Basic income and labor supply: Theory and evidence from an RCT in Germany

Online Supplement

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A Proofs

A.1 Proof of Proposition 1 (Theoretical ambiguity of comparative statics)

To prove these claims, we first characterize the model in the myopic limit of high discounting and/or low transition rates, for general u. In this limit, value functions reduce to flow utilities. We then consider the CES functional form for u.

Myopic limit We can solve the Bellman equations to express the value functions in terms of flow utilities:

$$\rho V_n(b) = (1-A)\cdot u_n(b) + A\cdot E[u(w+b,a)|\theta > \underline{\theta}(b)],$$
$$\rho E[V_e(\theta,b)|\theta > \underline{\theta}(b)] = (1-B)\cdot u_n(b) + B\cdot E[u(w+b,a)|\theta > \underline{\theta}(b)],$$

where

$$A = \frac{\tilde{\lambda}(b)}{\rho+\tilde{\lambda}(b)+\eta}, \qquad B = \frac{\rho+\tilde{\lambda}(b)}{\rho+\tilde{\lambda}(b)+\eta}.$$

Taking the limit as $\rho \to \infty$ gives $A \to 0$ and $B \to 1$ (since $\tilde{\lambda}(b)$ is upper bounded by λ), so that

$$\rho V_n(b) \to u_n(b),$$
$$\rho E[V_e(\theta,b)|\theta > \underline{\theta}(b)] \to E[u(w+b,a)|\theta > \underline{\theta}(b)],$$

and thus

$$\rho V_e(\theta,b) = u(w(\theta,b)+b, a(\theta,b)) + \eta\cdot(V_n(b) - V_e(\theta,b)) \to u(w(\theta,b)+b, a(\theta,b)).$$

No worker bargaining power For general ρ, if workers have no bargaining power ($\alpha = 0$), then the bargaining solution $t(\theta,b)$ is independent of θ and satisfies $v(t(b)) = \rho V_n(b)$. In the limit $\rho \to \infty$ we thus obtain

$$u_n(b) = v(t(b)).$$

Taking derivatives on both sides yields

$$t'(b) = \frac{u_n'(b)}{v'(t(b))}.$$

The minimal productivity for which a job is accepted solves $V_e(\underline{\theta}(b),b) = V_n(b)$. In the limit, therefore, $u_n(b) = v(\underline{\theta}(b)+b)$, so that $\underline{\theta}(b) = t(b) - b$, and $\underline{\theta}'(b) = t'(b) - 1$.

For the following examples, we now consider worker utility functions of the form $u(y,a) = y^{\gamma} + a^{\delta}$, and $u_n(b) = u(b,0) + a_n$ for $a_n > 0$.

(I) No income effects ($\gamma = 1$, $\delta \leq 1$) Assume that $u(y,a) = y + a^{\delta}$ for some $\delta \leq 1$, so that there are no income effects (as in the standard model discussed in Pissarides 2000). Under this assumption, $u_n(b) = b + a_n$ and $u_n'(b) = 1$. Efficiency of (w,a) given t implies the first-order condition $\delta a^{\delta-1} = 1$, and thus the optimal level of a is independent of t and equal to $\bar{a} = \delta^{1-\delta}$. This implies $v(t) = t - \bar{a} + \bar{a}^{\delta}$ and $v'(t) = 1$. We get

$$t'(b) = \frac{u_n'(b)}{v'(t(b))} = 1$$

and $\underline{\theta}'(b) = t'(b) - 1 = 0$.

(II) No endogenous amenities ($\gamma < 1$, $\delta = 0$, $u_n(b) = u(b,0) + a_n$) Assume that $u(y,a) = y^{\gamma}$ for some $\gamma < 1$, so that workers do not value job amenities. Under this assumption, $u_n(b) = b^{\gamma} + a_n$. Efficiency implies $a = 0$, and $v(t) = t^{\gamma}$. We get

$$t'(b) = \frac{u_n'(b)}{v'(t(b))} = \left(\frac{b}{t(b)}\right)^{\gamma-1}.$$

Thus $t'(b) > 1$ if and only if $t(b) > b$, which holds if and only if $a_n > 0$. As before, $\underline{\theta}'(b) = t'(b) - 1$.

