Distributional effects of a minimum wage in a welfare state

The case of Germany

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Motivation

- Rising wage and income inequality in Germany (figures):
  - Increasing low wage sector & polarization of wage incomes
  - Growing income inequality and erosion of 'middle class'
- Germany in a minority of OECD countries without minimum wage
- Introduction of federal minimum wage 2015 (2017):
  1. Erosion of wage bargaining institutions – downward wage pressure: moderate minimum + wage subsidies
  2. Social policy perspective – preventing in-work poverty, reducing income inequality: main political parties settled for (high) level of 8.50 €
  3. Overwhelming public support of minimum wage

Research question & contribution

- How will the federal minimum wage affect the distribution of disposable net incomes in Germany?
- Does it reduce income inequality?
- Contribution:
  1. Distributional analysis with behavioral adjustments
  2. Interaction of minimum with tax-benefit system
  3. Analyzing a minimum wage in a comprehensive welfare state
  4. Comparing results at minimum wage levels of 5, 8.50, and 10 €/hour

Outline

Theory: transmission mechanism

1. Direct effect on wages/incomes of affected workers
2. Indirect effects through spillovers on wages/incomes of uncovered/unaffected workers
3. Adjustment of labor supply and demand, new wages and employment levels
4. Firms' adjustment in input/output mix, product prices
5. Adaption of consumers' in demand (changes in income and prices)
6. Adjustment path until new equilibrium is reached

Literature I

- **Employment**: (Still) main focus of minimum wage literature; surveys in Card and Krueger (1995), Brown (1999), Neumark and Wascher (2008), Allegretto et al. (2013), Neumark et al. (2013)
- **Wage inequality**: Grossman (1983), DiNardo et al. (1996), Lee (1999), Autor et al. (2010), Dickens and Manning (2004), Stewart (2011), Green and Paarsch (1996), Donald et al. (2000), Neumark et al. (2004), Machin et al. (2003), Flinn (2002), Ahn et al. (2011)

Literature II

- Growing attention on distributional impact, poverty, and **income inequality** (Card and Krueger, 1995; Neumark and Wascher, 2008; Dube, 2013)
- **Simulation studies**: Johnson and Browning (1983), Burkhauser and Finegan (1989), Burkhauser et al. (1996), Burkhauser and Sabia (2007), Sabia and Burkhauser (2010), Macurdy and McIntyre (2001), Gosling (1996), Müller and Steiner (2009), Campolieti et al. (2012)
- **Ex post/evaluation analyses**:
  - *No/insignificant results:*
    Neumark et al. (2005), Neumark and Wascher(2002), Burkhauser and Sabia (2007), Sabia (2008), Sabia and Burkhauser (2010), Sabia and Nielsen (2013)
  - *Significant reductions of poverty/inequality:*
    Addison and Blackburn (1999), Morgan and Kickham (2001), Stevans and Sessions (2001), Gundersen and Ziliak (2004), DeFina (2008), Dube (2013)

Simulation of wage effects

- Comparison of observed with simulated counterfactual distribution
- Assumptions: full coverage, compliance, no spillovers, no behavioral adjustments
- Observed hourly gross wage of persons employed at wage below the minimum replaced by minimum wage (different levels: 5.00, 8.50, 10.00 €/hour)
- Hourly wage: dividing reported earnings in the month before the interview by the number of hours worked in that month (including paid overtime hours)
- Robustness analyses for different treatment of wages at the bottom of the distribution (measurement error) and secondary jobs
- Wage data from latest SOEP wave forward-projected to 2013

Simulation of income effects

- Income simulations based on wage distributions
- Microsimulation model with main features of German tax and transfer system: disposable household income
- Gross income: earnings from dependent employment, income from capital, property rents, other income
- Income tax: taxable income (deductions), income tax formula to individual or joint incomes (income splitting)
- Social security contributions based on income and type
- Social transfers: child allowances, child-rearing benefits, educational allowances, unemployment compensation, housing allowance, social assistance
- Nonlinearities/interactions: means-tested income-support schemes, exemptions from social security contributions, joint income taxation – high marginal tax rates on secondary earners

