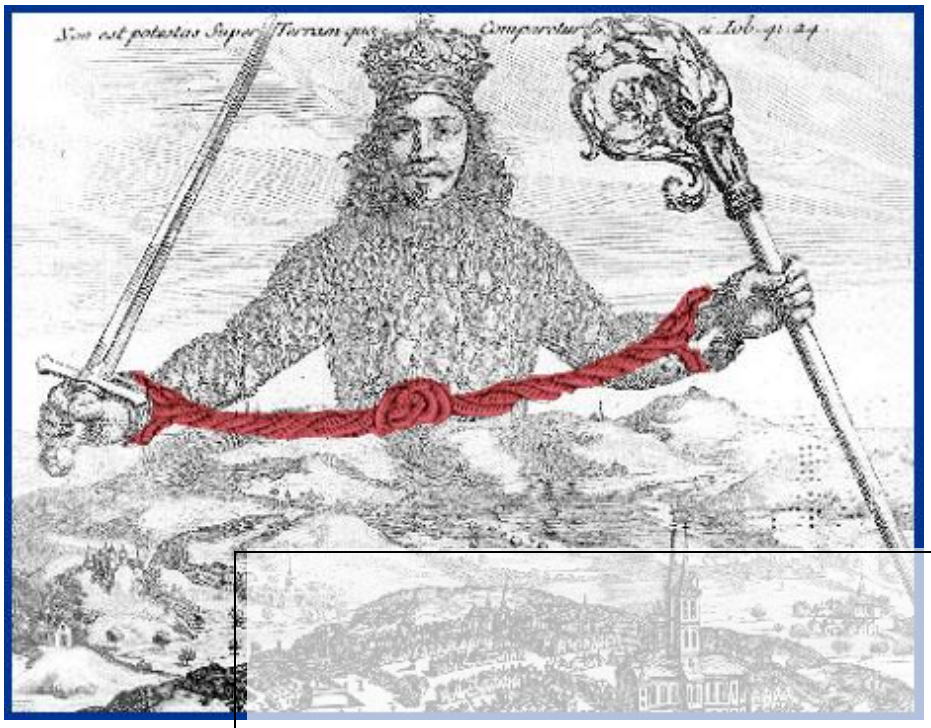

Constitutional
Economics
Network

Working Paper
Series
ISSN No. 2193-7214

CEN Paper
No. 01-2019

Testing preferences for basic income and its time allocation effects in the German context: A lab experiment

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June 18th, 2019

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Testing preferences for basic income and its time allocation effects in the German context: A lab experiment

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Abstract

Inspired by Fröhlich and Oppenheimer (1990), an experimental survey in the lab was designed to find out if preferences for three different redistribution schemes differ under a veil of ignorance. The three schemes are a stylized version of the status quo German welfare state (A), a control scheme without income taxation and redistribution (B) and one in which a flat tax-financed basic income is paid to all (C). Furthermore, the study investigates whether the introduction of a basic income induces a decrease in the time allocation to paid and unpaid work. The results point to no significant difference in allocated working hours between A and C. Concerning preferences, access to information on implications of schemes and self-interest played a central role in their definition.

JEL classification: C91, I38, J22.

Keywords: lab experiment; basic income; welfare state; Germany; time allocation; constitutional economics; labor supply.

1. INTRODUCTION

Many of the established social policy models have been designed for industrial societies and to tackle social risks, which are related to industrial ones. Recently, we have entered a period in which the digital and platform economies play an increasing role, and social security systems are not designed for this new reality (Ollie Kangas in Reiners, 2018). In addition to the digitalization

[1] This work was supported by the Konrad-Adenauer-Stiftung. Grant: PhD scholarship. Responsibility for the information and views set out in this publication lies entirely with the author.

of the economy, other factors such as the emergence of new political forces, the diversification of household structures, migration movements and shifting dynamics in the labor markets have contributed to the formation of new social and economic scenarios. In the face of these new social dynamics, one has to recognize that a welfare state that is built on conditions of the past cannot fulfill the demands of the coming generations (Straubhaar, 2017, p. 90).

As a way to cope with the increasing income and job insecurity that result from these transformations in the world economy and to adapt social security systems to this new reality, some suggest the introduction of an unconditional basic income. For the purposes of this paper, unconditional basic income is defined as "an income (periodically) paid by a political community to all its members on an individual basis, without means tested or work requirement" (van Parijs, 2004, p. 8). Basic income can be interpreted as a new concept for the social market economy (Neumärker, 2018) or as a part of a broader set of reforms. Two critical points of such a change are its potential effects on labor supply and whether such an initiative could win public approval. This paper aims to analyze these two critical points in the German context and provide empirical evidence for discussion.

An experimental survey in the lab was designed to find out if preferences concerning three proposed income redistribution schemes may vary when peoples' positions in society are revealed. One scheme is a stylized representation of the German welfare state in its current form, i.e., with a minimal means-tested income and relatively progressive income taxation system. The second scheme functions as a control by representing a situation absent of taxation and redistribution. The third scheme depicts a scenario where there is an unconditional basic income financed by a flat income tax. The experiment was designed in order to focus on two issues. The

first concerns the possible effects of the introduction of a basic income on people's paid and unpaid work supply decisions. Moreover, the second concerns the participant's preferences on redistribution schemes and the influences of a constructed veil of ignorance on these preferences, based on a constitutional economic approach. This veil of ignorance enables the construction of a situation in which participants are not aware of their positions, which are represented by wages and distributional schemes. When situated under a veil of ignorance, parties "do not know how the various alternatives will affect their own particular case and are obligated to evaluate principles solely on the basis of general considerations" (Rawls, 1971, pp. 136–137; Frohlich and Oppenheimer, 1993, p. 15). Among the objectives of this experiment is the contribution to the further development of experiments on basic income and the discussion on reforms for the German welfare state.

The chosen methodology mixes elements of experiments and survey, as participants are both introduced into hypothetical scenarios within a controlled laboratory setting and are asked how they would react in such scenarios. There are a couple of reasons why an experimental survey was chosen. Firstly, basic income as defined above has yet to be implemented in any political system, and therefore there is no data available about how economic variables react to such an institutional reform of the redistribution system. "Hence, any ex-ante analysis has to rely on some kind of economic simulation" (Sommer, 2016, p. 108) or experiment. Secondly, this methodology entails advantages, like the possibility to more easily control variables and enables easy replication. The central drawback of this methodology concerns the external validity of results. Also, when effects are statistically significant, it is not possible to extrapolate them without reservations, as the sample selection was not random and is not fully representative of the German population. However, one can argue that a fully representative data set is not always

required in experimental research and that external validity arises from the replication of an experiment over different settings, using a variety of methods and measures (Runst, 2017; McDermott, 2012). Thirdly, a survey experiment allows one to control the information which participants receive, and the randomized treatments (exposure to information) allow for more precise predictions (Page, 2018, p. 234). The experiment aims to observe whether the direction to which the findings point to follows the stated hypotheses. In this sense, the replicability of the experiment is an essential characteristic for evaluating external validity.

The remainder of this paper is organized in the following way. In the next section, a brief literature review of the paper's main topics is undertaken. In the third section the applied methodology, experimental design, empirical estimation strategy, and the working hypotheses are described in detail. In the fourth section, the stated hypotheses are contrasted with the experiment results. In the fifth section, implications and improvement strategies are discussed.

2. ON BASIC INCOME, WELFARE STATE, AND WORK

The discussion on basic income is closely related to the debate on welfare institutions. When concrete proposals for the introduction of a basic income are analyzed, basic income usually constitutes one of many proposals in the reform package. Many of the recommendations include changes in the tax and social security systems, sometimes putting into doubt if basic income is indeed the central target of the project. These proposals can differ from each other considerably, depending on the proposed level of basic income, the welfare state institutions it substitutes and the suggested financing. In the German context, there are various basic income proposals, which have been partially summarized according to their contents (Blaschke, 2017). Depending on the proposal, the basic income can be interpreted as an extension, substitution or rearrangement of the existing German welfare state.