(III) Income effects and endogenous amenities ($\gamma = \delta < 1$) Assume lastly that $u(y,a) = y^{\gamma} + a^{\gamma}$. Under this assumption $u_n(b) = b^{\gamma} + a_n$. Efficiency implies $y = a = \frac{t}{2}$ and thus $v(t) = 2^{1-\gamma} t^{\gamma}$. We get

$$t'(b) = \frac{u_n'(b)}{v'(t(b))} = \left(\frac{t}{2b}\right)^{1-\gamma},$$

so that $t'(b) > 1$ if and only if $2b < t$. Since $2^{1-\gamma} t^{\gamma} = b^{\gamma} + a_n$, we have $\left(\frac{t}{2b}\right)^{\gamma} = \frac{1}{2} + \frac{a_n}{2b^{\gamma}}$. Thus $t'(b) > 1$ iff $\frac{1}{2} + \frac{a_n}{2b^{\gamma}} > 1$, i.e., iff $a_n > b^{\gamma}$.

A.2 Proof of Proposition 2 (Welfare effect of basic income)

Recall that, by definition, $v(t(\theta,b)) = u(w(\theta,b)+b, a(\theta,b))$. With this notation, the Bellman equations (3) can be written as

$$\begin{aligned}\rho V_n(b) &= u_n(b) \qquad + \lambda \cdot E\left[(V_e(\theta,b)-V_n(b))\cdot 1(\theta > \underline{\theta}(b))\right]\\ \rho V_e(\theta,b) &= v(t(\theta,b)) + \eta \cdot (V_n(b)-V_e(\theta,b)).\end{aligned}$$

The reservation match quality $\underline{\theta}(b)$ is a choice variable of the non-employed worker. By optimality of $\underline{\theta}(b)$, $E\left[(V_e(\theta,b)-V_n(b))\cdot 1(\theta > \underline{\theta})\right]$ is maximized at $\underline{\theta} = \underline{\theta}(b)$, and thus

$$\partial_{\underline{\theta}} E\left[(V_e(\theta,b)-V_n(b))\cdot 1(\theta > \underline{\theta})\right]\Big|_{\underline{\theta}=\underline{\theta}(b)} = 0.$$

(This is an instance of the envelope theorem, Milgrom and Segal 2002.) Therefore

$$\begin{aligned}\rho\cdot\partial_b V_n(b) &= \partial_b u_n(b) \qquad\qquad + \lambda \cdot E\left[(\partial_b V_e(\theta,b)-\partial_b V_n(b))\cdot 1(\theta > \underline{\theta}(b))\right]\\ \rho\cdot\partial_b V_e(\theta,b) &= v'(t(\theta,b))\cdot\partial_b t(\theta,b) + \eta\cdot(\partial_b V_n(b)-\partial_b V_e(\theta,b)).\end{aligned}$$

Solving for $\rho\cdot\partial_b V_n(b)$ and $\rho\cdot E[\partial_b V_e(\theta,b)|\theta > \underline{\theta}(b)]$, and recalling the definitions $\tilde{\lambda}(b) = \lambda\cdot P(\theta > \underline{\theta}(b))$, $A = \frac{\tilde{\lambda}(b)}{\rho+\tilde{\lambda}(b)+\eta}$ and $B = \frac{\rho+\tilde{\lambda}(b)}{\rho+\tilde{\lambda}(b)+\eta}$ yields the claim. □

A.3 Proof of Proposition 3 (Comparative statics of job acceptance)

Consider the indifference curve relative to non-employment, with slope $\partial_a\theta = 1 - \frac{\partial_a u}{\partial_y u}$. An increase of basic income b does not affect the numerator $\partial_a u$, given separability of u, but it does decrease the denominator $\partial_y u$, given concavity of u in income. Therefore $\partial_a\theta$ is decreasing in b: For higher basic income, a greater increase in productivity is required to compensate for a reduction in amenities. The indifference curve to non-employment necessarily crosses the origin $(\theta,a) = (0,0)$. Since the slope $\partial_a\theta$ is decreasing in b, there exist matches with $a > 0$ which were not previously accepted but now are, and reversely for matches with $a < 0$. □

B Sampling and treatment assignment

This section is an extract of our pre-analysis plan, as pre-registered at `https://www.socialscienceregistry.org/trials/7734`. In the following we describe in detail the multi-step sampling and treatment assignment procedure used to construct our study sample. The steps in this procedure are (i) a public call and voluntary registration of potential participants, (ii) selection of a subsample based on demographic and economic eligibility criteria, (iii) stratified sampling of eligible registrants to construct a representative baseline sample, members of which were then invited to fill out a longer baseline survey, (iv) blocking of participants in the baseline sample who have a completed survey, based on a rich set of baseline covariates, and random assignment to treatment within blocks, and (v) selection of a representative subsample of blocks based on the budget constraints of the study.