Labor supply

- Discrete choice labor supply framework: joint maximization of household utility, non-linearities tax system
- Household utility: linear-quadratic function of consumption and leisure
- Choice set: (combination of) working hours of individual (both spouses)
- Disposable income: nonlinear function of different income sources, individual and family characteristics
- Preference heterogeneity: household- or individual-specific observed taste shifters, unobservables
- Conditional logit model

Labor demand

- Determinants: labor cost increase, consumer demand elasticity
- Estimated labor demand elasticities (BA Employment Panel)
- Heterogeneity/substitution between labor categories defined by region, gender, qualification level and type of contract (full-, part-time, marginal employment)
- Given wages, factors of production, demand for goods:
  1. direct labor demand effect per labor category from substitution (increase in the cost of labor)
  2. indirect effects from substitution between different labor categories
  3. aggregate demand effect change in demand for goods (higher production costs, prices):

$$\Delta B_k = \sum_{l=1}^{8} c_l \left(\sigma_{kl} + \eta\right) \left(\Delta w_l / w_l\right) B_k \tag{1}$$

Price effects

- Alternative margin of adjustment for labor costs increase: product prices
- Rise in labor cost for different industries related to prices increases for various types of goods using input-output matrices
- Rise in product prices borne by all households depending on their consumption rate and structure
- Assumptions: perfect competition, perfectly elastic supply of goods – cost increases fully shifted to consumers
- Price increases:

$$\Delta p_n = (\Delta w_n) ws_n + \sum_m a_{mn} (\Delta w_m) ws_m \qquad (2)$$

Microsimulation with behavioral adjustments

- Standard approach for *labor supply*
- Probabilistic approach for *labor demand*: adjustments in cells translated to individuals (households) via (dis-)employment probabilities, repeated iterations of simulation model
- Price effects: imputation of consumption rates based on observed household characteristics, simulation of income differences following increase in product prices
- Limits:
  - Assumptions on wage effects
  - Limited heterogeneity for certain behavioral adjustments
  - No general equilibrium effects: supply – demand – consumption
  - No “third round effects” (no assumptions on redistribution mechanism)

Data

- German Socio Economic Panel (SOEP): wave 2011, forward-projected to 2013
- BA Employment Panel (BAP)
- Continuous Household Budget Survey for Germany (“Laufende Wirtschaftsrechnungen”, LWR)

Wage inequality

	MW=5.00 €/hour		MW=8.50 €/hour		MW=10.00 €/hour	
Change in wage sum						
Million €/year		954		13,339		26,492
% wage sum		0.09		1.22		2.43
Wage inequality – no MW						
10/50 percentile ratio (in %)	49.85	(48.74; 50.95)	49.85	(48.74; 50.95)	49.85	(48.74; 50.95)
Gini coefficient ($\times$ 100)	29.62	(28.78; 30.46)	29.62	(28.78; 30.46)	29.62	(28.78; 30.46)
Wage inequality – MW						
10/50 percentile ratio (in %)	49.85	(48.74; 50.95)	54.73	(53.87; 55.59)	64.39	(63.38; 65.40)
Δ (Δ %)	0.00	(0.00)	4.88	(9.79)	14.54	(29.17)
Gini coefficient ($\times$ 100)	29.48	(28.64; 30.31)	27.81	(27.00; 28.62)	26.28	(25.48; 27.07)
Δ (Δ %)	-0.14	(-0.47)	-1.81	(-6.11)	-3.34	(-11.28)

Notes: Only employed people aged 18-65 are included. Wage projections for 2013 are based on average growth rates. Weighted data using sample weights to obtain population means. Δ wage bill is the difference between the wage sum with and without the minimum wage, with wage sum = $\sum$ (hourly wage $\times$ weekly working hours $\times$ 4.2); employers' social security contributions not included. The Gini coefficient is sensitive to changes in the middle of the income distribution. The mean log deviation of equivalent income is a 'bottom-sensitive' inequality measure. The Atkinson inequality measure is calculated for a high degree of inequality aversion (ε = 2); see Cowell (2000). 95%-confidence bands are given in parentheses.