The logic behind the type of basic income proposal that aims to extend the welfare state is the universalization paradigm, which preconizes that social rights and access to social policies should be decoupled from the accomplishment of a stipulated obligation (Monnerat et al., 2007). This logic contrasts with the current German welfare system, which is strongly conditional. The benefits in the ongoing order depend on the number of family members, level of earned and unearned income, ability and willingness to work, among others (Gilroy et al., 2013, p. 45). Further, this system lacks work incentives for individuals to leave unemployment, if one takes into account the implicit taxes for the unemployed who start to work (implicit marginal tax rates on the work income of single childless people who receive long-term unemployment benefits -also called Hartz IV in Germany- can be up to 80%). Thus, work incentives constitute not only an important issue within the basic income debate, but also in the discussion of the existent welfare system.

Basic income advocates argue that labor supply would not necessarily decrease after such a reform. Depending on the type of basic income, labor supply could even increase due to the overcoming of poverty traps or be substituted by unpaid work. The skeptics draw instead a post-basic income scenario where people would not be willing to work and welfare, as measured by GDP, would decrease.

Some researchers have already discussed the possibility of interpreting data generation as a form of labor (Arrieta-Ibarra et al., 2018) and argue that the notion of work will change so fundamentally that the contemporary concept of unemployment will no longer exist (Daheim and Wintermann, 2016, p. 11). Therefore, to rethink the meaning of unemployment and work is vital to cope with the upcoming challenges. Along these lines, work can be defined not just as the activities individuals develop in exchange for monetary payment but as all those social activities that generate social effects for other individuals. Examples range from caregiving activities to volunteering in different kinds of organizations.

3. EXPERIMENTAL DESIGN, ESTIMATION STRATEGY, AND HYPOTHESES

The experiment is the result of a mix of the methodologies found in Frohlich and Oppenheimer (1990), Haigner et al. (2012) and Axelrad et al. (2016). The first paper builds the foundation of the experimental design, more particularly of the sequence of events that constitutes each stage (constitutional and post-constitutional) of the experiment (Frohlich and Oppenheimer, 1990). As for the treatments that form the experimental strategy, they are inspired by those used in the second paper (Haigner et al., 2012). Finally, the survey character of the experiment is rooted in the innovative approach of the third paper (Axelrad et al. 2016), which constructed hypothetical

situations as a way to anticipate how people would potentially behave under specific circumstances. Further, the experimental design is based on the manipulation of different rules for taxation and redistribution, which differ among the tested treatments. The experiment was programmed using z-tree (Fischbacher, 2007).

3.1. TREATMENTS (Schemes)

The experiment is composed of three treatments, A, B and C, which are also called redistribution schemes throughout the experiment. Treatment A is a stylized representation of the taxation status quo in Germany. Treatment B represents a scenario, in which there is neither taxation nor income redistribution, and in treatment C there is a flat tax, and a basic income is paid to every individual. Each participant played in just one treatment in order to become familiar with that one specific treatment and to avoid confusion on rules specific to each treatment.

Treatment A

This treatment functions as a reference point for the participants and is the result of the simplification of the actual German welfare state. Nevertheless, during the experiment, this treatment is presented in a relatively neutral way, without mentioning its relation to the status quo system in Germany. Here, the complexity of the income tax and social systems is reduced to a chosen set of basic rules. It is assumed that participants have no other income source besides paid work or social benefits in the form of Hartz IV (long-term unemployment benefit). A solidarity tax, health insurance, old age insurance, nursing insurance, and other issues are not assumed for the sake of simplification. The experiment abstracts from the German short-term unemployment insurance (unemployment insurance I). Additionally, it is assumed all people are single without children and in the same income tax class. The only withheld tax is income tax, which will vary

following the German rules for the year of 2016 (Bundesministerium der Finanzen, 2016, p. 31). Besides, there is an unemployment insurance of 1.5% on wage from a gross income of €451, which is called social contribution here and during the experiment. All this information is decisive for the calculation of the net income. The social benefit is conditional and paid to participants dependent on monthly net income. Every person with a net income up to €1000/month receives a social benefit. However, the higher the net labor income, the smaller this benefit will be. If net earnings of a benefit recipient are above €100, they are allowed to withhold just 20% of the net labor income that exceeds €100. As a consequence of this rule, from a monthly net labor income of €100/month on, the social benefit decreases linearly from €722[2] until it reaches the value of zero.

Treatment B

This treatment works as a control. In B there is no taxation on income, no unemployment insurance, and no social benefits. The objective of this treatment is to enable the comparison of individuals' time allocation under taxation and no taxation.

Treatment C

The last one is treatment C, in which the income tax system is simplified, and a flat tax of 45% substitutes the complicated income taxation of treatment A. This tax includes the unemployment insurance. As for the social benefit, it is transformed into an unconditional one, i.e., every individual receives it independent of income. The amount of payment is €722 to enable a direct comparison with treatment A. In the experiment this payment is not communicated as a basic

[2] The value of €722 was taken from the example calculation for the benefit of a single household in 2016, made by the German Federal Ministry of Labour and Social Affairs/ Bundesministerium für Arbeit und Soziales (2017). This calculation includes the base tariff ("Regelbedarf") paid for single long-unemployed people in 2016 and estimated additional subsidies for heating and housing costs.

income to avoid bias; it is just called *Pauschalbetrag* (lump sum payment). This flat tax of 45% for the financing of a UBI of €722 is based on an adaptation of a basic income reform proposed by Bergman (2014). For a basic income of €750 plus a health premium of €200 per month, he proposed a 60% flat tax. As the health system was excluded, and the basic income is set at €722, an approximation was made through a rule of three to find out a potentially feasible tax for the case of treatment C. Two other proposals (Althaus, 2010 and "*Flat Tax* reform" found in Jessen et al., 2015) also came into question, but the problem was that both also included the reform of the pension system, from which was abstracted in the experiment for simplification. As the experiment took place in Germany and aimed to simulate participants' allocation of hours and preference under different levels of information, it was decided to analyze a proposal that was designed for the German system. Further, the decision to use a basic income financed by a flat tax on income should not be interpreted as a normative preference for a particular type of basic income funding. This decision was based on the comparability potential with the ongoing system (treatment A). Therefore, to make the experiment more interesting and generate a trade-off between treatments depending on the income, the introduction of a basic income accompanied by an income tax reform was chosen.