B.1 Sampling

Signup call and registrations In August 18, 2020, MG and the German Institute for Economic Research (DIW Berlin) publicly announced the launch of the RCT during Spring/Sommer 2021 and made a public call to register to participate in the RCT. The announcement included a description of the main features of the study: Selected participants of the study would be randomly assigned to a treatment group or a control group; treatment and control groups would participate in biannual online surveys; members of the treatment group would receive monthly payments of 1,200.00 EUR for three years; members of the control group would receive monetary incentives to complete the surveys; additional research activities may be offered. During signup, we collected the following demographic and socioeconomic information: Age, gender, education, monthly net income, number of people living in their household, number of kids, zip code, and their general attitude towards universal basic income. Between August 18 and December 10 in 2020, 2,048,370 potential participants registered in response to this public signup call.

Eligibility criteria We then invited a subsample of registered individuals (called "baseline sample") to complete the baseline survey. Selection into the baseline sample is based on the following eligibility criteria with respect to participants' demographic and socioeconomic characteristics. These eligibility criteria were largely determined by our implementation partner, MG.

1. Participants have to be between 21 and 40 years old.

2. Households of size greater than one, and individuals with dependent children, are excluded from participation.

Participants of our study whose household size changes, or who have a child, will, however, not lose their participation status.

3. Participants are required to be German residents and to have a monthly net income between 1,100.00 and 2,600.00 EUR.

4. Individuals who, at the time of the baseline survey, were receiving social benefits for long term unemployment are excluded from participation.[1]

   Participants of our study who transition to unemployment and receipt of social transfers will, however, not loose their participation status.

Baseline sample Among the potential participants who satisfied these criteria, our implementation partner next sampled 20,000 individuals who were invited to participate in a baseline survey. Sampling of these individuals was based on the following criteria. First, the sample was supposed to contain an equal number of proponents and opponents of a universal basic income. Second, potential participants in both of these groups were sampled using a weighted sampling procedure to generate a sample that is close to being representative for the (eligible) German population, and similar across both groups, in terms of age, gender, income, education, employment status, and state ("Bundesland").[2]

Baseline survey Before the invitations to the baseline survey were sent out, one person requested to be excluded from the RCT. The baseline survey resulted in 14,420 completed surveys. Of the remaining invitations,

- 51 invitations were sent to recipients with multiple registrations These participants were in turn excluded since potential participants were allowed to register only once.
- 3,359 invitations were sent to recipients who subsequently never started the baseline survey.
- 328 invitations were sent to recipients who then started but did not complete the baseline survey.
- 1,841 recipients completed the survey, but did not sign the required data sharing consent forms.

[1]Given current benefit eligibility rules, such social benefits would have been cut by up to the full amount of the cash transfer by MG, if these individuals were to participate in our study. The net transfer to such individuals would thus have been significantly below the expenditure for MG.

[2]The exact sampling procedure is unknown to us. This does not affect, however, the internal validity or correctness of inference for the study design described below.

Amongst the 14,420 individuals who completed the baseline survey and gave consent, 8,971 participants are considered in the randomized block assignment discussed next. The remaining 5,449 individuals are dropped because their eligibility status with respect to their characteristics listed above in criteria 1-4 changed and/or they had missing responses in baseline variables that were used in the randomized block assignment.[3]

B.2 Blocking and treatment assignment

Blocking We use the answers to the baseline survey to sort participants into homogenous blocks. Pairwise distances between observations are calculated using the Mahalanobis distance.[4] We construct blocks containing 32 observations each. The blocks are chosen to minimize the total sum of distances between pairs of observations within blocks. We do so using the R package *blockTools* (Moore and Schnakenberg, 2016). We then discard all blocks with a maximum within-block distance greater than 14 (to avoid poorly matched observations), as well as one block with less than 32 observations.

