income changes are rather small and reflect the weak link between (hourly) wages and net household incomes. Since means-tested transfers are related to the presence of children in the household and to the employment status of the spouse, the minimum wage would lead to smaller increases of the monthly household income for families with children and couples with only one employed spouse. As Table A7 shows, this pattern is again somewhat more pronounced in West Germany, but can also be observed in the East.

Table 5 also documents how the total income change induced by the introduction of the minimum wage would be distributed across households. Abstracting from employment effects, the income change would amount to about 123 million € per month, or roughly 1.5 billion €per year in total, which equals only about 27 % of the total increase in the wage bill (see Table 2). In this simulation without labor demand and supply responses, the relatively small increase in net incomes reflects the "mechanical" substitution effect between wages and means-tested income support. The relatively large wage increases induced by the minimum wage at the bottom of the wage distribution thus mainly lead to the withdrawal of social transfers, higher income taxes, and increased public savings with relatively little impact on net household incomes. We do not consider fiscal effects here, but simulate the effects of an increase in wage costs through behavioral adjustments of labor demand and consumption. Potential public savings are diminished by lower output levels and higher unemployment.

The following two columns of Table 5 reveal that about 30 % of the total increase in net household income would go to East Germany, where about 20 % of the total population lives. Only about one third (37%) of the income gain would go to single-earner households including single parents. Families with children would receive about 45 % of the income gain. Although households with children are more often affected by the minimum wage, the average and total income gain for them is lower, except for the total income change of couples. Thus, if one of the aims of a legal minimum wage is to increase the disposable income of families with children, it does not seem to be an effective policy instrument from this perspective.

The corresponding results for the simulation accounting for the employment effects are reported in the last two columns of Table 5. The average monthly income gain for households affected by the minimum wage diminishes from 49 € to 29 € cutting the total increase in household incomes to about 74 million €per month. Therefore employment losses due to the legal minimum further reduce the moderate increases in household income substantially. Since the labor demand constraints are not distributed equally over household types the gains for families with children, for couple households, especially with only one spouse working,

are diminished disproportionately. Demand side constraints reduce income gains in West Germany more than in East Germany (see also Table A8 compared to A7 in the Appendix).

In Table 6 the results for the scenarios with labor demand restrictions are presented that furthermore take consumption effects into account. If only the prices of consumption goods increased due to the minimum wage and households did not adapt their consumption behavior, the effects on net incomes would become negative except for single households with children. Households affected by the federal minimum wage would on average suffer an income loss of 14.50 € which would in total amount to 37 million € per month. As soon as the estimated adjustment of the consumption behavior (induced by higher prices of consumption goods and an increase in available household income) is also considered, the effect on net household income becomes positive again because consumption is scaled back by the households. Yet, the average increase in household income (about 0.7 %) is substantially reduced by about one-third compared to the simulation with employment effects (about 1.2 %) in Table 5. The consumption effects are not distributed equally over household types as they depend on the consumption rate and structure which are different for the household types.

Table 6: **Minimum wage effects on net incomes of households affected by the minimum wage, taking into account employment and consumption effects, 2008**

	Inci-dence	No MW	MW of 7.50 €/hour							
			Δ Avg. income				Δ Total income			
			Price effects		Adaption of consumption		Price effects		Adaption of consumption	
	%	€/ month	€/ month	%	€/ month	%	Mio. €/ month	%	Mio. €/ month	%
West Germany	8.25	2,655.88	-16.67	-0.63	15.00	0.56	-30.9	83.62	27.8	63.90
East Germany	13.63	2,172.43	-8.84	-0.41	22.97	1.06	-6.1	16.38	15.7	36.10
Germany, overall	9.23	2,525.54	-14.56	-0.58	17.15	0.68	-37.0	100.00	43.5	100.00
Without children	6.26	1,641.61	-9.64	-0.59	19.84	1.21	-10.1	27.19	20.7	47.50
With children	13.8	3,141.43	-17.98	-0.57	15.28	0.49	-26.9	72.81	22.9	52.50
Germany, couples	12.17	3,022.23	-22.26	-0.74	13.16	0.44	-39.8	107.57	23.5	53.98
Without children	8.26	2,200.11	-18.73	-0.85	12.14	0.55	-9.2	24.92	6.0	13.71
With children	14.84	3,334.39	-23.59	-0.71	13.54	0.41	-30.5	82.65	17.5	40.27
Both spouses work	15.24	3,324.86	-23.39	-0.70	15.89	0.48	-30.9	83.49	21.0	48.14
One spouse works	7.61	2,384.23	-20.59	-0.86	4.14	0.17	-5.1	13.80	1.0	2.36
Germany, singles	5.87	1,346.29	3.72	0.28	26.63	1.98	2.8	-7.57	20.0	46.02
Without children	5.14	1,143.22	-1.52	-0.13	26.71	2.34	-0.8	2.27	14.7	33.79
With children	9.52	1,901.49	18.06	0.95	26.44	1.39	3.6	-9.84	5.3	12.23

Notes: Incidence = Households affected by the minimum wage as percentage of all households in each group. Percentage changes of average income refer to households within the respective group, percentage changes of total income are calculated relative to the whole population. Employment status refers to the situation before the introduction of a minimum wage. Accounting for employment effects of a minimum wage means that a fraction of the employed is simulated to become unemployed according to demand side constraints of Table 4. Wage projections for 2008 are based on average growth rates.

Source: Own calculations based on SOEP, wave 2007.

Another relevant policy issue is how the minimum wage would affect the distribution of incomes. Table 7 answers this question regarding the distribution of net equivalent incomes of households affected by the minimum wage, by deciles, calculated for the 2008 wage structure. For Germany overall, the share of persons affected by the minimum wage in the bottom decile of the net equivalent income distribution is less than 6 %, and thus substantially smaller than the shares affected in each of the 2nd-6th deciles. Only in the higher deciles of the distribution does this share decline below the level it obtains in the bottom decile. As the regional breakdown in Table A9 in the Appendix reveals, the distribution of people affected by the minimum wage across deciles of the net equivalence income distribution differs between the two regions. Whereas the share of people affected by the minimum is low in the first and second decile and highest between the 3rd and 7th decile in East Germany, this share is highest in the 2nd decile and declines after that in West Germany.