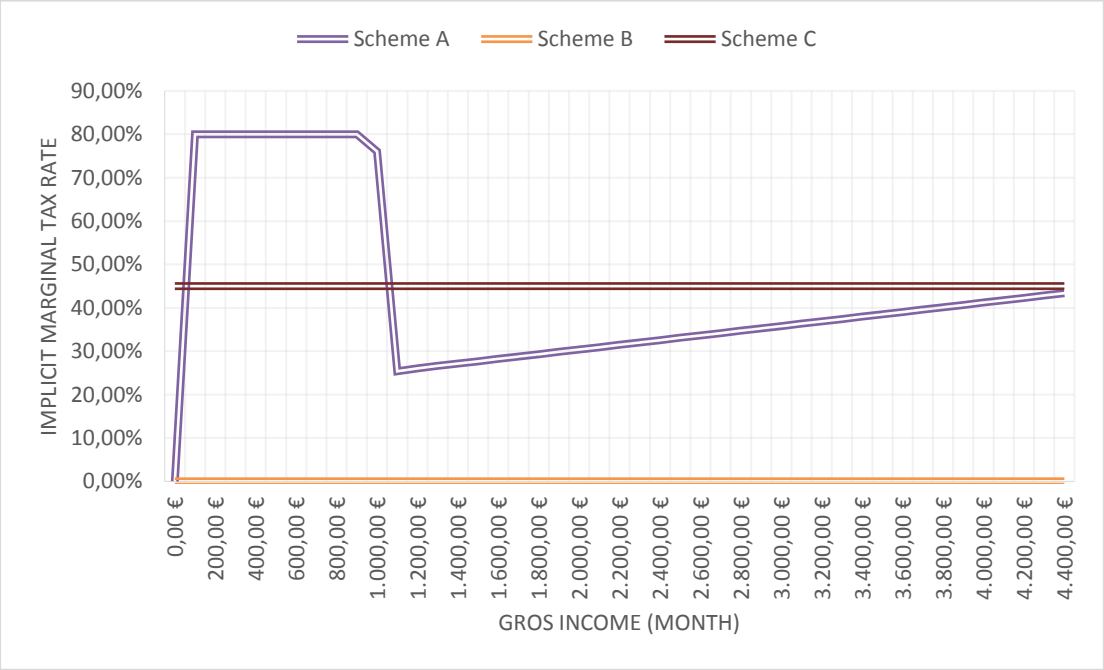
Table 1 Summary of the treatments

Treatment	Income tax system	Unemployment insurance	Redistribution rule
A	Stylized version of the German income tax system in 2016	1.5%	Hartz IV system
B	None	None	None
C	45% flat tax	Included in the income tax	€ 722 basic income

Comparing treatments A and C

One of the differences among these treatments concerns the issue of the poverty trap, which is defined as the situation in which more impoverished individuals or households face higher marginal rates because of the implicit taxes on their benefits (Barr, 2004, p. 225). The marginal implicit tax rates for each treatment are represented in Figure 1, which shows that the rates faced by those in treatment A with a gross income lower than €1000 are much higher than for those with an income higher than €1000. In C this rate is constant among incomes, and therefore one can say that the poverty trap in C is considerably less severe than in A, as the difference in the implicit marginal tax rate among salaries disappears.

Figure 1 Implicit marginal tax rates by scheme (treatment)



3.2. EXPERIMENTAL DESIGN

The sequence of events (or steps) of the experiment, which is based on Frohlich and Oppenheimer (1990), is divided into a constitutional and a post-constitutional stage. This

sequence is used as a method to identify preferred principles of justice that are represented by the different forms of taxation and redistribution found in each treatment. On the constitutional stage, participants chose their preferred treatment under a veil of ignorance, as they are not aware of their future relative position in society, which is here represented by wages and the retribution scheme (A, B or C) in use. The sequence of steps, which form this stage are the following:

Constitutional stage

1. Reading about the general rules of the game.
2. Reading about the three redistribution schemes, which were depicted in an informative sheet I[3].
3. Ranking I of schemes.
4. Reading about the implication of the schemes (gross-net-relation), which was depicted in the informative sheet II[4].
5. Ranking II of schemes.

In step 4, participants came to know about the consequences of the rules they were presented in step 2. They learned about the net-gross relation of income for each of the three schemes they were introduced to. This information was given both in the form of a table and in the form of a graph. Also, in step 5 they were asked to rank the schemes a second time.

Post-constitutional stage

6. Random assignment of participants to one of the three schemes and an hourly wage.
7. Ranking III of schemes.
8. First allocation period and report of both gross and net income.
9. Second allocation period and report of both gross and net income.
10. Ranking IV of schemes.
11. Questionnaire[5]

The random assignment in step 6 marked the transition from the constitutional stage to the post-constitutional stage. The former is characterized by the revelation of the veil of ignorance, as participants get to know their particular positions (wage and redistribution scheme) in the game.

[3] Please check appendix A for the informative sheet I.
[4] Please check appendix B for informative sheet II.
[5] The questionnaire had questions on gender, age, semesters of study, program of study, if the participant worked or not, how they financed their studies, number of kids, marital status and a question on the reason why they decided (if at all) to invest part of the 48 hours in other activities besides paid work.

In step 6, participants were each randomly assigned to one of the three treatments- independent of the declared preferences- and to one of five possible hourly gross wages (8.50 €, 13.50 €, 18.50 €, 23.50 €, and 28.50 €). The first hourly wage represents the German minimum wage for the year 2016; different wages were chosen to test whether payment would affect participants' choices. After participants learned about their position, they were asked a third time to rank the schemes (step 7). Then, in both steps 8 and 9 they were asked the following question:

> *"You can use up to 48[6] hours of your disposable time in a week (Monday to Friday) to work for the designated hourly wage. If you want, you can work less or do not work at all and use these hours for other activities".*
>
> *"Based on the distribution scheme in which you are playing, how many of the 48 hours (if at all) would you effectively invest in paid work?"*

The type of work was not included in the question. The only reference participants had concerning their paid work was the hourly wage. After the first question was answered, a second question was posed in both steps 8 and 9:

> *"If hours are left over, please distribute them among the following activities. Enter a "0" where you would invest no hour.*
> - *Caring for household and non-household members, household activities*
> - *Organizational and civic activities*
> - *Educational activities*
> - *Leisure, media use, social life*
> - *Hobbies*
> - *Other activities"*

The categories of the second question are based on those used in the American Time Use Survey (ATUS) (United States Department of Labor, 2017). The categories used enable classification of the time use beyond a paid work/leisure dichotomy. As the first two categories mentioned above generate direct social contributions to others, they were defined as unpaid work. At the end of

[6] The 48 hours are based on the average weekly constraint of working hours in Germany according to the law.

both steps 8 and 9, participants' net and gross wage were reported, taking both their scheme and salary into account. A second allocation period (step 9) allowed for an examination of the relation between experience with taxation on the one hand and attitudes towards treatments on the other (Frohlich and Oppenheimer, 1990, p. 464).

3.3. DATA COLLECTION

The experiment was conducted in German with bachelor students and followed the instructions displayed by a purpose build z-tree program (Fischbacher, 2007). Students received no other information about the experiment besides those contained in the on-screen instructions and appendices A and B. The experiment was run 12 times in groups of around 20 students, with 237 participants in total. Participants played individually, without discussions among each other. Students' study disciplines included economics, administration, political science, and other subjects. Each participant was randomly assigned to one of the three treatments at the beginning of the second (post-constitutional) stage of the game. Tables 2 to 4 summarize some characteristics of the sample.

Table 2 Treatments

Treatment	N	Proportion
A	82	34.6%
B	82	34.6%
C	73	30.8%

Table 3 Descriptive statistics (means and standard deviations)

Variable	Means	SD	Min	Max
Age	23.53	2.97	20	42
Semesters of study	3.47	2.69	2	17

Table 4 Descriptive statistics (proportion of individuals in percent)

Variable		Proportion
Woman		37.05%
Year of birth		
	until 1992	23.58%
	1993-1994	18.11%
	1995-1996	30.32%
	1997-1998	28.00%
Work and study		70.32%
Receive Bafög[7]		14.00%
Marital status		
	married	1.68%
	single	94.11%
	other	4.21%
Course of study		
	Economics	64,98%
	Administration	14,77%
	Political science	7,59%
	other	12,66%

3.4. HYPOTHESES:

3.4.1 Time allocation hypotheses

I. Effects on paid working hours: concerning the impact of distribution schemes on paid working hours, the experiment has a more explorative approach. The intention is to empirically investigate one of the central issues of the basic income debate, the effects of basic income on paid work. The primary interest is in a potential difference between treatments A and C concerning the hours invested in paid work. From the perspective of the standard labor supply model, it is unclear how an increase in non-labor income may affect labor supply. This will depend on whether leisure is seen as a normal or an inferior good by an individual (Borjas, 2015, p. 36). Basic income critics often point to the concern that basic income may lead to a withdrawal from the labor market. The objective

[7] Public monetary support for students in need in Germany.

here is to analyze whether the experiment can provide some evidence on this line, or instead in the opposite direction. As there is no redistribution in scenario B, it is expected that the hours allocated to paid work by participants under treatment B will be statistically significantly larger than those assigned by individuals under treatments A and C.