Source: Own calculations based on SOEP, wave 2011.

alternative inequality measures

Wage effects – heterogeneity I (MW=8.50 €/hour)

	Affected (in %)		No MW	MW		
	Overall	1st decile	€/hour	€/hour	Δ €	% Δ
Germany overall	12.93	100.00	6.01	8.50	2.49	41.43
Gender & Region						
Men West Germany	7.06	70.72	7.21	8.65	1.44	19.97
Men East Germany	16.85	100.00	5.59	8.50	2.91	52.06
Women West Germany	14.53	100.00	5.69	8.50	2.81	49.38
Women East Germany	24.94	100.00	4.89	8.50	3.61	73.82
Age						
18-25 years	31.27	100.00	5.81	8.50	2.69	46.30
26-35 years	13.43	100.00	6.02	8.50	2.48	41.20
36-45 years	10.54	100.00	6.20	8.50	2.30	37.10
46-55 years	10.15	100.00	6.10	8.50	2.40	39.34
56-65 years	12.68	100.00	5.79	8.50	2.71	46.80
Qualification						
High	5.74	100.00	6.04	8.50	2.46	40.73
Medium	13.70	100.00	6.00	8.50	2.50	41.67
Low	21.36	100.00	6.02	8.50	2.48	41.20

Notes: Wage data for 2010 are extrapolated to 2013 using average growth rates (see text), weighted using SOEP personal sample weights to obtain population means.

Source: Own calculations based on SOEP, wave 2011.

Wage effects – heterogeneity II (MW=8.50 €/hour)

	Affected (in %)		No MW	MW		
	Overall	1st decile	€/hour	€/hour	Δ €	% Δ
Germany overall	12.93	100.00	6.01	8.50	2.49	41.43
Employment status						
Employed full-time	8.05	100.00	6.27	8.50	2.23	35.57
Employed part-time	15.98	100.00	6.16	8.50	2.34	37.99
Marginally employed	45.66	100.00	5.58	8.50	2.92	52.33
Firm size						
$<$ 5 employees	22.93	100.00	5.65	8.50	2.85	50.44
5-10 employees	20.58	100.00	6.06	8.50	2.44	40.26
11-20 employees	18.03	100.00	6.13	8.50	2.37	38.66
21-100 employees	13.27	100.00	6.14	8.50	2.36	38.44
101-200 employees	9.86	100.00	6.43	8.50	2.07	32.19
201-2000 employees	7.34	100.00	6.17	8.50	2.33	37.76
$>$ 2000 employees	5.34	100.00	5.99	8.50	2.51	41.90
Missing, not assignable	33.41	100.00	6.68	8.50	1.82	27.25

Notes: Wage data for 2010 are extrapolated to 2013 using average growth rates (see text), weighted using SOEP personal sample weights to obtain population means.

Source: Own calculations based on SOEP, wave 2011.

Labor supply

	MW=5.00 €/hour		MW=8.50 €/hour		MW=10.00 €/hour	
Additional labor supply (in 1,000 persons)						
Couple, both spouses flexible						
West, men	0.25	(0.03; 0.48)	5.31	(3.51; 7.12)	12.00	(8.25; 15.74)
West, women	0.24	(0.04; 0.45)	6.70	(4.46; 8.94)	14.99	(10.31; 19.67)
East, men	0.10	(0.02; 0.18)	3.34	(1.84; 4.85)	6.95	(4.05; 9.86)
East, women	0.10	(0.03; 0.18)	3.48	(1.81; 5.15)	7.23	(3.99; 10.48)
Couple, one spouse flexible						
West, men	0.02	(-0.02; 0.06)	0.29	(-0.09; 0.66)	0.96	(-0.06; 1.98)
West, women	0.36	(-0.38; 1.10)	3.53	(1.12; 5.93)	7.73	(4.07; 11.39)
East, men	0.00	(0.00; 0.01)	0.78	(-0.07; 1.63)	1.79	(-0.05; 3.64)
East, women	0.02	(-0.03; 0.08)	1.64	(0.55; 2.73)	3.65	(1.56; 5.73)
Singles						
West, men	0.20	(-0.03; 0.42)	9.30	(3.11; 15.48)	19.73	(3.11; 15.48)
West, women	0.93	(-0.64; 2.50)	15.20	(8.83; 21.57)	33.12	(8.83; 21.57)
East, men	0.25	(-0.03; 0.52)	10.27	(5.15; 15.40)	17.30	(5.15; 15.40)
East, women	0.16	(0.00; 0.33)	5.16	(3.11; 7.21)	13.01	(3.11; 7.21)

Notes: Bootstrapped 95%-confidence bands are given in parentheses.