Table 7: Effects of a minimum wage of 7.50 €/ hour on net equivalent incomes of households affected (€per month) and on inequality measures, Germany 2008

			MW of 7.50 €/ hour			
			Δ Average equivalent income			
Decile	Incidence	No MW	Without employment effects		With employment effects	
	%	€/ month	€/ month	%	€/ month	%
1st	5.65	690.01	23.77	3.44	17.61	2.55
2nd	17.4	874.25	37.18	4.25	20.74	2.37
3rd	19.08	1,071.10	30.10	2.81	24.77	2.31
4th	13.95	1,313.68	26.15	1.99	5.92	0.45
5th	12.43	1,495.85	40.46	2.70	29.26	1.96
6th	8.03	1,701.13	35.29	2.07	26.59	1.56
7th	5.63	1,874.88	21.84	1.16	14.83	0.79
8th	4.85	2,151.19	61.70	2.87	35.41	1.65
9th	4.56	2,662.17	37.72	1.42	29.61	1.11
10th	0.71	4,350.25	-3.01	-0.07	-6.91	-0.16
Total	9.23	1,368.93	33.58	2.45	21.44	1.57
Ineq. measures × 100	No MW	MW	Δ	Δ %	Δ	Δ %
Gini coefficient	28.44	28.36	-0.078	-0.27	-0.046	-0.16
	(27.46; 29.43)	(27.38; 29.35)				
MLD	14.02	13.95	-0.063	-0.45	-0.022	-0.15
	(12.95; 15.08)	(12.89; 15.02)				
Atkinson ($\varepsilon = 2$)	27.85	27.79	-0.063	-0.23	0.062	0.22
	(25.40; 30.30)	(25.33; 30.24)				

Notes: Deciles for the overall equivalent net income distribution are calculated for the wage structure in 2008 (without minimum wage). Incidence = Persons affected by the minimum wage as percentage of all people within a given decile of the net equivalence income distribution. Percentage changes of average income refer to equivalent persons within the respective group measured in equivalence units. Wage projections for 2008 are based on average growth rates.

The Gini coefficient is sensitive to changes in the middle of the income distribution. MLD is the mean log deviation of equivalent income which is a "bottom-sensitive" inequality measure. The Atkinson inequality measure is calculated for a high degree of inequality aversion ($\varepsilon = 2$). For the exact definition and properties of these inequality measures, see, e.g., Cowell (1995). 5%-confidence bands are given in parentheses.

Source: Own calculations based on SOEP, wave 2007.

However, the share of people affected at the bottom of the income distribution is rather small in both regions. Thus, the minimum wage does not seem to be particularly well targeted at the poor also from the perspective of the distribution of net equivalence income implicitly taking into account the composition of households of people whose gross wages might have increased substantially.

Abstracting from employment effects, net equivalent income would increase for households affected by the minimum wage by about 34 €, or 2.5 %, on average (see Table 7). The average increase would be slightly larger in East Germany, both in absolute and in relative terms (see Table A9 in the Appendix). The largest relative increase in average equivalent income would occur in the 2nd decile of the income distribution and amount to about 40 € per month, or almost 5 % of this group's net equivalent income in 2008. The negative difference for the very small share of affected households in the top decile probably follows from the loss of the splitting advantage of joint taxation of couples in Germany as soon as the second earner's income grows as a result of the minimum wage. In relative terms this negative effect is not substantial, though.

To investigate the potential effect the introduction of a legal minimum wage would have on the overall income distribution, Table 7 also reports standard summary inequality measures. The *Gini coefficient*, which is sensitive to income changes in the middle of the distribution, does not record any significant change. Using the bottom-sensitive *mean logarithmic deviation* (MLD) measure shows a very small decline in income inequality, which is also recorded by the *Atkinson measure* assuming a relatively high value for the inequality aversion parameter, i.e. $\varepsilon = 2$. These very small reductions in income inequality are comparable in West and East Germany (see Table A9 in the Appendix). Thus, in neither region would the minimum wage have any noticeable effect on overall income inequality.

The last two columns of Table 7 report the simulation results taking employment effects into account. Due to these effects the average net equivalent income gain declines by more than one third to 21 € per month. Especially the relatively high absolute gains in the 2nd, 4th, 5th, and 8th deciles are cut substantially. Moreover, the minimum wage becomes less effective with respect to the reduction of overall income inequality as the smaller differences for the inequality measures show compared to simulation results not accounting for negative employment of the minimum wage. The results for West and East Germany show that these effects slightly reduce income gains, especially in West Germany where absolute income gains in the 1st, 4th, and 6th deciles are reduced significantly (see Tables A9 and A10 in the Appendix). In East Germany the reduction of income gains is more evenly distributed but slightly higher in the upper deciles.

Table 8 presents the corresponding results for the simulations that also include consumption effects. In the first scenario which only considers price effects without behavioral adjustment the effects on net household equivalent incomes are negative throughout the whole income distribution. Income losses are on average 7 € per individual and month. Moreover, the small redistributive effects of the minimum wage vanish completely. In fact the income distribution under a federal minimum becomes more uneven since negative income effects are more pronounced in the lower deciles. This is also shown by a slight increase in all inequality measures.

Table 8: **Effects of a minimum wage of 7.50 €/ hour on net equivalent incomes of households affected (€ per month) and on inequality measures, taking into account employment and consumption effects, Germany 2008**

			MW of 7.50 €/ hour			
			Δ Average equivalent income			
Decile	Incidence	No MW	Price effects		Adaption of consumption	
	%	€/ month	€/ month	%	€/ month	%
1st	5.65	690.01	-6.13	-0.89	8.02	1.16
2nd	17.4	874.25	-3.32	-0.38	15.46	1.77
3rd	19.08	1,071.10	-6.47	-0.60	11.47	1.07
4th	13.95	1,313.68	-8.89	-0.68	9.40	0.72
5th	12.43	1,495.85	-9.57	-0.64	12.71	0.85
6th	8.03	1,701.13	-11.72	-0.69	9.02	0.53
7th	5.63	1,874.88	-12.59	-0.67	8.73	0.47
8th	4.85	2,151.19	-11.70	-0.54	9.47	0.44
9th	4.56	2,662.17	9.32	0.35	25.90	0.97
10th	0.71	4,350.25	-24.10	-0.55	-2.59	-0.06
Total	9.23	1,368.93	-7.10	-0.52	11.98	0.88
Ineq. measures × 100	No MW	MW	Δ	Δ %	Δ	Δ %
Gini coefficient	28.44	28.48	0.033	0.12	-0.027	-0.09
	(27.46; 29.43)	(27.37; 29.58)				
MLD	14.02	14.05	0.035	0.25	-0.022	-0.16
	(12.95; 15.08)	(12.92; 15.19)				
Atkinson ($\varepsilon = 2$)	27.85	27.92	0.073	0.26	-0.021	-0.08
	(25.40; 30.30)	(25.50; 30.34)				

Notes: Deciles for the overall equivalent net income distribution are calculated for the wage structure in 2008 (without minimum wage). Incidence = Persons affected by the minimum wage as percentage of all people within a given decile of the net equivalence income distribution. Percentage changes of average income refer to equivalent persons within the respective group measured in equivalence units. Wage projections for 2008 are based on average growth rates.

The Gini coefficient is sensitive to changes in the middle of the income distribution. MLD is the mean log deviation of equivalent income which is a "bottom-sensitive" inequality measure. The Atkinson inequality measure is calculated for a high degree of inequality aversion ($\varepsilon = 2$). For the exact definition and properties of these inequality measures, see, e.g., Cowell (1995). 5%-confidence bands are given in parentheses.

Source: Own calculations based on SOEP, wave 2007.