II. Effects on total working hours: here it is hypothesized that when receiving a basic income (C) participants will not invest fewer hours in work than those playing under treatment A when it is counted for both paid and unpaid work together. So, when comparing the hours allocated to paid plus unpaid work in treatments A and C, it is not expected for them to be significantly different from each other. As for the difference to treatment B, there is no directional prediction. The central concern of this hypothesis is the analysis of the effects of basic income on work understood in a broader sense when it is compared to a minimal income scenario (A). In line with basic income literature and arguments put forth by many advocates, it is not necessarily expected that basic income will lead to individuals working less but rather it may lead to people having more freedom in choosing their time allocation, thus being more prone to invest time in unpaid work since they would have a guaranteed income source (van Parijs, 1997; Birnbaum, 2012; Blaschke, 2012; Widerquist, 2013; Standing, 2015; Neumärker, 2018).

3.4.2 Constitutional hypotheses

III. It is expected that the provision of more information in step 4 has no significant effect on the probability of an individual to choose scheme C and that the further explanation about the implications of each scheme has a clarifying role and, therefore, will not have a statistically significant effect on the probability to choose scheme C.

IV. The expectation is that the knowledge on one's own hourly wage will have a statistically significant effect on a participant's probability to choose scheme C. It is hypothesized that the higher the hourly wage one is assigned to, the lower the probability will be of this participant selecting scheme C. This hypothesis is based on the expectation that participants will behave as self-interested individuals once the veil is lifted. So, the veil is used to convert self-interest into justice and, if lifted, it has the opposite effect; it transforms justice into self-interest " (Frohlich et al., 1987, p. 5).

V. The knowledge on one's treatment is expected not to affect the dependent variable. So, the assignment of a participant to a specific treatment should not influence the probability of choosing scheme C. Therefore, the null hypothesis should not be rejected at a statistically significant level for this variable.

3.5. ESTIMATION STRATEGY

Two types of regressions are used to test the hypotheses. The first type is used to test the time allocation hypotheses (I and II) and is expressed by the equation below:

$$Hours_{i,j} = \beta_0 + \beta_1 TreatmentA_i + \beta_2 TreatmentB_i + \alpha x_i + \varepsilon_i \quad (1)$$

In this OLS regression either the number of paid working hours (j = 1) or of paid plus unpaid working hours (j = 2) is the dependent variable, which is denominated $Hours$. The explanatory variables are dummies for each treatment, with treatment C being the base group. Further, it is controlled for the five wage classes of the game, age, and gender, which are represented by x_i, the vector of the control variables. An interaction term between age and gender and age in the quadratic form are also added. α stands for the vector of the coefficients on the control variables,

and ε_i is the error term. The second type is used to test the constitutional hypotheses and is expressed by the two equations below.

$$Cfirst_{i,t} = \beta_0 + \beta_1 MoreInfo_t + \beta_2 Veil_t + \beta_3 Econexp_t + \alpha x_i + \varepsilon_{i,t} \quad (2)$$

$$Cfirst_{i,t} = \beta_0 + \beta_1 MoreInfo_t + \beta_2 w_i + \beta_3 w_i Veil_t + \beta_{43} EconExp_t + \alpha x_i + \varepsilon_{i,t} \quad (3)$$

Both equations represent a probit model, which is used to test the contributions of different independent variables to the probability of an individual choosing scheme C as their priority ($Cfirst$). In the two versions of the model (equations 2 and 3), the choice of scheme C is the dependent variable and is a binary variable. *i* refers to the participant and *t* to the rankings (I, II, III or IV). The explanatory variables are variables that differentiate the moment in which each ranking was made during the game. There are four rankings and therefore, three variables in the model distinguish these rankings.

The first one is *MoreInfo* (more information), which tests if the information on the consequences of the rules (step 4) influenced a person's probability to select C as their first choice. The second variable is related to the effects of the veil of ignorance on choice, i.e., captures the difference between the constitutional (I and II) and post-constitutional (III and IV) rankings. The veil of ignorance is captured by two variables, which are used in two variations of the estimation model. One form is the dummy *Veil* (equation 2), which has the value of one for the first two rankings and the value of zero for the two last ones. The second form (equation 3) is represented by interaction terms between the variable *Veil* and wage classes (*w*), the base group is *Veil* with wage class €8,50. The latter form considers that the effect of *Veil* may differ among the different wage classes. The third variable is *EconExp* (economic experience), which is intended to capture

the possible effects of economic experience between rankings the first three rankings and the last one and IV. An overview with the values of each explanatory variable in each of the rankings can be found in Table 5. It is also controlled for age and gender, which are represented by the vector x_i and their coefficients by α.

Table 5 Description of rankings

Ranking	*MoreInfo*	*Veil*	*EconExp*
I	0	1	0
II	1	1	0
III	1	0	0
IV	1	0	1

4. RESULTS

The results of the experiment are presented in the form of Mann-Whitney tests and regressions. Further, descriptive statistics provide additional information on the collected data.

4.1. TIME ALLOCATION HYPOTHESES

4.1.1. HYPOTHESIS I: Effects on paid working hours

Descriptive statistics of paid working hours for each treatment are depicted in Table 6. The mean was relatively similar among treatments, with treatment B having the highest mean. In Table 7 a Mann-Whitney test was used to evaluate if the means of treatments differ significantly from each other. The first glimpse at this table suggests that just the differences between A/B and B/C were statistically significant. No relevant difference could be found between A/C.

Table 6 Descriptive statistics of paid working hours for each treatment (first allocation period)

Treatment	N	Mean	Median	SD	Min	Max
A	82	35.54	39	8.37	8	48
B	82	38.15	40	6.58	20	48
C	73	34.89	38	10.56	0	48

Table 7 Means and Mann-Whitney test results: paid working hours (first allocation period)

Test	Treatment	Paid working hours	z	p-value
1	A	35.54	2.52	0.01
	B	38.15		
2	A	35.54	0.09	0.93
	C	34.89		
3	B	38.15	2.33	0.02
	C	34.89		

Similar results can be interpreted from a regression (OLS) analysis of different explanatory variables on paid working hours (see Table 8). Model 1 confirmed that participants in treatments A and C invest on average respectively 2 and 2.5 hours less on paid work than those in treatment B. Some controls were also statistically significant as *Age_norm*, *Age_norm²*, and *WAge_norm*. The variable *Age_norm* is a monotonic transformation of the variable *Age*. *Age_norm* grasps the difference in years among the participants. The youngest participant, a 20-year old, was set as 0. Therefore *Age_norm= Age* – 20. *Age_norm* revealed that older individuals tend to invest less time in paid work. *Age_norm²* indicated that this effect is decreasing with the increase of *Age_norm*. Finally, *WAge_norm* (interaction term between *Woman* and *Age_norm*) suggests that the difference in paid working hours between man and woman increase with *Age_norm*. For each year this difference increased by about one hour more for woman.