Source: Own calculations based on SOEP, wave 2011.

Labor demand I

			MW=5.00 €/hour Output price elasticities		
			0	-1	-2
Full-time	Skilled	*Women*	-2,768	-8,258	-13,748
		Men	3,321	-6,739	-16,800
	Unskilled	*Women*	-111	-778	-1,446
		Men	737	-576	-1,890
Part-time		*Women*	5,481	223	-5,034
		Men	347	-469	-1,285
Marginally employed		*Women*	-14,450	-16,352	-18,253
		Men	-3,667	-4,398	-5,129
Total			-11,110	-37,348	-63,586

Notes: Own- and cross-wage elasticities taken into account. Demand changes in numbers of employees ('heads'). Qualification categories according to Freier & Steiner (2007, 2010): 'skilled' = secondary-school education or vocational training, 'unskilled' = neither secondary-school education nor vocational training.

Source: Own calculations based on SOEP, wave 2011.

Labor demand II

			MW=8.50 €/hour Output price elasticities 0	 -1	 -2
Full-time	Skilled	*Women*	-26,755	-109,407	-192,059
		Men	39,360	-111,959	-263,277
	Unskilled	*Women*	-2,041	-12,017	-21,993
		Men	4,275	-15,423	-35,120
Part-time		*Women*	46,243	-32,739	-111,720
		Men	5,352	-6,924	-19,200
Marginally employed		*Women*	-128,559	-157,070	-185,581
		Men	-38,037	-49,047	-60,058
Total			-100,162	-494,586	-889,009

Notes: Own- and cross-wage elasticities taken into account. Demand changes in numbers of employees ('heads'). Qualification categories according to Freier & Steiner (2007, 2010): 'skilled' = secondary-school education or vocational training, 'unskilled' = neither secondary-school education nor vocational training.

Source: Own calculations based on SOEP, wave 2011.

Labor demand III

			MW=10.00 €/hour Output price elasticities		
			0	-1	-2
Full-time	Skilled	*Women*	-47,115	-218,148	-389,182
		Men	73,686	-239,542	-552,770
	Unskilled	*Women*	-6,479	-27,181	-47,884
		Men	5,615	-35,201	-76,016
Part-time		*Women*	73,593	-89,969	-253,530
		Men	9,892	-15,520	-40,932
Marginally employed		*Women*	-213,171	-272,258	-331,346
		Men	-61,727	-84,506	-107,285
Total			-165,706	-982,326	-1,798,945

Notes: Own- and cross-wage elasticities taken into account. Demand changes in numbers of employees ('heads'). Qualification categories according to Freier & Steiner (2007, 2010): 'skilled' = secondary-school education or vocational training, 'unskilled' = neither secondary-school education nor vocational training.

Source: Own calculations based on SOEP, wave 2011.

Income effects on households affected

	MW= 5.00 €/hour	MW= 8.50 €/hour	MW= 10.00 €/hour
Incidence (%)	3.5	16.3	24.8
Avg. income no MW (€/year)	32,827	32,064	32,346
Δ Avg. income with MW			
No behavioral effects (€/year)	81	901	1,356
No behavioral effects (%)	0.2	2.8	4.2
With empl. effects (€/year)	-1	375	498
With empl. effects (%)	0.0	1.2	1.5
With empl. & price effects (€/year)	-318	-245	-221
With empl. & price effects (%)	-1.0	-0.8	-0.7
Δ Total income with MW			
No behavioral effects (mill. €/year)	35	3,923	8,986
With empl. effects (mill. €/year)	-1	1,632	3,299
With empl. & price effects (mill. €/year)	-298	-1,066	-1,466

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. Wage projections for 2013 are based on average growth rates. Population results are derived using SOEP household weights.

Source: Own calculations based on SOEP, wave 2011.