Random assignment within blocks Within each block, treatment is assigned uniformly at random. We assign 2 out of the 32 observations in a block to the treatment group, 26 observations to the control group, and the remaining 4 observations to a "reserve," which is to be sampled in case of attrition of observations from the treatment or control group.

These numbers are chosen based on the following considerations: We want two treated units per block, in order to be able to calculate standard errors for the sample average treatment effect; cf. Athey and Imbens (2017) and our discussion of inference below. We don't want more treated units per block, to keep blocks as homogenous as possible. The budget constraints of our implementation partner are furthermore such that we can survey 13 control units for every treated individual.

Lastly, because we have 107 treated individuals in total (an odd number), one additional individual from one block is chosen at random to participate in the treatment.

Weighted sampling of blocks This procedure results in 273 blocks, while our project budget allows for 53 blocks. These blocks are furthermore not fully representative for the baseline sample, because not all individuals who were invited to participate in the baseline survey passed eligibility

[3] Additionally, our implementation partner selected a group of 15 individuals who will be treated (that is, who will receive the basic income). These additional individuals indicated in the baseline survey that they were willing to participate in qualitative surveys (which are not conducted by the authors of this preregistration and are not part of this preregistration) and in interviews with journalists to publicly share their own experiences with the basic income *during* the RCT. Since any public appearance of these participants *may* bias their responses in our online surveys, we exclude these "media participants" from our study.

[4] The Mahalanobis distance of two covariate vectors x_1 and x_2 that are realizations of a random vector X is given by $d(x_1,x_2) = \sqrt{(x_1 - x_2) \cdot Var(X)^{-1} \cdot (x_1 - x_2)}$.

and had non-missing responses in the questions we used for blocking (see above) and because of our discarding of poorly matched blocks.

In order to obtain a representative sample of blocks, we create block level sampling weights. These weights are chosen so as to match the distribution of gender, education groups, and income groups of eligible participants in the screening survey. We then draw a sample of 53 blocks from the 273 available blocks using these sampling weights, to obtain a representative subsample. This results in 107 individuals assigned to treatment, 1377 assigned to the control group, and 212 individuals assigned to the "reserve," distributed evenly across 53 blocks.

The resulting treatment assignment Table 1 in the main text summarizes the resulting study sample. The second and third columns show covariate averages for the 28 covariates used for blocking, for the treated and control group. This table drops observations in the reserve. The remaining columns show standard errors, confidence intervals, and p-values as discussed below.[5] As can be seen from this table, we have achieved an extraordinary degree of balance between the treated and control group. At this point, the selected participants in the treatment group and control group were informed about their treatment status. 7 individuals in the control group wanted to be excluded from the study sample, 1 individual in the treatment group resigned his/her spot in the treatment group because of a job opportunity outside of Germany, and 1 individual in the treatment group could not be reached. For each of these missing individuals, we sampled one individual from the replacement sample within the same block, to receive the corresponding treatment status.

B.3 Baseline variables used for treatment assignment

- Age 29-32: Dummy, 1 if individuals' age is between 29 and 32 years, 0 if individuals' age is below 29 or above 32 years.
- Age 33-40: Dummy, 1 if individuals' age is between 33 and 40 years, 0 if individuals' age is below 32 years.
- Female: Dummy, 1 if individuals' gender is female, 0 if individuals' gender is not female.
- German citizen: Dummy, 1 if individual is a german citizen, 0 if not
- UBI proponent: Dummy, 1 if individuals' general attitude towards universal basic income is positive, 0 if it is negative.

[5] Inference should not be taken literally here, and is only including for illustration. In particular, because of our blocked assignment procedure, which aims for balance, p-values are expected to be systematically larger than suggested by the uniform distribution under the "null" of no effect.