Table 8 Effects on paid working hours (OLS)

	Paid working hours		*Ln* (paid working hours)	
	(1)	(2)	(3)	(4)
Explanatory variables	Base group (treatment B)	Base group (treatment A)	Base group (treatment B)	Base group (treatment A)
EconExp	0.36	0.36	0.03**	0.03**
	(0.30)	(0.30)	(0.02)	(0.02)
TreatmentA	-2.01*		-0.08**	
	(1.10)		(0.04)	
TreatmentB		2.01*		0.08**
		(1.10)		(0.04)
TreatmentC	-2.51*	-0.50	-0.07*	0.00
	(1.33)	(1.51)	(0.04)	(0.05)
Wage				
€ 13.50	2.05	2.05	0.06	0.06
	(1.65)	(1.65)	(0.05)	(0.05)
€ 18.50	-0.93	-0.93	-0.03	-0.03
	(1.88)	(1.88)	(0.06)	(0.06)
€ 23.50	0.65	0.65	0.01	0.01
	(1.68)	(1.68)	(0.06)	(0.06)
€ 28.50	0.35	0.35	0.00	0.00
	(1.74)	(1.74)	(0.06)	(0.06)
Woman	-2.10	-2.10	-0.06	-0.06
	(1.61)	(1.61)	(0.05)	(0.05)
Age_norm	-1.57***	-1.57***	-0.04***	-0.04***
	(0.41)	(0.41)	(0.01)	(0.01)
Age_norm²	0.08***	0.08***	0.00***	0.00***
	(0.02)	(0.02)	(0.00)	(0.00)
WAge_norm	0.97***	0.97***	0.03**	0.03**
	(0.36)	(0.36)	(0.01)	(0.01)
constant	40.67***	38.66***	3.69***	3.61***
	(1.55)	(1.58)	(0.05)	(0.05)
N	474.00	474.00	470.00	470.00
R^2	0.09	0.09	0.07	0.07
F-statistic (F)	2.89	2.89	2.21	2.21
p-value (F)	0.00	0.00	0.01	0.01

Note: Standard errors are clustered at subject level and given in parentheses.
*Significance levels: * p<0.10, ** p<0.05, *** p<0.01.*

With the aim to account for possible non-linearity in the data, a log version of the OLS equation was also run (see models 3 and 4 in Table 8). This log version produced similar results, except for the control *EconExp*, which turned out to have a statistically significant positive effect on paid hours. Another control was the variable *Wage*, which presented no statistically relevant results. This finding evidences the complexity of the interactions between wage and time invested in paid work. When a wage increases, the opportunity cost of a free hour increases, thus generating an incentive to work longer. At the same time, when a wage increases people have an incentive to work less because they will need to work fewer hours to achieve the same income as before. So, from a purely monetary perspective, the effects of wage on paid working time are not evident. They will depend on whether income or substitution effects are predominant.

4.1.2. HYPOTHESIS II: Effects on total working hours:

The effects on total working time (see Tables 9 to 11) are very similar to those presented in the session above. Almost the same estimators were statistically significant. As for the difference between treatments A and B, this ceased to be statistically significant, suggesting that when unpaid working hours are accounted for, the difference between A and B tends to vanish. The difference between B and C remained statistically significant, but with a lower coefficient (1.95 instead of 2.51). This result is partially in line with the hypothesis that if one accounts for both paid and unpaid working hours, basic income will not necessarily lead to individuals working less.

Table 9 Descriptive statistics of total working hours for each treatment (first allocation period)

Treatment	N	Mean	Median	SD	Min	Max
A	82	38.62	40	7.12	9	48
B	82	41.07	42	5.34	23	48
C	73	38.33	40	8.92	8	48

Table 10 Means and Mann-Whitney test results: total working hours (first allocation period)

Test	Treatment	Total working hours	z	p-value
1	A	38.62	2.36	0.02
	B	41.07		
2	A	38.62	0.07	0.94
	C	38.32		
3	B	41.07	2.18	0.03
	C	38.32		

Table 11 Effects on total working hours (OLS)

	Total working hours		*Ln* (total working hours)	
	(1)	(2)	(3)	(4)
Explanatory variables	Base group (treatment B)	Base group (treatment A)	Base group (treatment B)	Base group (treatment A)
EconExp	0.29	0.29	0.01	0.01
	(0.24)	(0.24)	(0.01)	(0.01)
TreatmentA	-1.43		-0.05	
	(0.90)		(0.03)	
TreatmentB		1.43		0.05
		(0.90)		(0.03)
TreatmentC	-1.95*	-0.52	-0.08*	-0.03
	(1.09)	(1.25)	(0.04)	(0.05)
Wage				
€ 13.50	1.83	1.83	0.07	0.07
	(1.35)	(1.35)	(0.04)	(0.04)
€ 18.50	-0.40	-0.40	-0.01	-0.01
	(1.54)	(1.54)	(0.06)	(0.06)
€ 23.50	1.22	1.22	0.04	0.04
	(1.43)	(1.43)	(0.06)	(0.06)
€ 28.50	0.84	0.84	0.05	0.05
	(1.35)	(1.35)	(0.05)	(0.05)
Woman	-0.98	-0.98	-0.02	-0.02
	(1.32)	(1.32)	(0.04)	(0.04)
Age_norm	-1.02***	-1.02***	-0.03**	-0.03**
	(0.34)	(0.34)	(0.01)	(0.01)
Age_norm²	0.05***	0.05***	0.00***	0.00***
	(0.02)	(0.02)	(0.00)	(0.00)
WAge_norm	0.71**	0.71**	0.02**	0.02**
	(0.29)	(0.29)	(0.01)	(0.01)
constant	41.86***	40.43***	3.72***	3.67***
	(1.33)	(1.25)	(0.04)	(0.04)
N	474.00	474.00	474.00	474.00
R^2	0.08	0.08	0.07	0.07
F-statistic (F)	2.26	2.26	1.93	1.93
p-value (F)	0.01	0.01	0.04	0.04

Note: Standard errors are clustered at subject level and given in parentheses.
*Significance levels: * p<0.10, ** p<0.05, *** p<0.01.*

4.2. CONSTITUTIONAL HYPOTHESES

Here it is evaluated how different factors may interfere in the probability that an individual ranks scheme C as the priority. To test the constitutional hypotheses probit, regressions (see Table 12) were used. Model 1 includes the interaction term *Veil x Wage*. Model 2 includes neither the variable wage nor the interaction *Veil x Wage.* The latter model focuses on the effects of each ranking. Finally, in the third model, just half of the probit data was analyzed; the first and second observations were excluded. This third model functions as a robustness check for the *Wage* effects presented in model 1. In Table 13 there is an overview of the percent of participants who ranked each scheme as first in each of the four rankings. Tables 14 and 16 show participants' first option for each hourly wage and Tables 15 and 17 indicate participants' first option for each treatment.

Table 12 Probability of choosing scheme C as the first option (probit)

Explanatory variables	Dependent variable: *Cfirst*					
	Model 1		Model 2		Model 3	
	ME	SE	ME	SE	ME	SE
MoreInfo	0.23***	(0.03)	0.24***	(0.03)		
Veil x Wage						
Veil x € 8.50	-0.06	(0.05)				
Veil x € 13.50	0.00	(0.06)				
Veil x € 18.50	0.13***	(0.04)				
Veil x € 23.50	0.21***	(0.06)				
Veil x € 28.50	0.26***	(0.06)				
Veil			0.10***	(0.03)		
Wage						
€ 13.50	-0.08	(0.08)			-0.08	(0.08)
€ 18.50	-0.13*	(0.07)			-0.12*	(0.07)
€ 23.50	-0.25***	(0.07)			-0.26***	(0.07)
€ 28.50	-0.34***	(0.07)			-0.34***	(0.07)
EconExp	-0.01	(0.02)	-0.00	(0.02)	-0.01	(0.02)
Age	0.01	(0.01)	0.00	(0.01)	0.01	(0.01)
Woman	0.38	(0.35)	0.22	(0.36)	0.09	(0.46)
Age x Woman	-0.02	(0.02)	-0.01	(0.02)	-0.00	(0.02)
TreatmentA					-0.12*	(0.06)
TreatmentB					-0.11*	(0.06)
N	948.00		948.00		474.00	