When the adaption of consumers' behavior is also considered, the effects become positive again, except for the top decile (which also had slightly negative net effects in the other simulations, see Table 7). The income gains which equal 12 € per month on average are albeit smaller compared to the scenario without consumption effects (see Table 7). The redistribu-

tive effect of the minimum wage is also reduced in this simulation, because households in the lower income deciles have higher consumption rates and are disproportionately negatively affected by the indirect effects of the minimum wage on consumption.

5   Summary and Conclusion

Since the mid-1990s, wage inequality has been increasing significantly in Germany, mainly driven by a marked relative decline of hourly gross wages at the bottom of the wage distribution and an increasing share of the low-wage sector. Although the decline in relative wages was most pronounced in East Germany, on average, male employees in West Germany were also strongly affected by it. Furthermore, income inequality has been increasing in recent years, especially in East Germany. These developments have led to the proposed introduction of a general statutory minimum wage in the amount of 7.50 € in Germany, one of the few OECD countries where a legal minimum wage does currently not exist. One popular rationale for the introduction of this proposed legal minimum wage is to reduce income inequality and prevent poverty. However, as stressed by previous minimum wage studies, there might only be a weak link between low hourly wages and net household incomes which renders the minimum wage policy a rather ineffective tool to combat inequality. This may be of particular relevance for Germany, due to the existing means-tested income support system with a high social minimum relative to net in-work income and high benefit withdrawal rates.

To account for this important relationship we have analyzed the distributional effects of the introduction of a nationwide minimum wage of 7.50 €per hour on the basis of a micro-simulation model which accounts for the complex interactions between individual wages, the tax-benefit system and net household incomes. We also analyzed potential labor supply and demand effects of the minimum wage and integrated these results in the microsimulation model. Simulation results on the basis of individual-level data from the German Socio Economic Panel (SOEP) show that the proposed minimum wage would have only a modest overall impact on average wages in the German economy, but would have very substantial effects on wages at the bottom of the hourly wage distribution. Overall, the incidence of the minimum wage varies from about 4 % for men in West Germany to 19% for women in the East. Except for men in West Germany, all currently employed people in the bottom decile of the wage distribution would be affected by the minimum wage. It would disproportionately affect younger employees, those with low qualification, and marginally employed people. The average hourly gross wage would increase by about 25 % in the bottom decile of the wage distribution, and by about 47 % in the 1st-5th percentile, where these wage effects would vary sub-

stantially by gender and region. Expected wage increases at the bottom of the wage distributions would differ surprisingly little by age and qualification, but do differ significantly between full-time, part-time and marginally employed people.

The work incentives of the proposed minimum wage are rather limited. We estimated an increase in labor force participation equivalent to 16,000 workers and an increase in hours worked equal to 66,000 full-time equivalents. The labor demand effects depend on the assumed wage and output price elasticities. In the discussed scenario with an assumed price elasticity of demand for goods equal to -1 we estimate the decrease in labor demand to be about 220,000 persons. Marginally employed people would bear most of the employment losses.

In contrast to the substantial wage effects at the bottom of the wage distribution, the introduction of a minimum wage in the proposed amount would have little impact on net household incomes: On average, the increase in monthly net income of households affected by the minimum wage would amount to about 47 € (1.8 %) in West Germany and 53 € (2.5 %) in East Germany, and would be even smaller for families with children and couples with one employed spouse. If labor demand effects are also considered, the income gains are reduced to about 24 € for the West and 43 € for the East. If, in addition, indirect effects on consumption are also taken into account the gains are reduced further to 15 € and 23 € per month for the West and East, respectively. These relatively small income changes reflect the weak link between (hourly) wages and net household income. In total, the income change induced by the proposed minimum wage would amount to roughly 1.5 billion € per year, which is only about 27 % of the total expected increase in gross earnings. This amount would diminish to 900 million € per year if the reduction in labor demand would be taken into account, and further to 520 million € per year if consumption effects are also considered. About 30 % of the total increase in net household income would go to East Germany, where about 20 % of the population lives. Families with children would receive less than half of the income gain and only a relatively small share of the income gain would be received by single-earner households.

The minimum wage would also not be particularly well targeted at low income households: For Germany overall, the share of persons in the bottom decile of the distribution of net equivalent household income who are affected by the minimum wage is markedly below the respective shares in the middle of the distribution. However, the largest relative increase in average equivalent income would occur in the bottom deciles of the income distribution, with only small gains in higher deciles in both East and West Germany. Consequently the suggested legal minimum would only have negligible effects on the overall income distribution,

as indicated by standard summary inequality measures. The redistributive effects are further diminished by the reduction in labor demand and consumption effects.

The suggested minimum wage does not seem to be an effective policy instrument to re-distribute income. To a large extent, these results can be related to the structure of the means-tested income support existing in Germany with its relatively high social minimum and high benefit withdrawal rates. This also implies that the lion's share of the costs of income support for households with people earning low wages would be shifted from the tax-benefit system to the costs employing these people. Moreover, low wage earners are not primarily concentrated in households at the bottom of the income distribution, which is why the minimum wage would not be a well-targeted policy instrument for income re-distribution.

References

Bachmann, R., T. K. Bauer, J. Kluve, S. Schaffner, and C.M. Schmidt (2008), Mindestlöhne in Deutschland. Beschäftigungswirkungen und fiskalische Effekte. RWI Materialien, Vol. 43, Essen.

Bluestone, B. and T. Ghilarducci (1996), Making Work Pay. Wage Insurance for the Working Poor, Public Policy Brief. The Jerome Levy Economics Institute of Bard College.

BMWi (Federal Ministry of Economics and Technology) (2007), Projektion der gesamtwirtschaftlichen Entwicklung in Deutschland bis 2011. Monatsbericht (Monthly report) 07/2007, Teil (Part) III. http://www.bmwi.de/BMWi/Redaktion/PDF/P-R/projektion-monatsbericht-juli-2007,pro-perty=pdf, bereich=bmwi,sprache=de,rwb=true.pdf.

Bosch, G. and C. Weinkopf (2006), Gesetzliche Mindestlöhne auch in Deutschland? Institut für Arbeit und Technik (IAT), Gelsenkirchen.

Brown, C. (1999), Minimum Wages, Employment, and the Distribution of Income, O. Ashenfelter and D. Card, Handbook of Labor Economics. Amsterdam et al.: Elsevier, 2101-63.

Burkhauser, R. V., K. A. Couch and D. C. Wittenburg (1996), ‚Who Gets What' from Minimum Wage Hikes: A Re-Estimation of Card and Krueger's Distributional Analysis in Myth and Measurement: The New Economics of the Minimum Wage, in: Industrial and Labor Relations Review, 49(3), 547-52.

Burkhauser, R.V. and J. Sabia (2005), Raising the minimum wage: another empty promise for the working poor. Employment Policies Institute. August, 2005, Washington, D.C.

Cowell, F. (1995), Measuring Inequality (2nd ed.). LSE Handbooks in Economics. Prentice Hall.