- Tenure: Dummy, 1 if the individual has (at least one) tenured job, 0 if the individual has no tenured job.
- Education: Hauptschule: Dummy, 1 if highest education level qualifies for vocational training, 0 if not.
- Education: Realschule: Dummy, 1 if highest education level qualifies for high school, 0 if not.
- Education: Fachabitur: Dummy, 1 if highest education level qualifies for vocational academy, 0 if not.
- Education: Abitur: Dummy, 1 if highest education level qualifies for university, 0 if not. (Note that the omitted education category is college or more.)
- Net monthly income: net monthly income available to the individual.
- Monthly saving: amount of money saved per month.
- Wealth: individuals' level of wealth.
- Debt: individuals' level of debt.
- High financial security: Dummy, 1 if individual states that she could finance herself (with help of others but absent social security benefits) for one year without receiving any income, 0 if not.
- Working for money: Dummy, 1 if individual works and receives a financial compensation in return, 0 if not.
- In training or education: Dummy, 1 if individual is in vocational training or receives higher education (undergraduate, graduate, or doctoral level), 0 if not.
- In vocational training: Dummy, 1 if individual is in vocational training, 0 if not.
- Searching work: Dummy, 1 if looking for a job, 0 if not looking for a job.
- Sick days: number of workdays missed because of health.
- Weekly hours worked: number of hours worked per week
- Political preferences (PC1): first component of a principle component analysis that is based on an individual's response to how likely (in percent) it is that they vote for either party currently in the German parliament.

- Political preferences (PC2): second component of a principle component analysis that is based on an individual's response to how likely (in percent) it is that they vote for either party currently in the German parliament.
- Subjective wellbeing (PC1): first component of a principle component analysis that is based on an individual's responses to questions related to several dimensions of their subjective well-being (life satisfaction, emotional wellbeing, depression, eudaimonie, and subjective health).
- Body mass index.
- Transfers to others: how much money did the individual give to family members or friends (or others) in 2020.
- Donation in 2020: how much money was donated in 2020.
- Binary gender: Dummy, 1 if binary gender, 0 if not

Table 1: Month correspondence

Month in experiment		Year
$(-\infty,$	$-16]$	2019
$(-16,$	$-5]$	2020
$(-4,$	$7]$	2021
$(8,$	$19]$	2022
$(20,$	$31]$	2023
$(32,$	$36]$	2024

C General description of administrative data

The German Institute for Employment Research provided administrative data for all participants in the experiment who agreed to merge their survey data with administrative data. The Integrated Employment Biographies (Schmucker and Vom Berge, 2025) consist of daily spell data reported by employers to the social security system, data on the receipt of unemployment benefits and participation on active labor market programs. The data contain daily information on gross daily wages, occupation, industry, a dummy for full-time or part-time work, differentiate between minor employment and employment that is subject to social security insurance, and socio-demographic characteristics such as date of birth, sex, nationality, qualifications, and place of residence and place of work. The data do not include information on civil servants or self-employed persons.

The data preparation transferred the daily spell data into monthly panel data, as well as average aggregated data for the pre- and post treatment periods. In particular, we create two cross-sectional data sets with aggregated information over a period of twelve months before treatment assignment and a period of 36 (currently 30) months after treatment assignment. The monthly panel data set contains monthly aggregated information, covering the the same periods pre- and post assignment (see Table 1).

C.1 Employment variables

Both analysis data sets (average, and monthly) contain the following information. "Share of days" in the following refers to the relevant pre- and post-treatment periods for average data, and the relevant month for monthly data.

Employed: Share of days for which person was employed (employment subject to social security contributions). This includes full-time, part-time, and minor employment.

Employed fulltime: Share of days for which the person was employed fulltime. Full-time employment includes employment subject to social security contributions. Fulltime is not further specified in the source data. Employers are only required to differentiate ‘fulltime’ and ‘parttime’ contracts.

Employed parttime: Share of days for which the person was employed parttime.

Initial employment: Share of days for which the person was employed at the business establishment in which they were employed at the day of treatment assignment.

C.2 Monetary variables

In the source data, only daily gross wages for the respective employment spell are available. We use this information on daily gross earnings to calculate a number of intermediary and outcome variables:

Net earnings: Net monthly earnings are calculated by deducting monthly employee social security contribution and monthly income tax from gross monthly earnings. In Germany employers and employees nominally pay equal shares of the social insurance contributions. Employee social security contributions are therefore calculated as the product of $0.5 \times$ the total contribution rate (as defined in Table 2) and the monthly gross wage.