Effects on equivalent hh incomes, MW=8.50 €/hour

Decile	Avg. income no MW (€/year)	Affected by MW (incidence) (%)	MW: without behavioral effects Δ avg. income (€/year)	(%)	MW: with employment effects Δ avg. income (€/year)	(%)	MW: with employment & price effects Δ avg. income (€/year)	(%)
1st	8,910	18.3	909	10.2	450	5.1	-19	-0.2
2nd	12,779	35.1	985	7.7	482	3.8	52	0.4
3rd	15,497	30.7	616	4.0	178	1.1	-114	-0.7
4th	17,948	27.6	655	3.6	267	1.5	-155	-0.9
5th	20,077	20.5	516	2.6	23	0.1	-237	-1.2
6th	22,632	17.3	551	2.4	-36	-0.2	-281	-1.2
7th	25,643	17.6	253	1.0	-42	-0.2	-299	-1.2
8th	29,068	10.8	159	0.5	-18	-0.1	-305	-1.1
9th	34,207	6.7	301	0.9	118	0.3	-324	-0.9
10th	51,304	10.3	365	0.7	72	0.1	-342	-0.7
Average	23,802	19.5	657	2.8	198	0.8	-155	-0.7

Notes: Deciles for the distribution of equivalent net incomes are calculated for the wage structure in 2012 (without minimum wage). Incidence = households affected by the minimum wage as percentage of all households within a given decile of the net equivalence income distribution. Δ avg. income = change of average incomes measured in equivalence units for affected households within a given decile. Wage projections for 2012 are based on average growth rates.

Source: Own calculations based on SOEP, wave 2011.

MW=5 €/hour | MW=10 €/hour

Income inequality, MW=8.50 €/hour

Inequality measures	Status quo: no MW		MW: without behavioral effects		MW: with employment effects		MW: with employment & price effects	
		(CI)	(Δ)	(%Δ)	(Δ)	(%Δ)	(Δ)	(%Δ)
Gini coefficient × 100	26.82	(26.11; 27.53)	-0.23	(-0.86)	-0.09	(-0.34)	0.01	(0.04)
Mean log deviation × 100	12.40	(11.71; 13.09)	-0.19	(-1.53)	-0.04	(-0.32)	0.00	(0.00)
Atkinson ($\varepsilon = 2$) × 100	25.51	(23.07; 27.96)	-0.25	(-0.98)	0.19	(0.74)	0.04	(0.16)

Notes: Deciles for the distribution of equivalent net incomes are calculated for the wage structure in 2012 (without minimum wage). Incidence = households affected by the minimum wage as percentage of all households within a given decile of the net equivalence income distribution. Δ avg. income = change of average incomes measured in equivalence units for affected households within a given decile. Wage projections for 2012 are based on average growth rates.

Source: Own calculations based on SOEP, wave 2011.

MW=5 €/hour, MW=10 €/hour

Conclusion

- Substantial impact on wage distribution (unless set at a very low level), heterogeneity
- Very limited effect on available household income – on average and on the distribution – even with no behavioral adjustments
- Mechanisms: substitution of means-tested transfers, progressive income taxation; distribution of low wage earners
- Labor demand and consumption effects further reduce income gains (towards zero)
- Minimum wage not well targeted (effect heterogeneity)
- Minimum wage no effective redistributive tool for Germany, expectations should be reduced

Appendix

Wage and income inequality by region, 1995-2010

	1995	(95%-CI)	**2000**	(95%-CI)	**2005**	(95%-CI)	**2010**	(95%-CI)
Gross wages - low wage share[1]								
Men West	0.02	(0.01; 0.03)	0.04	(0.03; 0.04)	0.06	(0.04; 0.07)	0.08	(0.06; 0.10)
Men East	0.03	(0.01; 0.04)	0.03	(0.02; 0.04)	0.06	(0.03; 0.09)	0.09	(0.06; 0.13)
Women West	0.05	(0.04; 0.07)	0.06	(0.05; 0.06)	0.08	(0.06; 0.09)	0.06	(0.05; 0.08)
Women East	0.04	(0.02; 0.06)	0.07	(0.05; 0.08)	0.09	(0.06; 0.13)	0.05	(0.03; 0.07)
Gross wages - Gini coefficient[1]								
Men West	0.23	(0.21; 0.25)	0.22	(0.21; 0.23)	0.23	(0.22; 0.24)	0.26	(0.24; 0.27)
Men East	0.22	(0.20; 0.24)	0.24	(0.23; 0.26)	0.25	(0.23; 0.27)	0.33	(0.24; 0.42)
Women West	0.23	(0.21; 0.25)	0.22	(0.21; 0.24)	0.24	(0.23; 0.25)	0.26	(0.23; 0.30)
Women East	0.22	(0.20; 0.25)	0.24	(0.23; 0.25)	0.28	(0.26; 0.30)	0.26	(0.23; 0.29)
Net equivalent income - Gini coefficient[2]								
West	0.26	(0.24; 0.27)	0.24	(0.23; 0.25)	0.25	(0.24; 0.26)	0.27	(0.26; 0.28)
East	0.21	(0.20; 0.22)	0.22	(0.21; 0.23)	0.25	(0.24; 0.26)	0.27	(0.26; 0.29)