*Notes: The values shown in the table are the marginal effects of each variable and not the coefficients. Standard errors are clustered at subject level and given in parentheses. Significance levels: * p<0.10, ** p<0.05, *** p<0.01.*

Table 13 Participants' first option by ranking (in percent)

Ranking	Scheme A	Scheme B	Scheme C
I	65,4%	20,7%	13,9%
II	38,4%	24,1%	37,6%
III	31,2%	42,6%	26,2%
IV	30,4%	43,9%	25,7%

Table 14 Participants' first option in ranking III by wage (in percent)

Hourly wage	Scheme A	Scheme B	Scheme C
8,50 €	30%	28%	42%
13,50 €	40%	26%	34%
18,50 €	35%	35%	29%
23,50 €	25%	59%	16%
28,50 €	28%	61%	11%

Table 15 Participants' first option in ranking III by treatment (in percent)

Treatment	Scheme A	Scheme B	Scheme C
A	34%	44%	22%
B	30%	45%	24%
C	29%	38%	33%

Table 16 Participants' first option in ranking IV by wage (in percent)

Hourly wage	Scheme A	Scheme B	Scheme C
8,50 €	34%	21%	45%
13,50 €	37%	31%	31%
18,50 €	29%	43%	27%
23,50 €	30%	55%	16%
28,50 €	24%	67%	9%

Table 17 Participants' first option in ranking IV by treatment (in percent)

Treatment	Scheme A	Scheme B	Scheme C
A	34%	44%	22%
B	26%	52%	22%
C	32%	34%	34%

4.2.1. HYPOTHESIS III

Table 12 shows that the term *MoreInfo* is statistically highly significant ($p < 0.01$) in both models 1 and 2. Concerning the effect magnitude of *MoreInfo*, its marginal effect on the probability of an individual to choose C as the first option is 0.23. That means that after individuals received more information about the different schemes, the probability that they choose C as the first

option increased on average by about 23 percentage points. This result contradicts the hypothesis that more information would have a clarifying role and could be attributed to a preference for more progressive redistribution systems. The information provided in step 2 concerns solely the general redistribution rules for each scheme. In this part, it is not clear what happens when taxation and social payments are jointly analyzed. In step 4 this becomes clearer when the gross and net income for different income levels are estimated for participants. Then, participants can see that scheme C also entails progressivity, which was probably not clear for most of them in stage 2. The access to this information can potentially explain why so many participants changed their mind.

4.2.2. HYPOTHESIS IV

The probit regression confirmed that individuals with higher hourly wages are less prone to choose scheme C as their priority. When one observes the marginal effects of wage dummies (wage € 8.50 is the base groups), one perceives that they are consistently negative and increasing in absolute terms with the hourly wage. Almost all wage dummies were statistically significant (besides the first one).

The interaction term *Veil x Wage* aims to depict how participants behaved when they did not know about their *Wage*, i.e., under the veil. The marginal effects of the interaction terms (see Table 11) show that compared to the scenarios where participants did know about their *Wage*, those with higher wages (€ 18.50, € 23.50, € 28.50) were more prone to choose C as their first choice under the *Veil*. Moreover, these marginal effects are statistically highly significant ($p<0.01$). These results point to a self-interest-oriented behavior of individuals, as participants were less prone to choose C the higher their wage turned out to be.

4.2.3. HYPOTHESIS V

The regression results did not confirm this hypothesis. The results of model 3 (Table 11) point to the fact that the treatment participants played in had a statistically relevant influence ($p<0.10$) on their probability to choose C. Those participants who were assigned to treatments A and B were less prone to pick C as their preferred scheme than those in treatment C (see also Tables 15 and 17), i.e. the experience one has within the treatment C tends to influence the choice of C as the preferred scheme positively.

4.3. DISCUSSION

Inherent selection bias is part of this sample as a particular group solely constitutes it. So, any extrapolation of results for the general population should be made with extreme care. On the other hand, the fact that all participants are students and most do not have paid work as their primary activity helps to avoid a bias in the experiment towards real earnings. People who have paid work as their core activity would most probably tend to use their real wage as a reference point, what would potentially bias the preferences stated in the game.

Another potential drawback of the experiment is related to the fact that stated and not revealed preferences are measured, which are not necessarily the same (Hayo and Neumeier, 2017, p. 3). Despite this fact, many survey experiments have been done in the last years (Hainmueller et al., 2014, p. 27), which corroborates the important role played by this methodology. The use of such surveys, which are based on stated preferences, is grounded on the assumption that people are willing and able to report their attitudes (Holbrook, 2012; Runst, 2017). Lab experiments often employ money as an incentive for participants to reveal their preferences. Nevertheless, there is no evidence that such an incentive is necessary. Usually, people can put themselves in

hypothetical situations and "starting a question with imagine that …" achieves a focus similar to one created by a small monetary incentive (Barbara et al., 2017, p. 599; Rubinstein, 2013).

Concerning the regressions of the time allocation part of the game (OLS), these contained heteroscedasticity. Therefore, heteroscedasticity robust standard errors were used in these regressions. Still, it is important to discuss where this bias may come from. One possible explanation is a reference point bias. It seems that there is something like a "natural reference point" for the allocation of hours to paid work. As people usually work around 40 hours a week, participants may have tended to choose a number close to this. One possible explanation is the existence of a hidden social norm that influences the participant's choice and that just a few tended to deviate from it. Further, the reference point may also have affected the participants' option in the first ranking, where they tended to prefer treatment A, which represents the welfare state in which they live. As they are familiar with this system, it may be that they tended to prefer this one in the beginning because it implicitly represented the status quo. In the experiment, no explicit statement related A to the status quo system in Germany.

For further research, the experiment should be replicated with more heterogeneous groups. It would be a crucial test for the external validity of results, to find out if other groups present similar patterns of behavior and if not, how do they differ. The experiment was designed in a way that enables uncomplicated replicability. Another improvement possibility concerns the investigation of the influence of other variables on an individual's preferred redistribution system and time allocation. Potentially other personal, cultural, social and economic characteristics may help to explain individuals' preferences. It would also be interesting to test other basic income proposals with the method presented in this paper.

5. SUMMARY AND POLICY IMPLICATIONS

The results for the constitutional part show, firstly, that the manner in which information is framed and the amount of information one has access to can considerably influence the choice and acceptance of reforms. How a reform is described and presented plays a central role in the willingness of citizens to accept it, as can be derived from the effects of *MoreInfo*. Thus, "how a UBI scheme is presented and framed in the political agenda, and how its implementation is phased in, may well decide people's attitude toward the proposal" (Noguera and Wispelaere, 2006, p. 6). Consequently, a certain degree of complexity should not be ruled out of debates on social security and taxation systems, otherwise many erroneous conclusions and impressions may be taken. Secondly, self-interest has also been detected as a critical determinant. As the variable *Wage* reveals in the constitutional part of the experiment, the higher the wage, the lower the probability that a participant would select scheme C as the first choice. This finding expresses the value of the constitutional economic approach in the research design, which enabled the identification of self-interest's role. Thirdly, another interesting result was the fact that economic experience within a redistribution scheme positively affected participants' preference towards this same scheme, suggesting that familiarity with a scheme may influence individuals' propensity to choose it.

As for the time allocation part, no significant difference in the paid working hours between schemes A and C could be found, indicating that the tested basic income had no effect on the hours allocated to paid work. For the social security debate, this finding provides evidence that a basic income on the level tested would probably not structurally affect the labor market decisions of people already employed. Additionally, evidence was provided that different kinds of reference points affect preferences on time allocation. Among them are expectations that

participants may have on how many hours they would like to work. These expectations are probably connected to what is usual in their social sphere and to what the surrounding social norms describe as acceptable and desirable working hours. Consequently, the effects of redistributions systems on paid work time may not be as significant as expected due to social norms and related expectations.