Gross earnings (intermediary variable not used in paper): For the average data, we calculate the average monthly earningy, by taking the sum of total earnings over the (pre- and posttreatment assignment period, and divide it by the number of months in the pre- and posttreatment assignment period. For the monthly data, we calculate gross monthly earnings as the product of daily wage and an average of 30 days per month.

Income tax: We approximate the monthly income tax, based on the assumption that all of our respondents are unmarried and have no children, i.e. Tax Class I in the German income tax system. The German tax system consists of a stepwise linear function specified in § 32a EStG (see Equation 1)[6] with different progression zones which are that results in a progressive tax schedule. The cutoff points for the different progression zones are redefined on an annual basis by the Federal Ministry of Finance and are given in Table 4. Because the income tax is based on annual earnings, we first calculate the hypothetical annual income of each respondent if the employment

[6] see https://esth.bundesfinanzministerium.de/esth/2023/home.html for § 32a EStG in the income tax regulations of the respective years, to find the cutoff-points for the respective years.

spell of a particular month covered the entire year, and divide the resulting annual income tax by 12 to receive the monthly income tax. This is the monthly income tax we use in the monthly data. For the average data, we take a monthly average over all pretreatment months and posttreatment months, respectively.

Social Insurance Contributions (SI-Contributions) (Employee + Employer): Social security contributions are calculated as the product of the total contribution rate, which contains contributions to different statutory social insurances, as defined in Table 2 and the smoothed monthly gross wage, or the average monthly gross wage for the pre- and post treatment period. We ignore the contribution assessment ceilings for health and pension insurance contributions (see Table 3).

Employer costs: Employer costs are calculated as the sum of smoothed monthly or averaged monthly gross wage and monthly employer social security contributions. Employer social security contributions are calculated as the product of 0.5 $\times$ the total contribution rate (as defined in Table 2) and the monthly gross wage.

Unemployment benefits: The source data provide information on the daily unemployment benefits. For the average dataset, we use the total sum of unemployment benefits received in the pre- and posttreatment period, respectively, and divide it by the total number of months in the experiment. For the monthly dataset, we use the total sum of unemployment benefits received in the respective month, divide by days in the respective month, and multiply by 30, to obtain a smoothed curve.

Table 2: Social Insurance Contributions (employee and employer)

Component	**2019**	**2020**	**2021**	**2022**	**2023**
Pension Insurance (RV)	18.6%	18.6%	18.6%	18.6%	18.6%
Long-Term Care Insurance (PV)	3.05%	3.05%	3.05%	3.05%	3.05%
Unemployment Insurance (ALV)	2.5%	2.4%	2.4%	2.4%	2.6%
Health Insurance (base rate)	14.6%	14.6%	14.6%	14.6%	14.6%
Average Additional Health Contribution	0.9%	1.1%	1.3%	1.3%	1.6%
Total Contribution Rate	**39.65%**	**39.75%**	**39.95%**	**39.95%**	**40.45%**

Note: The respective contribution shares have been obtained from Federal Ministry of Labor and Social Affairs Publication of Factor F for all years in the survey

Table 3: Contribution Assessment Ceilings

Year	KV (Health)	RV West (Pension)	RV East (Pension)
2019	4,537.50 EUR	6,700 EUR	6,150 EUR
2020	4,687.50 EUR	6,900 EUR	6,450 EUR
2021	4,837.50 EUR	7,100 EUR	6,700 EUR
2022	4,987.50 EUR	7,050 EUR	6,750 EUR
2023	5,175.00 EUR	7,300 EUR	7,100 EUR
2024	5,512.50 EUR	7,550 EUR	7,550 EUR
2025	5,512.50 EUR	8,050 EUR	8,050 EUR

$$T(E) = \begin{cases} 0 & \text{if } E \leq G \\ \left(a_2 \cdot \left(\frac{E-G}{10^4}\right) + 1400\right) \cdot \left(\frac{E-G}{10^4}\right) & \text{if } G < E \leq B_2 \\ \left(a_3 \cdot \left(\frac{E-B_2}{10^4}\right) + 2397\right) \cdot \left(\frac{E-B_2}{10^4}\right) + c_3 & \text{if } B_2 < E \leq B_3 \\ 0.42 \cdot E - c_4 & \text{if } B_3 < E \leq B_4 \\ 0.45 \cdot E - c_5 & \text{if } E > B_4 \end{cases} \tag{1}$$