DIW (2006), Wachsender Niedriglohnsektor in Deutschland – sind Mindestlöhne sinnvoll? DIW Wochenbericht No. 15-16/2006. Deutsches Institut für Wirtschaftsforschung (German Institute for Economic Reasearch), Berlin.

Freier, R. and V. Steiner (2007), ´Marginal Employment´ and the demand for heterogeneous labour: Empirical evidence from a multi-factor labour demand model for Germany. IZA Discussion Paper No. 2577, Forschungsinstitut zur Zukunft der Arbeit (Institute for the Study of Labor), Bonn.

Goldberg, M. and D. Green (1999), Raising the Floor. The Social and Economic Benefits of Minimum Wages in Canada. Canadian Centre of Policy Alternatives.

Gosling, A. (1996), Minimum wages: Possible effects on the distribution of income, in: Fiscal Studies 17(4), 31-48.

Haan, P. and V. Steiner (2006), Making Work Pay for the Elderly Unemployed: Evaluating Alternative Policy Reforms for Germany. DIW Discussion Paper No. 641. Deutsches Institut für Wirtschaftsforschung (German Institute for Economic Reasearch), Berlin.

Immervoll, H. (2007), Minimum Wages, Minimum Labour Costs and the Tax Treatment of Low-Wage Employment, IZA Discussion Paper. Forschungsinstitut zur Zukunft der Arbeit (Institute for the Study of Labor), Bonn.

Johnson, W.R., E.K. Browning (1983), The distributional and efficiency effects of increasing the minimum wage: a simulation, in: American Economic Review 73(1), 204-211.

Kalina, T. and C. Weinkopf (2007), Einführung eines gesetzlichen Mindestlohnes in Deutschland – Eine Modellrechnung für das Jahr 2004, Institut Arbeit und Technik (IAT), Jahrbuch 2006. Gelsenkirchen: Institut für Arbeit und Technik (IAT), pp. 97-109, Gelsenkirchen.

Knabe, A. and R. Schöb (2008), Minimum Wage Incidence: The Case for Germany. CESifo Working Paper No. 2432, *www.CESifo-group.org/wp*.

König, M. and J. Möller (2008), Mindestlohneffekte des Entsendegesetzes? – Eine Mikrodatenanalyse für die deutsche Bauwirtschaft. Zeitschrift für ArbeitsmarktForschung, Vol. 41, No. 2/3, pp. 327-346.

MaCurdy, T. E. and F. McIntyre (2001), Winners and Losers of Federal and State Minimum Wages,, Employment Policies Institute, Washington, D.C.

Müller, K.-U. (2009), How Robust Are Simulated Employment Effects of a Legal Minumum Wage in Germany?: A comparison of Different Data Sources and Assumptions. DIW Discussion Paper No. 900, Berlin.

Müller K.-U. and V. Steiner (2009), Would a Legal Minimum Wage Reduce Poverty? A Microsimulation Study for Germany. in: Journal of Income Distribution, forthcomimg.

Neumark, D. (2008), Alternative Labor Market Policies to Increase Economic Self-Sufficiency: Mandating Higher Wages, Subsidizing Employment, and Raising Productivity. IZA DP 3355, Bonn.

Neumark, D. and W. Wascher (1997), Do Minimum Wages Fight Poverty?. NBER Working Paper. National Bureau of Economic Research, Cambridge.

Neumark, D. and W. Wascher (2000), Using the EITC to Help Poor Families: New Evidence and a Comparison with the Minimum Wage, NBER Working Paper., National Bureau of Economic Research, Cambridge.

Neumark, D. and W. Wascher (2007), Minimum Wages and Employment: A Review of Evidence from the New Minimum Wage Research, IZA Discussion Paper. Forschungsinstitut zur Zukunft der Arbeit (Institute for the Study of Labor), Bonn.

OECD (1998), Making the Most of the Minimum: Statutory Minimum Wages, Employment and Poverty, OECD Employment Outlook 1998.Organisation for Economic Co-operation and Development, 31-79, Paris.

Ragnitz, J. and M. Thum (2008), Beschäftigungswirkungen von Mindestlöhnen – eine Erläuterung zu den Berechnungen des ifo-Instituts. ifo Schnelldienst 1/2008, 16-20.

Steiner, V., Wrohlich, K., Haan, P. and J. Geyer (2008): Documentation of the Tax-Benefit Microsimulation Model STSM. Version 2008. *DIW Data Documentation* Nr. 31. Deutsches Institut für Wirtschaftsforschung (German Institute for Economic Reasearch), Berlin.

Steiner, V. and K. Wrohlich (2005), Work Incentives and Labor Supply Effects of the 'Mini-Jobs Reform' in Germany, in: Empirica, 32, pp. 91-116.

Sutherland, H. (2001), The National Minimum Wage and In-work Poverty. Department of Applied Economics, University of Cambridge, Working Paper MU0102.

van Soest, A. (1995), Structural Models of Family Labor Supply: A Discrete Choice Approach. in: Journal of Human Resources, Vol. 30: pp. 63-88.

Appendix

Table A1: Mean hourly gross wage (in € with and without a minimum wage of 7.50 € / hour, within first decile of the hourly wage distribution, 2008.

	People affected (in %)		No MW	MW		
	Overall	1st Decile	€ / hour	€ / hour	Δ€	%Δ
Germany, overall	9.75	97.56	6.02	7.50	1.48	24.58
Region						
West Germany	8.50	98.07	5.88	7.50	1.62	27.55
East Germany	15.57	96.29	6.39	7.50	1.11	17.37
Gender						
Men	5.50	55.13	7.12	7.88	0.76	10.67
Women	13.86	100.00	5.48	7.50	2.20	36.86
Age						
18-25 years	24.12	97.63	6.15	7.50	1.35	21.95
26-35 years	8.48	98.25	6.11	7.50	1.39	22.75
36-45 years	9.44	98.52	5.87	7.50	1.63	27.77
46-55 years	7.21	95.31	6.09	7.50	1.41	23.15
56-65 years	7.99	97.48	5.94	7.50	1.56	26.26
Qualification						
High	4.04	92.62	6.18	7.51	1.32	21.36
Medium	10.07	98.25	5.98	7.50	1.52	25.42
Low	17.73	97.19	6.11	7.50	1.39	22.75
Employment status						
Employed full-time	5.15	96.19	6.51	7.50	0.99	15.21
Employed part-time	11.18	97.56	5.76	7.50	1.74	30.21
Marginally employed	39.97	98.9	5.73	7.50	1.77	30.89
Sector						
Agriculture, forestry	22.34	100.00	6.29	7.50	1.21	19.24
Mining, energy	0.04	100.00	7.26	7.50	0.24	3.31
Chemical., synthetics., wood, paper industry.	4.61	98.52	5.89	7.50	1.61	27.33
Building industry	7.97	94.79	6.17	7.50	1.33	21.56
Iron, steal, and heavy industry	4.77	94.19	5.43	7.51	2.08	38.31
Engineering, electric, precision engineering, light industry	2.25	96.93	6.09	7.50	1.41	23.15
Textile, food industry	17.75	100.00	6.45	7.50	1.05	16.28
Wholesale and retail trade	14.79	98.52	5.80	7.50	1.70	29.31
Railways, postal service, transportation	13.32	97.51	6.40	7.50	1.10	17.19
Public services	5.76	97.16	6.07	7.50	1.43	23.56
Private services	15.35	97.20	6.02	7.50	1.48	24.58
Missing, not assignable	13.51	96.98	6.06	7.50	1.44	23.76
Firm size						
< 5 employees	21.10	98.06	5.83	7.50	1.67	28.64
5-10 employees	17.15	98.74	5.95	7.50	1.55	26.05
20-100 employees	17.74	97.58	6.31	7.50	1.20	19.02
100-200 employees	10.61	98.78	6.18	7.50	1.32	21.36
200-2000 employees	7.79	93.98	6.22	7.50	1.28	20.58
> 2000 employees	4.28	95.91	5.72	7.50	1.78	31.12
Missing, not assignable	3.49	95.49	5.97	7.50	1.54	25.80