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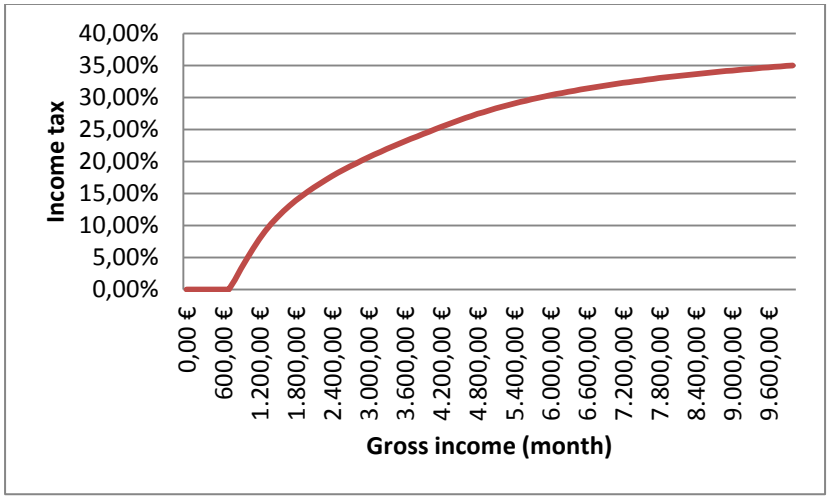
APPENDIX A

Presentation of three redistribution schemes

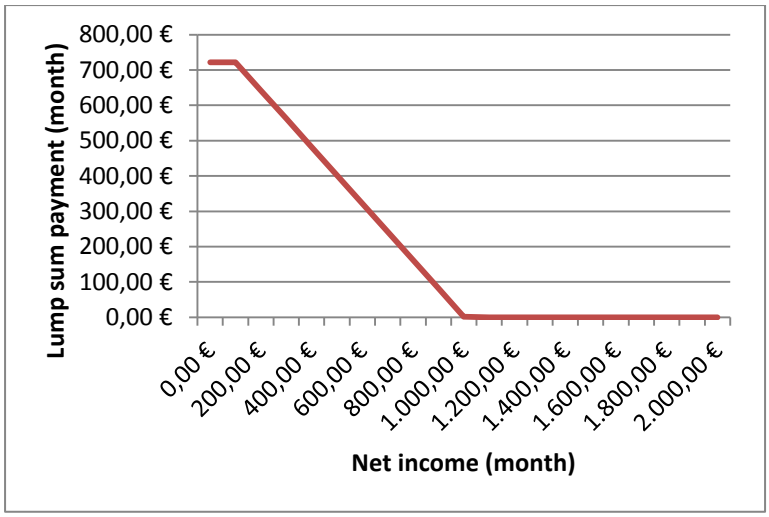
Scheme A

Income tax[8]: is dependent on gross income (see function below).



Social contribution: 1,5% on the gross income that exceeds 450€.

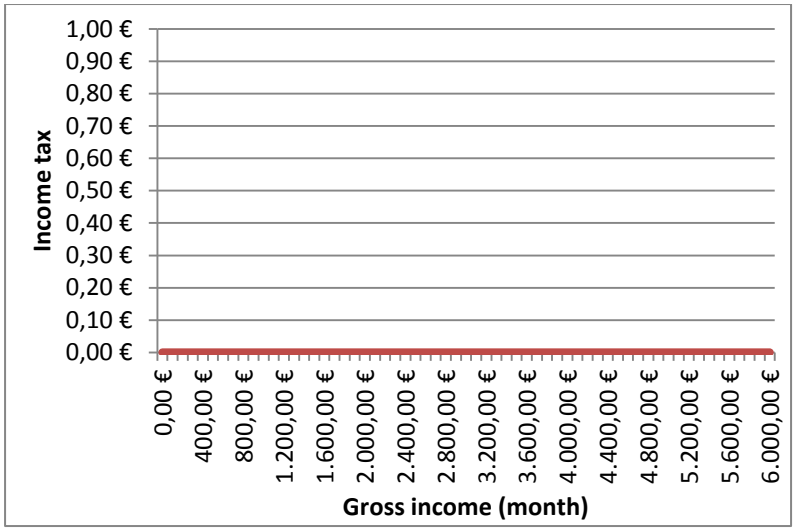
Redistribution rule: every person with a net income up to 1000€/month receives a lump sum payment on top of their net income. However, the bigger the net income, the lower the lump sum payment. Beginning with a net income of 100€/month the lump sum payment decreases continuously from 722€/month until it reaches 0€/month.



[8] Always when income tax in mentioned this text, we mean average income taxes.

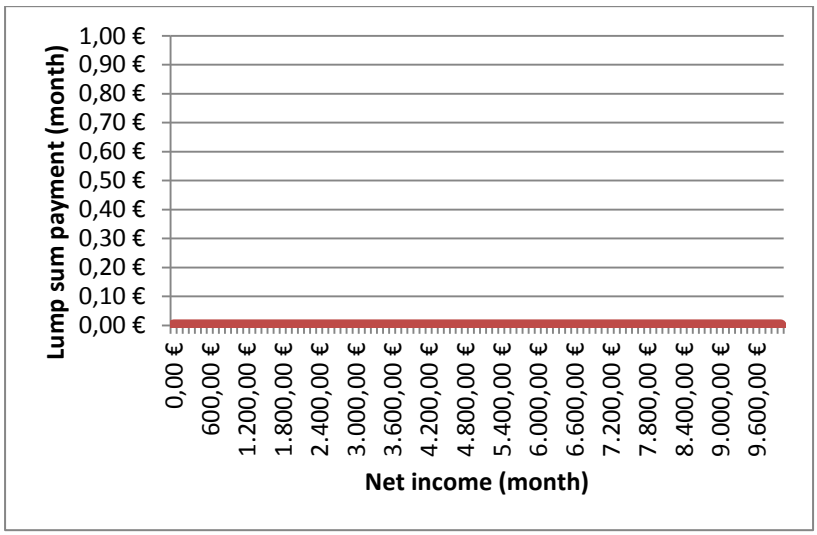
Scheme B

Income tax: no income taxation.



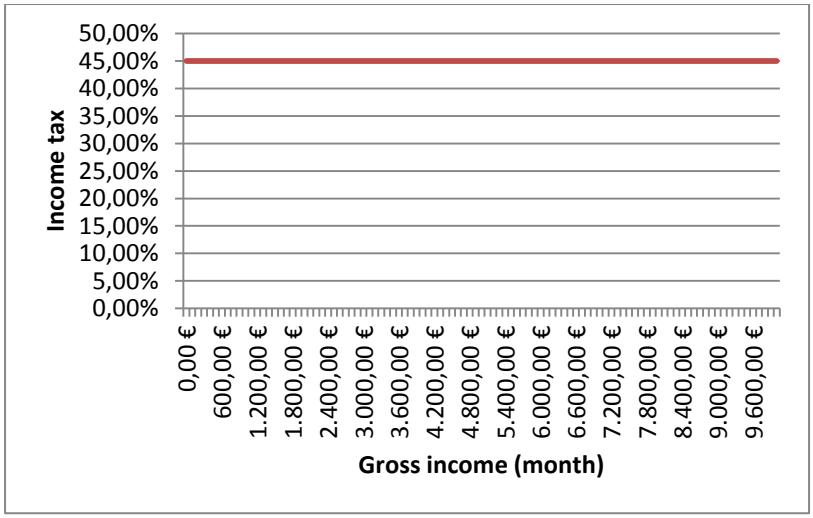
Social contribution: no social contribution.