Notes: [1] Hourly gross wage (longitudinal individual weights), [2] Net household equivalent income (longitudinal household weights)

Source: Own calculations based on SOEPlong, wave 2010

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Wage inequality – alternative measures

	MW=5.00 €/hour		MW=8.50 €/hour		MW=10.00 €/hour	
Wage inequality – no MW						
10/50 percentile ratio (in %)	49.85	(48.74; 50.95)	49.85	(48.74; 50.95)	49.85	(48.74; 50.95)
Gini coefficient ($\times$ 100)	29.62	(28.78; 30.46)	29.62	(28.78; 30.46)	29.62	(28.78; 30.46)
Mean log deviation ($\times$ 100)	14.78	(13.95; 15.60)	14.78	(13.95; 15.60)	14.78	(13.95; 15.60)
Atkinson ($\varepsilon = 2$) ($\times$ 100)	25.37	(24.35; 26.39)	25.37	(24.35; 26.39)	25.37	(24.35; 26.39)
Wage inequality – MW						
10/50 percentile ratio (in %)	49.85	(48.74; 50.95)	54.73	(53.87; 55.59)	64.39	(63.38; 65.40)
Δ (Δ %)	0.00	(0.00)	4.88	(9.79)	14.54	(29.17)
Gini coefficient ($\times$ 100)	29.48	(28.64; 30.31)	27.81	(27.00; 28.62)	26.28	(25.48; 27.07)
Δ (Δ %)	-0.14	(-0.47)	-1.81	(-6.11)	-3.34	(-11.28)
Mean log deviation ($\times$ 100)	14.43	(13.61; 15.24)	12.31	(11.56; 13.06)	10.98	(10.27; 11.70)
Δ (Δ %)	-0.35	(-2.37)	-2.47	(-16.71)	-3.80	(-25.71)
Atkinson ($\varepsilon = 2$) ($\times$ 100)	24.39	(23.42; 25.35)	20.00	(19.12; 20.88)	17.63	(16.78; 18.49)
Δ (Δ %)	-0.98	(-3.86)	-5.37	(-21.17)	-7.74	(-30.51)

Notes: Only employed people aged 18-65 are included. Wage projections for 2013 are based on average growth rates. Weighted data using sample weights to obtain population means. Δ wage bill is the difference between the wage sum with and without the minimum wage, with wage sum = $\sum$ (hourly wage $\times$ weekly working hours $\times$ 4.2); employers' social security contributions not included. The Gini coefficient is sensitive to changes in the middle of the income distribution. The mean log deviation of equivalent income is a 'bottom-sensitive' inequality measure. The Atkinson inequality measure is calculated for a high degree of inequality aversion (ε = 2); see Cowell (2000). 95%-confidence bands are given in parentheses.

Source: Own calculations based on SOEP, wave 2011.

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Effects on equivalent hh incomes, MW=5 €/hour

Decile	Avg. income no MW (€/year)	Affected by MW (incidence) (%)	MW: without behavioral effects Δ avg. income (€/year)	(%)	MW: with employment effects Δ avg. income (€/year)	(%)	MW: with employment & price effects Δ avg. income (€/year)	(%)
1st	8,910	5.1	263	3.0	192	2.2	-49	-0.6
2nd	12,779	8.9	165	1.3	142	1.1	-82	-0.6
3rd	15,497	5.1	23	0.1	-40	-0.3	-178	-1.2
4th	17,948	6.5	48	0.3	-152	-0.8	-228	-1.3
5th	20,077	4.3	-83	-0.4	-114	-0.6	-247	-1.2
6th	22,632	3.2	-294	-1.3	-297	-1.3	-332	-1.5
7th	25,643	3.2	-27	-0.1	-40	-0.2	-236	-0.9
8th	29,068	2.9	-47	-0.2	-53	-0.2	-313	-1.1
9th	34,207	1.5	58	0.2	-12	0.0	-272	-0.8
10th	51,304	3.4	39	0.1	45	0.1	-318	-0.6
Average	23,802	4.4	73	0.3	-12	-0.1	-196	-0.8