Notes: Wage data for 2007 are extrapolated to 2008 using average growth rates (see text), weighted using SOEP personal sample weights to obtain population means. Wage projections for 2008 are based on average growth rates.

Source: Own calculations based on SOEP, wave 2007.

Table A2 Wage distribution before and after the introduction of a legal minimum wage of 7.50 €/ hour, 2008 – wage projections based on estimated individual growth rates

	Total Germany		Men West		Men East		Women West		Women East	
	No MW	MW	No MW	MW	No MW	MW	No MW	MW	No MW	MW
1st-10th percentile	5.66	7.50	7.24	8.04	6.02	7.5	5.08	7.50	5.22	7.50
	(1.84; 32.51)		(0.80; 11.05)		(1.48; 24.58)		(2.42; 47.64)		(2.28; 43.68)	
1st-5th percentile	4.78	7.50	5.91	7.50	5.41	7.50	4.34	7.50	4.33	7.50
	(2.72; 56.90)		(1.59; 26.90)		(2.09; 38.63)		(3.16; 72.81)		(3.17; 73.21)	
6th-10th percentile	6.57	7.50	8.57	8.57	6.66	7.50	5.82	7.50	6.09	7.50
	(0.93; 14.16)		(0.00; 0.00)		(0.84; 12.61)		(1.68; 28.87)		(1.41; 23.15)	
11th-15th percentile	7.66	7.72	10.3	10.3	7.29	7.52	6.91	7.50	6.68	7.50
	(0.06; 0.78)		(0.00; 0.00)		(0.23; 3.16)		(0.59; 8.54)		(0.82; 12.28)	
16th-25th percentile	9.1	9.1	12.02	12.02	8.35	8.35	8.14	8.14	7.33	7.55
	(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)		(0.22; 3.00)	
Median	14.21	14.21	16.89	16.89	12.1	12.1	12.74	12.74	11.85	11.85
	(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)	
Mean	15.75	15.94	18.89	18.97	13.65	13.82	13.76	14.03	12.85	13.15
	(0.19; 1.21)		(0.08; 0.42)		(0.17; 1.25)		(0.27; 1.96)		(0.30; 2.33)	
MW as % of										
Median		52.78		44.41		61.98		58.87		63.21
Mean		47.62		39.70		54.95		54.51		58.37
People affected (%)										
Overall		9.88		4.09		12.12		12.96		19.44
Within 1st decile		100.00		47.95		100.00		100.00		100.00
Δ Wage bill (1000 €/ month)		494,319.90		112,301.24		56,878.44		245,261.23		79,878.99
% of wage sum		0.84		0.35		1.16		1.39		1.92

Notes: Individual growth rates are estimated from panel wage regressions as described in Section 3.1.
Only employed people aged 18-65 are included. Percentiles are defined for the wage distribution without the minimum wage. Means are calculated within the range of given percentiles.
Δ wage bill is the difference between the wage sum with and without the minimum wage, with wage sum = Σ (hourly wage×weekly working hours×4.2). The wage sum does not include employers' social security contributions.
The numbers in parentheses refer to absolute and relative differences in the two wage measures.

Source: Own calculations based on SOEP, wave 2007.

Table A3 Wage distribution before and after the introduction of a legal minimum wage of 7.50 €/ hour, including "secondary jobs", 2008

	Total Germany		Men West		Men East		Women West		Women East	
	No MW	MW	No MW	MW	No MW	MW	No MW	MW	No MW	MW
1st-10th percentile	5.45	7.50	6.72	7.84	5.72	7.50	4.97	7.50	4.86	7.50
	(2.12; 39.41)		(1.12; 16.67)		(1.78; 31.12)		(2.53; 50.91)		(2.64; 54.32)	
1st-5th percentile	4.42	7.50	5.31	7.50	4.83	7.5	4.17	7.5	3.78	7.5
	(3.08; 69.68)		(2.19; 41.24)		(2.67; 55.28)		(3.33; 79.86)		(3.72; 98.41)	
6th-10th percentile	6.49	7.50	8.19	8.2	6.58	7.5	5.81	7.5	5.99	7.5
	(1.01; 15.62)		(0.01; 0.12)		(0.92; 13.98)		(1.69; 29.09)		(1.51; 25.21)	
11th-15th percentile	7.72	7.77	9.98	9.98	7.39	7.56	6.99	7.5	6.79	7.5
	(0.05; 0.65)		(0.00; 0.00)		(0.17; 2.3)		(0.51; 7.30)		(0.71; 10.46)	
16th-25th percentile	9.15	9.15	11.91	11.91	8.51	8.51	8.30	8.30	7.54	7.64
	(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)		(0.1; 1.33)	
Median	14.22	14.22	17.23	17.23	12.27	12.27	12.82	12.82	11.82	11.82
	(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)		(0.00; 0.00)	
Mean	15.89	16.10	19.06	19.17	13.77	13.96	13.95	14.23	12.75	13.06
	(0.21; 1.32)		(0.11; 0.58)		(0.19; 1.38)		(0.28; 2.01)		(0.31; 2.43)	
MW as % of										
Median		52.74		43.53		61.13		58.50		63.45
Mean		47.20		39.35		54.47		53.76		58.82
People affected (%)										
Overall		11.66		5.74		13.71		15.04		20.6
Within 1st decile		100.00		57.45		100.00		100.00		100.00
Δ Wage bill (1000 €/ month)	559,058.81		146,008.96		58,915.73		267,265.35		86,868.76	
% of wage sum		0.80		0.38		1.03		1.27		1.78

Notes: Only employed people aged 18-65 are included. Percentiles are defined for the wage distribution without the minimum wage. Wage projections for 2008 are based on average growth rates. Means are calculated within the range of given percentiles.

Δ wage bill is the difference between the wage sum with and without the minimum wage, with wage sum = Σ (hourly wage×weekly working hours×4.2). The wage sum does not include employers' social security contributions.

The numbers in parentheses refer to absolute and relative differences in the two wage measures.

Source: Own calculations based on SOEP, wave 2007.