Redistribution rule: no redistribution through income taxation.



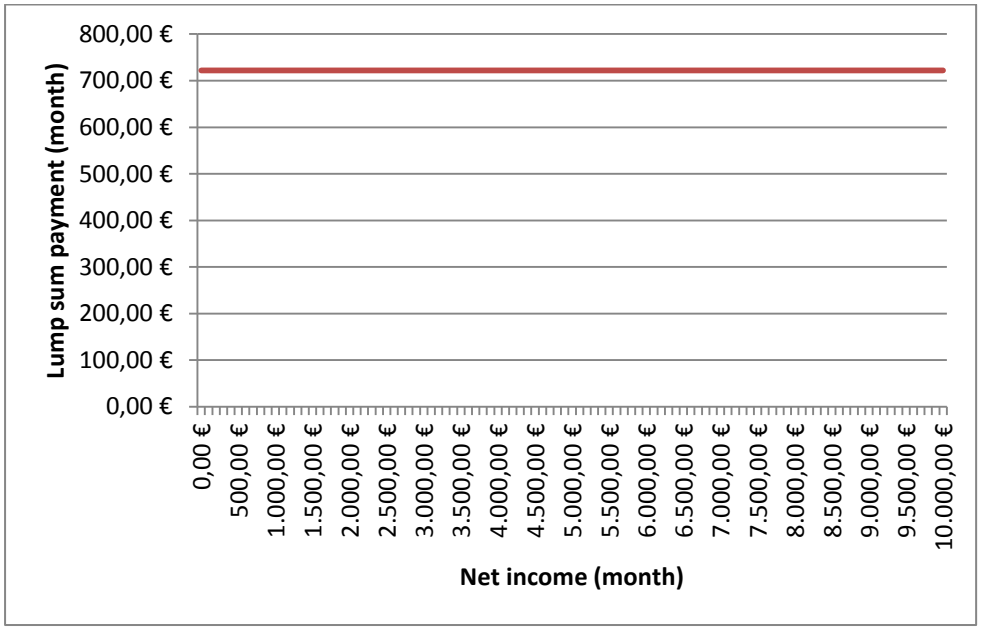
Scheme C

Income tax: every person (independent of the net and gross income) pays a 45% flat tax.



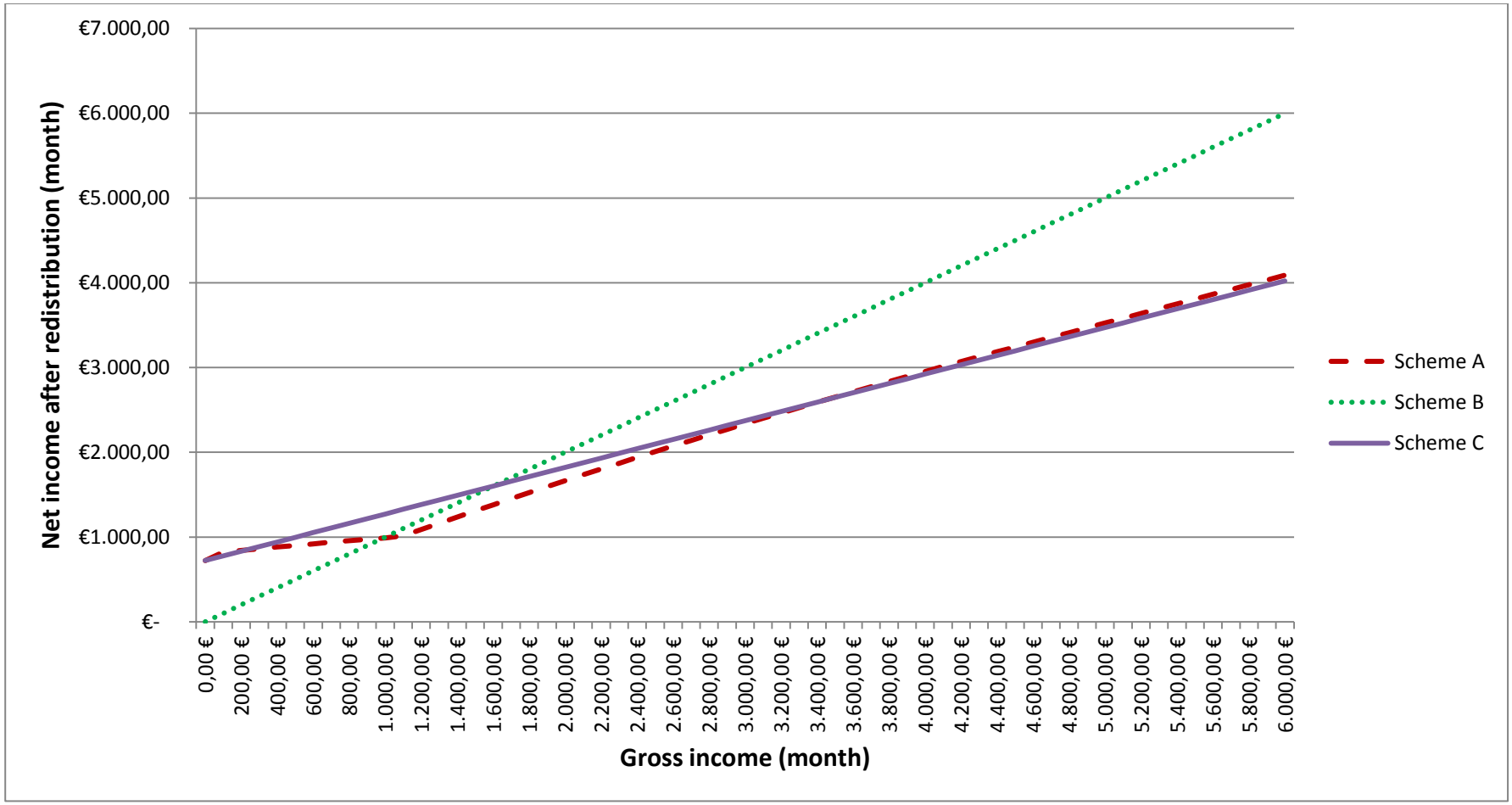
Social contribution: is included in the income tax.

Redistribution rule: every person (independent of the net and gross income) receives 722 €/month lump sum payment on top of their net income.



APPENDIX B

Net income after redistribution: schemes A, B and C (graph)



Net income after redistribution: schemes A, B and C (table)

Income class	Gross income (month)	Net income after redistribution (month)		
		Scheme A	*Scheme B*	*Scheme C*
1	0,00 €	722,00 €	0,00 €	722,00 €
2	200,00 €	842,00 €	200,00 €	832,00 €
3	400,00 €	882,00 €	400,00 €	942,00 €
4	700,00 €	939,90 €	700,00 €	1.107,00 €
5	1.000,00 €	989,33 €	1.000,00 €	1.272,00 €
6	1.500,00 €	1.308,09 €	1.500,00 €	1.547,00 €
7	2.000,00 €	1.664,22 €	2.000,00 €	1.822,00 €
8	3.000,00 €	2.335,90 €	3.000,00 €	2.372,00 €
9	4.000,00 €	2.953,48 €	4.000,00 €	2.922,00 €
10	6.000,00 €	4.089,51 €	6.000,00 €	4.022,00 €
11	8.000,00 €	5.246,51 €	8.000,00 €	5.122,00 €
12	10.000,00 €	6.406,51 €	10.000,00 €	6.222,00 €
Average income		2.364,95 €	3.066,67 €	2.408,67 €
Income distance between 1 and 12		5.684,51 €	10.000,00 €	5.500,00 €