Once $T(E)$ is computed, the following variables are derived:

$$\texttt{inctax\_perc} = \frac{T(E)}{E} \quad \text{(annual tax rate)}$$
$$\texttt{m\_inctax} = \frac{T(E)}{12} \quad \text{(monthly tax)}$$
$$\texttt{m\_inctax\_perc} = \frac{\texttt{m\_inctax}}{\texttt{m\_earnings}} \quad \text{(monthly tax rate)}$$
$$\texttt{m\_inc\_net} = \texttt{m\_earnings} - \frac{\texttt{m\_socins}}{2} - \texttt{m\_inctax} \quad \text{(monthly net labor income)}$$

Commuting distance: The source data provides information on the location of the employer and the place of residence of the employee at the district level (Kreise). We use a distance matrix by the Federal Institute for Research on Building, Urban Affairs and Spacial Development that provides the air distance between the geographical midpoints of each district to calculate the distance traveled one-way between home and main employer in each month. For the average datasets, we

Table 4: Income tax cutoff points

Symbol	Description	2019	2020	2021	2022	2023	2024
G	Income tax free allowance	9168	9408	9744	10347	10908	11604
B_2	Upper bound for bracket 2	14254	14532	14753	14926	15999	17005
B_3	Upper bound for bracket 3	55961	57052	57919	58597	62810	66761
B_4	Upper bound top tax rate	265326	270500	274612	277825	277825	277825
a_2	Coefficient for bracket 2	980.14	972.87	995.21	1088.67	979.18	922.98
a_3	Coefficient for bracket 3a	216.16	212.02	208.85	206.43	192.59	181.19
c_3	Constant in bracket 3b	965.58	972.79	950.96	869.32	966.53	1025.38
c_4	Offset in 42% bracket	8780.90	8963.74	9136.63	9336.45	9972.98	10602.13
c_5	Offset in 45% bracket	16740.68	17078.74	17364.99	17671.20	18307.73	18936.88

take the average of the monthly one-way distance for all pre- and posttreatment assignment months respectively. For months in which no employment is registered, the distance is recorded as 0.

D Additional empirical findings

Table 5: Average effects, levels

Outcome	Treated	Control	ATE	SE	t-stat	p-val (N)	p-val (F)	n treated	n control
Government revenue									
Income tax	679.552	727.569	-48.017	38.572	-1.245	0.213	0.212	99	1278
SI contributions (employee + employer)	1221.703	1291.282	-69.579	56.094	-1.240	0.215	0.230	99	1278
Unemployment benefits	24.350	21.449	2.901	9.759	0.297	0.766	0.780	99	1278
Government Revenues	1876.784	1997.439	-120.656	96.464	-1.251	0.211	0.228	99	1278
Earnings and commute									
Employer costs	3685.289	3886.915	-201.625	167.694	-1.202	0.229	0.232	99	1278
Net earnings (excl. tax and SI)	1750.104	1833.531	-83.427	73.325	-1.138	0.255	0.260	99	1278
Distance to employer	21.615	27.555	-5.940	6.524	-0.910	0.363	0.370	99	1278
Extensive and intensive margin									
Employed	0.835	0.863	-0.029	0.029	-0.988	0.323	0.330	99	1278
Employed full-time	0.641	0.682	-0.040	0.038	-1.070	0.285	0.270	99	1278
Employed part-time	0.175	0.168	0.007	0.034	0.196	0.845	0.854	99	1278
Job transitions									
Initial employment	0.627	0.616	0.011	0.040	0.280	0.780	0.800	99	1278
New employer	0.208	0.248	-0.040	0.033	-1.205	0.228	0.228	99	1278

Notes: These tables report estimates of the effect of basic income on outcomes from the IAB administrative data. Outcomes are averaged over the three years during which basic income was disbursed. Monetary outcomes are in Euro per month. In Table 2, changes are relative to the average outcome over the 12 months preceding the experiment. Estimation uses within-block differences, as discussed in Section 3. p-val (F) are Fisher p-values based on permutation inference.

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