Table A4: Labor supply effects of a legal minimum wage of 7.50 €/ hour, 2008

	West Germany		East Germany	
	Men	**Women**	**Men**	**Women**
Change in labor force participation rate (in percentage points)				
Couple, both spouses flexible	0.03	0.04	0.08	0.10
	(0.02; 0.04)	(0.02; 0.05)	(0.05; 0.11)	(0.05; 0.15)
Couple, one spouse flexible	0.02	0.13	0.02	0.16
	(0.00; 0.04)	(0.02; 0.23)	(0.00; 0.05)	(0.04; 0.28)
Singles	0.11	0.08	0.24	0.17
	(0.04; 0.19)	(0.02; 0.14)	(0.05; 0.42)	(0.07; 0.26)
Change in average working hours (in percent)				
Couple, both spouses flexible	0.13	0.60	0.48	0.67
	(0.07; 0.18)	(0.41; 0.79)	(0.29; 0.66)	(0.40; 0.94)
Couple, one spouse flexible	0.06	0.45	0.09	0.57
	(0.00; 0.12)	(0.04; 0.86)	(0.00; 0.18)	(0.13; 1.00)
Singles	0.46	0.33	0.97	0.65
	(0.14; 0.78)	(0.03; 0.63)	(0.18; 1.77)	(0.25; 1.05)
Additional labor supply (in 1,000 persons)				
Couple, both spouses flexible	1.99	1.98	0.93	1.01
	(1.24; 2.74)	(1.26; 2.71)	(0.56; 1.30)	(0.51; 1.51)
Couple, one spouse flexible	0.14	1.52	0.04	0.45
	(-0.03; 0.31)	(0.24; 2.80)	(-0.01; 0.09)	(0.12; 0.79)
Singles	3.34	2.24	1.50	0.96
	(1.10; 5.58)	(0.47; 4.02)	(0.33; 2.67)	(0.42; 1.51)
Additional working hours (in 1,000 full-time equivalents)				
Couple, both spouses flexible	6.64	18.97	4.66	5.64
	(3.27; 10.01)	(13.27; 24.67)	(2.91; 6.41)	(3.33; 7.95)
Couple, one spouse flexible	0.45	3.36	0.16	1.19
	(0.01; 0.89)	(0.67; 6.04)	(0.01; 0.32)	(0.37; 2.00)
Singles	9.57	6.65	5.01	3.27
	(3.65; 15.49)	(1.36; 11.94)	(1.26; 8.75)	(1.32; 5.23)

Notes: Bootstrapped confidence bands are given in parentheses.

Source: Own calculations based on STSM and SOEP, wave 2007.

Table A5: Conditional logit labor supply models

Variable	Couples, both flexible		Couples, women fix		Couples, men fix		Sigles, men		Singles, women	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Income	-1.439	5.347	5.021	4.410	-4.900	2.916	-1.437	4.178	-10.262	2.527
Income squared	0.820	0.315	0.318	0.176	0.666	0.151	0.428	0.147	0.670	0.073
Income × husband's leisure	-1.305	0.321	-2.056	0.632			-0.473	0.652		
Income × wife's leisure	-0.538	0.288			-0.723	0.371			0.871	0.461
Husband's leisure	61.922	6.547	46.937	10.459			20.669	10.434		
Husband's leisure squared	-4.860	0.353	-3.523	0.897			-1.896	0.823		
Wife's leisure	34.469	6.023			2.675	6.714			-14.339	6.972
Wife's leisure squared	-1.704	0.344			0.604	0.680			1.622	0.615
Husband's leisure × wife's leisure	-2.360	0.923								
Husband's leisure × dummy1	-4.176	4.024	-0.548	0.746			-0.915	0.733		
Wife's leisure × dummy1	-3.999	3.713			-1.629	0.348			-1.415	0.505
Husband's leisure × wife's leisure × dummy1	1.047	0.955								
Income × dummy1	-1.432	4.524								
Income squared × dummy1	0.141	0.314								
Husband's leisure × dummy2	-8.612	2.394	0.689	0.397			0.451	0.320		
Wife's leisure × dummy2	-9.666	2.248			-0.335	0.661			-0.006	0.287
Husband's leisure × wife's leisure × dummy2	1.822	0.590								
Income × dummy2	4.014	1.407								
Income squared × dummy2	-0.368	0.113								
Husband's leisure × husband's age	-0.278	0.068	-0.238	0.109			-0.120	0.096		
Husband's leisure squared × Husband's age squared	0.421	0.075	0.323	0.125			0.243	0.111		
Wife's leisure × wife's age	-0.411	0.072			-0.121	0.115			-0.209	0.084
Wife's leisure squared × wife's age squared	0.618	0.086			0.262	0.123			0.350	0.099
Husband's leisure × husband's health status	2.106	0.540	1.415	1.003			0.980	0.756		
Wife's leisure × wife's health status	0.882	0.712			2.558	1.256			0.410	0.834
Wife's leisure × dummy 3	3.548	0.453			3.485	1.006			3.193	1.306
Wife's leisure × dummy 4	2.714	0.309			2.011	0.618			2.495	0.593
Wife's leisure × dummy 5	2.521	0.195								
Husband's leisure × dummy 3			1.766	1.031			79.740	3091.592		
Husband's leisure × dummy 4			-1.869	0.958			-1.307	1.109		
Number of observations	73,656		1,856		4,566		3,082		6,394	
Log Likelihood	-8,026.13		-510.75		-1,256.95		-853.33		-1,713.63	
LR chi² (28)	3,454.64		264.98		213.17		430.33		392.05	

Notes: Dummy 1: Head of household (person answering the GSOEP household questionnaire) is German
Dummy 2: Household is living in East Germany
Dummy 3: Children under the age of 3 in household
Dummy 4: Children between 3 and 6 in household
Dummy 5: Children between 7 and 16 in household
× indicates an interaction term

Source: Own calculations based on STSM and SOEP, wave 2007.