Notes: Deciles for the distribution of equivalent net incomes are calculated for the wage structure in 2012 (without minimum wage). Incidence = households affected by the minimum wage as percentage of all households within a given decile of the net equivalence income distribution. Δ avg. income = change of average incomes measured in equivalence units for affected households within a given decile. Wage projections for 2012 are based on average growth rates.

Source: Own calculations based on SOEP, wave 2011.

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Effects on equivalent hh incomes, MW=10 €/hour

Decile	Avg. income no MW (€/year)	Affected by MW (incidence) (%)	MW: without behavioral effects Δ avg. income (€/year)	(%)	MW: with employment effects Δ avg. income (€/year)	(%)	MW: with employment & price effects Δ avg. income (€/year)	(%)
1st	8,910	22.2	1,182	13.3	561	6.3	-5	-0.1
2nd	12,779	48.2	1,529	12.0	647	5.1	111	0.9
3rd	15,497	45.3	1,245	8.0	396	2.6	-59	-0.4
4th	17,948	39.7	942	5.3	195	1.1	-177	-1.0
5th	20,077	34.8	771	3.8	49	0.2	-232	-1.2
6th	22,632	31.9	797	3.5	126	0.6	-212	-0.9
7th	25,643	24.8	510	2.0	62	0.2	-267	-1.0
8th	29,068	18.9	357	1.2	-99	-0.3	-411	-1.4
9th	34,207	13.3	379	1.1	4	0.0	-380	-1.1
10th	51,304	13.4	569	1.1	128	0.2	-344	-0.7
Average	23,802	29.3	999	4.2	262	1.1	-148	-0.6

Notes: Deciles for the distribution of equivalent net incomes are calculated for the wage structure in 2012 (without minimum wage). Incidence = households affected by the minimum wage as percentage of all households within a given decile of the net equivalence income distribution. Δ avg. income = change of average incomes measured in equivalence units for affected households within a given decile. Wage projections for 2012 are based on average growth rates.

Source: Own calculations based on SOEP, wave 2011.

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Income inequality, MW=5 €/hour, MW=10 €/hour

Inequality measures	Status quo: no MW	(CI)	MW: without behavioral effects (Δ)	(%Δ)	MW: with employment effects (Δ)	(%Δ)	MW: with employment & price effects (Δ)	(%Δ)
MW=5 €/hour								
Gini coefficient × 100	26.82	(26.11; 27.53)	-0.01	(-0.04)	0.00	(0.00)	0.04	(0.15)
Mean log deviation × 100	12.40	(11.71; 13.09)	-0.01	(-0.10)	-0.01	(-0.08)	0.00	(0.00)
Atkinson ($\varepsilon = 2$) × 100	25.51	(23.07; 27.96)	-0.03	(-0.12)	-0.01	(-0.04)	0.06	(0.24)
MW=10 €/hour								
Gini coefficient × 100	26.82	(26.11; 27.53)	-0.46	(-1.72)	-0.12	(-0.45)	-0.01	(-0.04)
Mean log deviation × 100	12.40	(11.71; 13.09)	-0.35	(-2.82)	-0.02	(-0.16)	0.00	(0.00)
Atkinson ($\varepsilon = 2$) × 100	25.51	(23.07; 27.96)	-0.40	(-1.57)	0.50	(1.96)	0.03	(0.12)

Notes: Deciles for the distribution of equivalent net incomes are calculated for the wage structure in 2012 (without minimum wage). Incidence = households affected by the minimum wage as percentage of all households within a given decile of the net equivalence income distribution. Δ avg. income = change of average incomes measured in equivalence units for affected households within a given decile. Wage projections for 2012 are based on average growth rates.

Source: Own calculations based on SOEP, wave 2011.

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