Table A6: OLS-estimation of household's consumption rate

Variable	West-Germany coeff.	s. e.	East-Germany coeff.	s. e.
Log(disposable income)	-0.270***	0.010	-0.335***	0.032
Dummy1: single men without children[1]	0.213*	0.093	-0.211	0.299
Dummy2: single with children	-0.643***	0.141	-0.137	0.330
Dummy3: couple without children	-0.303**	0.103	-0.124	0.282
Dummy4: couple with more than 1 child	-0.079	0.109	0.106	0.307
Dummy5: other households	-0.467***	0.123	-0.126	0.309
Log(disposable income)*dummy1	-0.033**	0.012	-0.055	0.031
Log(disposable income)*dummy2	-0.021	0.017	-0.051	0.039
Log(disposable income)*dummy3	-0.062***	0.011	-0.047	0.033
Log(disposable income)*dummy4	-0.098***	0.014	-0.060	0.043
Log(disposable income)*dummy5	-0.086***	0.012	-0.073*	0.037
Log(disposable income)*dummy6[2]	-0.039**	0.014	-0.044	0.037
Donations & heritages	-0.000***	0.000	-0.000***	0.000
Female household head	0.009	0.006	-0.011	0.009
Dummy capital income	-0.035***	0.005	-0.040***	0.011
Dummy car in household	0.097***	0.007	0.101***	0.013
Dummy owned house	-0.019***	0.004	0.001	0.011
Dummy owned apartment	-0.025***	0.006	-0.013	0.015
Residential area in square meters	0.001***	0.000	0.001***	0.000
Age of household head	-0.008	0.007	0.041**	0.015
Age squared	0.000	0.000	-0.001*	0.000
Age cubed	-0.000	0.000	0.000*	0.000
Household head working part-time[3]	0.038**	0.014	-0.006	0.037
Household head marginally working	0.056	0.072	-0.131*	0.056
Household head working, no information	0.048	0.047	0.016	0.088
Household head not working	-0.059**	0.019	0.059	0.119
Second person working full-time[4]	0.859***	0.110	0.010	0.026
Second person working part-time	0.872***	0.110	0.012	0.027
Second person marginally working	0.867***	0.110	-0.042	0.039
Second person working, no information	0.873***	0.111	(dropped)	
Second person not working	0.865***	0.110	-0.002	0.026
Dummies for household head's education[5]				
University of applied science	0.005	0.005	-0.002	0.010
Technical school	-0.009	0.005	-0.033**	0.011
Apprenticeship	-0.013**	0.005	-0.040***	0.011
Other graduation	-0.028*	0.011	-0.023	0.038
In education, student	-0.011	0.017	-0.029	0.039
No graduation	-0.034**	0.013	-0.039	0.052
Social position of household head[6]				
White-collar worker	-0.020***	0.004	-0.016	0.014
Blue-collar worker	-0.016**	0.006	-0.034*	0.016
Unemployed	0.079***	0.020	-0.078	0.116
Retired person	0.134***	0.023	-0.004	0.115
Old-age pensioner	0.140***	0.024	(dropped)	
Constant	2.751***	0.112	3.115***	0.320
R-squared		0.4247		0.4227
Number of observations		25,687		6,813

Notes: [1] Base are single female households without children and couple with one child. [2] Dummy6 stands for couple with one child. [3] Base is household head working full-time. [4] Base is no second person in household. [5] Base is college. [6] Base is public servant.

Other controls in the regression not shown in table: dummies for federal land, community size, family status, foreigners, main source of income in household, interaction terms for household head's employment and second person's employment

* Significance at 5% level. ** Significance at 1% level. *** Significance at 0.1% level.

Source: Own calculations based on SOEP, wave 2007.

Table A7: Effects on net household incomes for those households affected by a minimum wage of 7.50 €/ hour, 2008

| | Households affected by MW | No MW | MW of 7.50 €/ hour | | | |
| | | | Δ Average income | | Δ Total income | |
	%	€/ month	€ month	%	1000 €/ month	%
West Germany, overall	8.25	2,655.88	47.40	1.78	87,033.15	100.00
Without children	5.00	1,651.86	70.51	4.27	46,921.59	53.91
With children	13.1	3,226.66	34.27	1.06	40,111.56	46.09
West Germany, couples	11.25	3,127.67	40.94	1.31	55,825.12	64.14
Without children	7.15	2,227.50	60.41	2.71	20,942.89	24.06
With children	13.98	3,434.57	34.30	1.00	34,882.24	40.08
Both spouses work	14.47	3,412.98	46.29	1.36	47,636.16	54.73
One spouse works	6.60	2,429.00	15.90	0.65	3,029.12	3.48
West Germany, singles	4.66	1,294.20	66.06	5.10	31,208.03	35.86
Without children	3.76	1,025.77	81.50	7.95	25,978.70	29.85
With children	9.23	1,850.96	34.03	1.84	5,229.33	6.01
East Germany, overall	13.63	2,172.43	53.28	2.45	36,106.13	100.00
Without children	11.56	1,623.03	60.58	3.73	22,218.10	61.54
With children	17.30	2,820.54	44.67	1.58	13,888.02	38.46
East Germany, couples	16.79	2,667.38	61.85	2.32	25,060.24	69.41
Without children	13.41	2,132.31	84.87	3.98	11,888.54	32.93
With children	19.38	2,950.10	49.69	1.68	13,171.70	36.48
Both spouses work	19.01	2,997.78	85.05	2.84	23,579.56	65.31
One spouse works	16.33	2,228.56	22.49	1.01	1,232.51	3.41
East Germany, singles	10.66	1,436.59	40.53	2.82	11,045.88	30.59
Without children	10.65	1,308.38	45.56	3.48	10,329.56	28.61
With children	10.68	2,070.98	15.63	0.75	716.32	1.98

Notes: Households affected by the minimum wage as percentage of all households in each group. Percentage changes of average income refer to households within the respective group, percentage changes of total income are calculated relative to the whole population. Income projections for 2008 are based on average growth rates.

Source: Own calculations based on SOEP, wave 2007.

Table A8: Effects on net household incomes for those households affected by a minimum wage of 7.50 €/ hour, taking into account labor demand adjustment, 2008

| | Households affected by MW | No MW | MW of 7.50 €/ hour | | | |
| | | | Δ Average income | | Δ Total income | |
	%	€/ month	€/ month	%	1000 €/ month	%
West Germany, overall	8.25	2,655.88	24.29	0.91	45,039.06	100.00
Without children	5.00	1,651.86	41.78	2.53	28,083.84	62.35
With children	13.1	3,226.66	14.34	0.44	16,955.22	37.65
West Germany, couples	11.25	3,127.67	15.82	0.51	21,792.80	48.39
Without children	7.15	2,227.50	25.59	1.15	8,959.43	19.89
With children	13.98	3,434.57	12.50	0.36	12,833.37	28.49
Both spouses work	14.47	3,412.98	19.00	0.56	19,744.60	43.84
One spouse works	6.60	2,429.00	1.15	0.05	221.18	0.49
West Germany, singles	4.66	1,294.20	48.72	3.76	23,246.26	51.61
Without children	3.76	1,025.77	59.40	5.79	19,124.41	42.46
With children	9.23	1,850.96	26.55	1.43	4,121.85	9.15
East Germany, overall	13.63	2,172.43	43.24	1.99	29,595.89	100.00
Without children	11.56	1,623.03	48.97	3.02	18,140.83	61.30
With children	17.30	2,820.54	36.48	1.29	11,455.05	38.70
East Germany, couples	16.79	2,667.38	46.7	1.75	19,112.89	64.58
Without children	13.41	2,132.31	57.8	2.71	8,177.00	27.63
With children	19.38	2,950.10	40.84	1.38	10,935.89	36.95
Both spouses work	19.01	2,997.78	67.52	2.25	18,908.21	63.89
One spouse works	16.33	2,228.56	5.53	0.25	305.97	1.03
East Germany, singles	10.66	1,436.59	38.08	2.65	10,483.00	35.42
Without children	10.65	1,308.38	43.51	3.33	9,963.84	33.67
With children	10.68	2,070.98	11.22	0.54	519.16	1.75

Notes: Households affected by the minimum wage as percentage of all households in each group. Percentage changes of average income refer to households within the respective group, percentage changes of total income are calculated relative to the whole population in West and East respectively. Accounting for employment effects of a minimum wage means that a fraction of the employed is simulated to become unemployed according to demand side constraints of Table 4. Income projections for 2008 are based on average growth rates.

Source: Own calculations based on SOEP, wave 2007.

Table A9: Effects of a minimum wage of 7.50 €/ hour on net equivalent incomes of households affected by minimum wage (€per month) by region, 2008

| | Persons affected by MW | No MW | MW of 7.50 €/ hour | |
| | | | Δ average equivalent income | |
Decile	%	€/ month	€/ month	%
West Germany				
1st	7.98	720.73	23.48	3.26
2nd	18.62	914.98	38.03	4.16
3rd	14.53	1,152.72	27.85	2.42
4th	11.75	1,369.10	22.79	1.66
5th	9.53	1,555.03	50.17	3.23
6th	9.10	1,778.47	15.71	0.88
7th	3.76	2,027.00	67.61	3.34
8th	3.80	2,228.74	44.36	1.99
9th	2.58	2,789.23	17.65	0.63
10th	0.80	4,470.75	3.09	0.07
Total	8.25	1,376.16	32.28	2.35

Inequality measures × 100	No MW	MW	Δ absolute	Δ %
Gini coefficient	28.23	28.16	-0.071	-0.25
	(27.11; 29.35)	(27.04; 29.28)		
MLD	13.92	13.86	-0.059	-0.43
	(12.73; 15.11)	(12.68; 15.04)		
Atkinson ($\varepsilon = 2$)	28.13	28.07	-0.063	-0.22
	(25.24; 31.02)	(25.17; 30.97)		

| | Persons affected by MW | No MW | MW of 7.50 €/ hour | |
| | | | Δ average equivalent income | |
Decile	%	€/ month	€/ month	%
East Germany				
1st	2.37	623.73	45.79	7.34
2nd	3.24	721.81	79.54	11.02
3rd	23.17	885.49	33.98	3.84
4th	33.17	1,045.49	27.11	2.59
5th	13.28	1,244.19	48.69	3.91
6th	20.04	1,397.72	29.32	2.10
7th	12.76	1,571.33	40.65	2.59
8th	13.29	1,764.64	44.62	2.53
9th	5.19	2,180.57	8.82	0.40
10th	9.63	2,645.64	63.66	2.41
Total	13.63	1,349.34	37.12	2.75

Inequality measures × 100	No MW	MW	Δ absolute	Δ %
Gini coefficient	26.89	26.82	-0.070	-0.26
	(25.47; 28.32)	(25.39; 28.25)		
MLD	12.15	12.10	-0.043	-0.35
	(10.70; 13.59)	(10.65; 13.55)		
Atkinson ($\varepsilon = 2$)	23.75	23.74	-0.018	-0.08
	(19.84; 27.67)	(19.80; 27.67)		

Notes: Deciles for the overall equivalent net income distribution are calculated for the wage structure in 2008 (without minimum wage) in the respective region. People affected refer to people within a given decile of this distribution affected by the minimum wage. % of Δ average income refers to average equivalent income in the respective decile and region. Accounting for employment effects of a minimum wage means that a fraction of the employed is simulated to become unemployed according to demand side constraints of Table 4. Income projections for 2008 are based on average growth rates. MLD is the mean log deviation of equivalent income. The Atkinson inequality measure is calculated for a high degree of inequality aversion ($\varepsilon = 2$). For the exact definition and properties of these inequality measures, see, e.g., Cowell (1995). 5%-confidence bands are given in parentheses.

Source: Own calculations based on SOEP, wave 2007.

Table A10: Effects of a minimum wage of 7.50 €/ hour on net equivalent incomes of households affected by minimum wage (€ per month) by region, taking into account labor demand adjustment, Inequality measures, 2008

	Persons affected by MW	No MW	MW of 7.50 €/ hour Δ Average equivalent income	
Decile	%	€/ month	€/ month	%
West Germany				
1st	7.98	720.73	1.19	0.17
2nd	18.62	914.98	26.50	2.90
3rd	14.53	1,152.72	17.72	1.54
4th	11.75	1,369.10	1.99	0.15
5th	9.53	1,555.03	37.64	2.42
6th	9.10	1,778.47	8.29	0.47
7th	3.76	2,027.00	27.78	1.37
8th	3.80	2,228.74	30.67	1.38
9th	2.58	2,789.23	16.10	0.58
10th	0.80	4,470.75	-1.16	-0.03
Total	8.25	1,376.16	17.96	1.31
Inequality measures × 100	No MW	MW	Δ absolute	Δ %
Gini coefficient	28.23	28.19	-0.038	-0.13
	(27.09; 29.37)	(27.05; 29.33)		
MLD	13.92	13.91	-0.013	-0.09
	(12.71; 15.13)	(12.69; 15.12)		
Atkinson ($\varepsilon = 2$)	28.13	28.22	0.088	0.31
	(25.39; 30.88)	(27.62; 31.03)		
	Persons affected by MW	No MW	MW of 7.50 €/ hour Δ average equivalent income	
Decile	%	€/ month	€/ month	%
East Germany				
1st	2.37	623.73	44.29	7.10
2nd	3.24	721.81	79.28	10.98
3rd	23.17	885.49	28.56	3.23
4th	33.17	1,045.49	25.99	2.49
5th	13.28	1,244.19	21.78	1.75
6th	20.04	1,397.72	27.28	1.95
7th	12.76	1,571.33	33.13	2.11
8th	13.29	1,764.64	35.44	2.01
9th	5.19	2,180.57	7.97	0.37
10th	9.63	2,645.64	57.05	2.16
Total	13.63	1,349.34	30.86	2.29
Inequality measures × 100	No MW	MW	Δ absolute	Δ %
Gini coefficient	26.89	26.85	-0.048	-0.18
	(25.52; 28.27)	(25.46; 28.23)		
MLD	12.15	12.12	-0.026	-0.21
	(10.73; 13.56)	(10.70; 13.54)		
Atkinson ($\varepsilon = 2$)	23.75	23.76	-0.001	-0.00
	(19.90; 27.61)	(19.89; 27.62)		

Notes: Deciles for the overall equivalent net income distribution are calculated for the wage structure in 2008 (without minimum wage) in the respective region. People affected refer to people within a given decile of this distribution affected by the minimum wage. % of Δ average income refers to average equivalent income in the respective decile and region. Accounting for employment effects of a minimum wage means that a fraction of the employed is simulated to become unemployed according to demand side constraints of Table 4. Income projections are based on average growth rates. MLD is the mean log deviation of equivalent income. The Atkinson inequality measure is calculated for a high degree of inequality aversion ($\varepsilon = 2$). For the exact definition and properties of these inequality measures, see, e.g., Cowell (1995). 5%-confidence bands are given in parentheses.

Source: Own calculations based on SOEP, wave 2007.